GEOSUB
PROSPECÇÃO,GEOMÁTICA E AMBIENTE, LDA.

Campanha de Amostragem Vertical e Caracterização Físico-Química de Sedimentos levada a cabo no Porto de Leixões

Trabalho realizado no âmbito dos Estudos para Prolongamento do Quebra-Mar Exterior e Acessibilidades Marítimas do Porto de Leixões

Trabalho realizado para:

APDL
ADMINISTRAÇÃO DOS PORTOS DO DOURO, LEIXÕES E VIANA DO CASTELO

Relatório Técnico Final – RTF 007SED/2017

Setembro 2017

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1. INTRODUÇÃO

1.1. Enquadramento e objetivos

No âmbito do projecto de Prolongamento do Quebra-mar Exterior do Porto de Leixões e das Acessibilidades Marítimas, estão previstas obras marítimas, nomeadamente dragagens. De acordo com a legislação vigente, nomeadamente a Portaria 1450/2007 de 12 de Novembro, houve necesidade de se proceder a uma campanha de Amostragem vertical de sedimentos até às cotas de dragagem previstas no Projecto e na sequência desta a caracterização físico-química dos sedimentos através ensaios laboratoriais, para avaliação da qualidade dos mesmos.

Este trabalho insere-se num pacote de estudos adjudicados à GEOSUB- Prospecção, Geomática e Ambiente, Lda pela APDL – Administração dos Portos do Douro, Leixões e Viana do Castelo, S.A, após Consulta para Ajuste Directo AD_0112/2017 para Aquisição de Serviços de Prospeção Geofísica e de Arqueologia Subaquática, Caracterização FísicoQuímica de Sedimentos, Caracterização da Qualidade das Águas Superficiais, Caracterização da Macrofauna Bentónica e Levantamento Tridimensional no Porto de Leixões e Área Envolvente.

O presente relatório descreve os métodos e os meios usados na campanha de amostragem de sedimentos, indica os métodos analíticos seguidos pelo laboratório da empresa ALS-CONTROLVET, SA., sub-contratado para o efeito, e apresenta e discute os resultados analíticos, nos termos da Portaria 1450/2007 de 12 de Novembro. Indica ainda o grau de contaminação das amostras de sedimento colhidas e apresenta os mapas da distribuição da contaminação.

1.2. Estações de amostragem

Nos trabalhos de campo procedeu-se a amostragem vertical de sedimentos em 19 estações de amostragem. As posições das estações de amostragem bem como as cotas a atingir através da amostragem, foram definidas nas Especificações técnicas do Caderno de Encargos da já anteriormente referida Consulta para Ajuste Directo AD_0112/2017.

A figura 1 apresenta o esquema de localização das estações de amostragem.

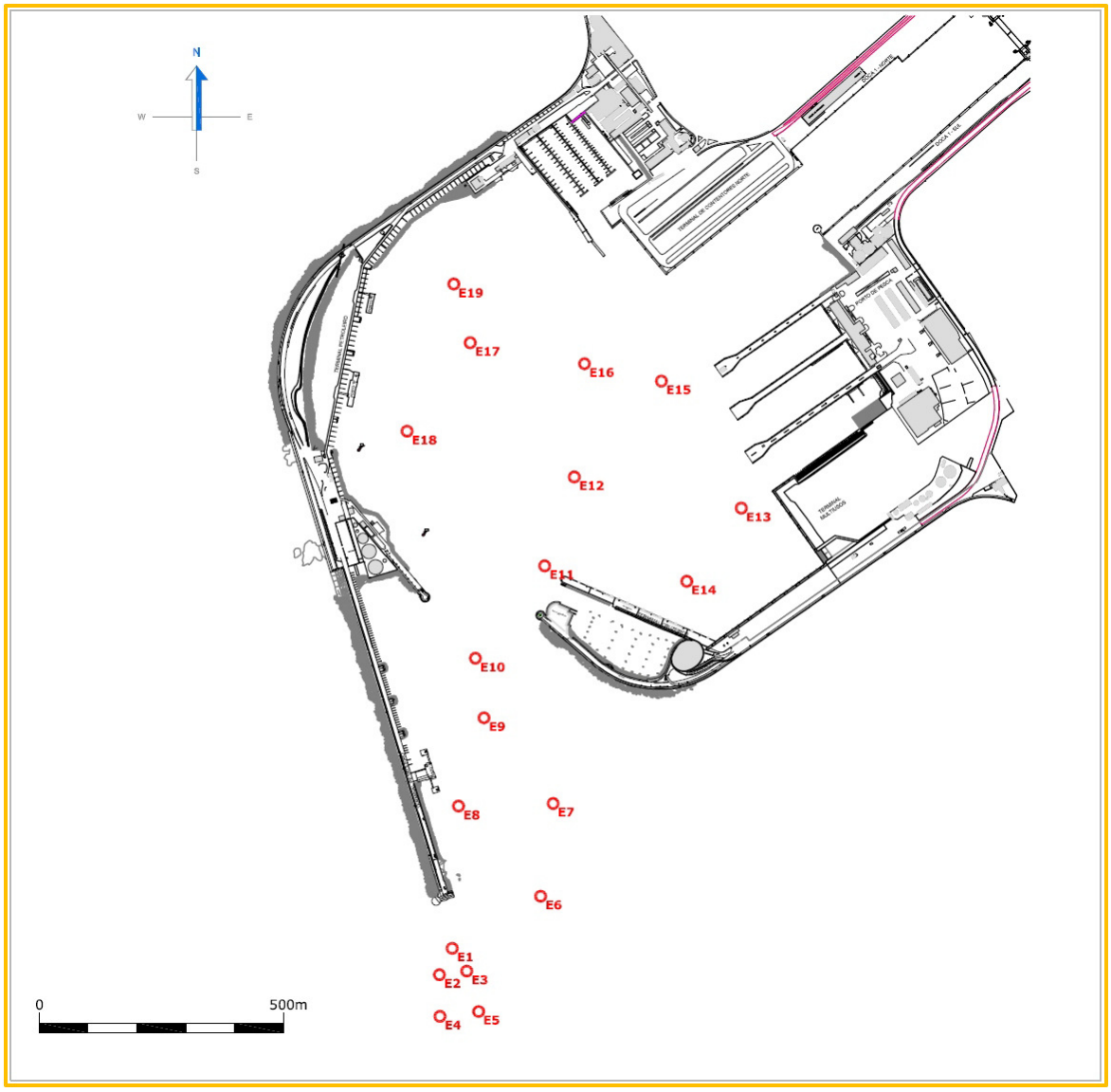


Fig. 1 – Distribuição das estações de amostragem de vertical de sedimentos no Porto de Leixões

Na tabela I é apresentada a relação das estações de amostragem, as respectivas coordenadas, a cota da superfície do fundo, a cota de amostragem planeada, cota efectivamente atingida e o número de amostras (sub-amostras) colhidas em cada estação.

Tabela I – Síntese da campanha de amostragem vertical de sedimentos – As estações e as suas coordenadas.

Estação	Coordenadas Geográficas WGS84		Coordenadas rectangulares Datm73		Cota da superfície do fundo ao ZHL	Espessura prevista (m) (Nº Subamostras)	Espessura amostrada (m)	Nº amostras da estação
	Lat	Long	M	P				
E1	41°10'18.39"N	8°42'27.85"W	-48219,02	167116,16	-13.7m	5	4.7	5
E2	41°10'16.64"N	8°42'28.96"W	-48245,25	167062,34	-15.0m	5	4	4
E3	41°10'16.89"N	8°42'26.56"W	-48189,26	167069,69	-15.1m	5	3.9	4
E4	41°10'13.87"N	8°42'28.89"W	-48244,19	166976,88	-17.2m	3	3	3
E5	41°10'14.21"N	8°42'25.50"W	-48165,09	166986,85	-16.9m	3	2.6	3
E6	41°10'21.89"N	8°42'20.11"W	-48037,89	167222,94	-15.9m	1	1	1
E7	41°10'28.05"N	8°42'19.07"W	-48012,39	167412,82	-14.8m	2	2	2
E8	41°10'27.84"N	8°42'27.38"W	-48206,14	167407,62	-15.3m	2	2	2
E9	41°10'33.71"N	8°42'25.19"W	-48153,89	167588,37	-16.3m	1	1	1
E10	41°10'37.66"N	8°42'25.98"W	-48171,50	167710,35	-14.5m	2	2	2
E11	41°10'43.82"N	8°42'19.95"W	-48029,70	167899,45	-11.8m	4	3.3	4
E12	41°10'49.74"N	8°42'17.40"W	-47969,06	168081,69	-11.7m	4	4	4
E13	41°10'47.74"N	8°42'02.71"W	-47627,08	168017,75	-10.0m	Superficial	0.3	1
E14	41°10'42.86"N	8°42'07.46"W	-47738,78	167867,92	-10.3m	Superficial	0.3	1
E15	41°10'56.14"N	8°42'09.80"W	-47790,63	168277,97	-11.3m	4	1	1
E16	41°10'57.26"N	8°42'16.57"W	-47948,19	168313,55	-11.9m	1	1	1
E17	41°10'58.60"N	8°42'26.62"W	-48182,15	168356,44	-10.2m	Superficial	0.3	1
E18	41°10'52.70"N	8°42'32.12"W	-48311,54	168175,27	-10.7m	Superficial	0.3	1
E19	41°11'2.49"N	8°42'28.10"W	-48215,85	168476,67	-5.9m	2	0.6	1

As posições são apresentadas tanto em coordenadas geográficas, Elipsóide WGS84, tal como definidas nas Especificações Técnicas, como em coordenadas rectangulares Datum 73, tal como devem ser apresentadas todas as peças cartográficas do presente trabalho.

2. EXECUÇÃO

2.1 Data e Período da Campanha

Os trabalhos de amostragem de sedimentos levados a cabo no Porto de Leixões por equipa de cinco mergulhadores decorreram de 17 a 27 de Julho de 2017.

Ao longo desse período, apesar de ser Verão, houve por diversas vezes necessidade de interromper os trabalhos devido a más condições do estado do Mar, que afectaream principalmente os trabalhos nas estações situadas no exterior da bacia portuária.

A metodologia empregue, obrigava a que o amostrador de sedimentos de operação subaquática, estivesse ligado por mangueiras a uma unidade hidráulica instalada a bordo da embarcação. Com agitação marítima mais significativa, os trabalhos que requeriam estabilidade da embarcação na vertical da estação no fundo, tornavam-se impossíveis.

O normal tráfego marítimo de entrada e saída de navios do Porto de Leixões também obrigou a diversas interrupções dos trabalhos de amostragem de sedimentos, pelo que não foi possível uma progressão mais célere da campanha.

2.2. Meios envolvidos

2.2.1. Meios humanos

A campanha de amostragem de sedimentos foi realizada por uma equipa de cinco mergulhadores e um patrão para a embarcação que, para além da navegação e manobra, também assegurou o posicionamento das estações.

Fig. 2 – Equipa a bordo da embarcação da GEOSUB.

Na fase analítica, os trabalhos foram conduzidos por uma engenheira química e uma equipa de vários técnicos do laboratório ALS – CONTROLVET.

2.2.2. Meios materiais

2.2.2.1. Um receptor GPS/GLONASS GARMIN Montana 650, para posicionamento das estações de amostragem;

2.2.2.2. Ecosonda SONARMITE 210kHz para controlo da profundidade;

2.2.2.3. Um amostrador vertical de sedimentos, de progressão por percussão, de operação subaquática, ligado a um martelo pneumático accionado por unidade hidráulica à superfície, instalada a bordo da embarcação.

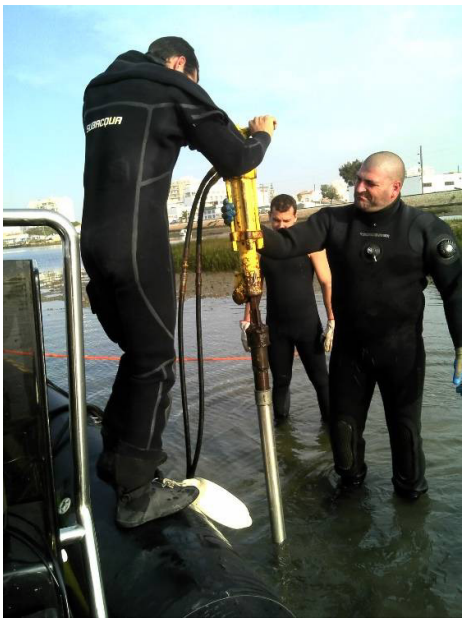


Fig. 3 – O mesmo amostrador vertical de sedimentos a ser usado num outro trabalho da GEOSUB
(ao contrário do que se observa na imagem, no presente trabalho de Leixões todas as amostras foram colhidas por mergulhadores em imersão).

2.2.2.4. Uma unidade hidráulica instalada a bordo da embarcação;

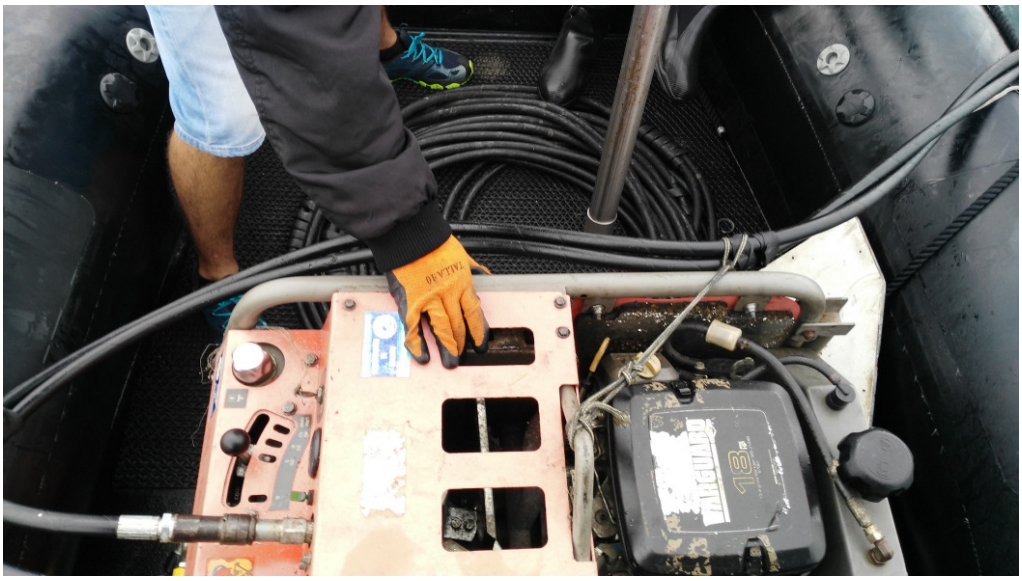
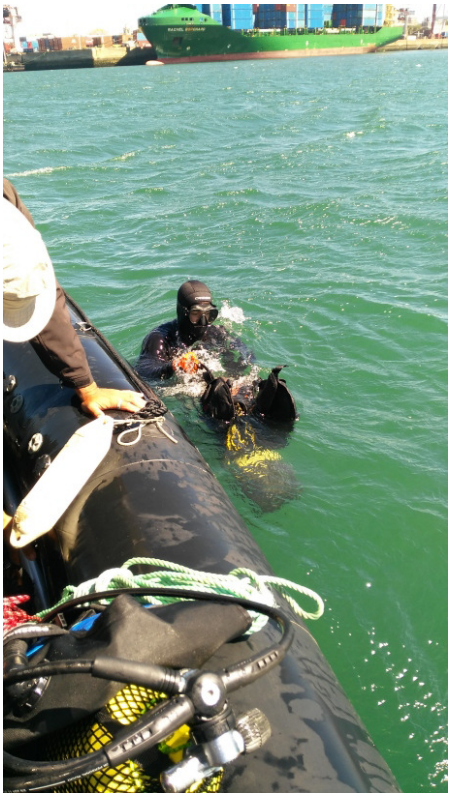


Fig. 4 – Unidade hidráulica para accionamento do martelo pneumático.

2.2.2.5. Cinco conjuntos completos de mergulho autónomo;

2.2.2.6. Material para acondicionamento das amostras (Sacos de plástico, malas térmicas e acumuladores congelados), fornecido pelo laboratório;

2.2.2.7. Embarcação semi-rígida com 6 metros comprimento e motor fora de borda 90 hP;



Figs.5 e 6 – Embarcação com unidade hidráulica e equipamentos e Aspecto do decorrer dos trabalhos de mergulho.

2.2.2.8. Duas viaturas ligeiras, mistas.

2.3. Os trabalhos de amostragem

A campanha de caracterização de sedimentos compreendeu a recolha de amostras em 19 estações de amostragem distribuídas por duas zonas principais:

- Zona Interior da bacia portuária;
- Zona Exterior, situada no prolongamento do Quebra-mar exterior.

Para a realização da campanha foi utilizado um amostrador vertical de sedimentos, de progressão por percussão, de operação subaquática, ligado a um martelo pneumático acionado por unidade hidráulica à superfície.

As colheitas dos testemunhos de sondagem foram realizadas até o amostrador, que progride verticalmente nos sedimentos, não conseguir prosseguir o seu curso vertical, por encontrar obstáculo, correspondente a unidade litológica consolidada de maior dureza.

Conforme previsto nas Especificações Técnicas do trabalho, a realização da campanha de recolha de amostras de sedimentos, nomeadamente o comprimento das sondagens, está intrinsecamente dependente da espessura da cobertura sedimentar. De facto, há estações em que o número de amostras previstas não corresponde ao que efetivamente se conseguiu colher, pois não foi possível atingir-se níveis mais profundos.

As coordenadas e o comprimento (previsto e real) das sondagens são apresentados na Tabela I (pág.5).

A partir de cada testemunho de sondagem da coluna sedimentar, colhido em cada estação, foram selecionadas amostras compósitas representativas do secionamento de estratos de 1 m, com os acertos necessários em função da coluna sedimentar a amostrar, e garantindo as quantidades necessárias de material para análise laboratorial.

Na figura seguinte apresenta-se o esquema explicativo da amostragem vertical abaixo da cota da superfície do fundo marinho.

As subamostras selecionadas para análise laboratorial foram designadas pelo nome da Estação de amostragem (E#) seguido de uma letra (A,B,C,D ou E), correspondente ao nível de penetração do amostrador a que corresponde (conforme exemplificado na figura à direita).

A título de exemplo refira-se que a amostra E1D, corresponde ao sedimento colhido na Estação E1, no nível D, entre os 3 e 4 metros de espessura abaixo da superfície do fundo marinho. Do mesmo modo, a amostra E8B, corresponde à amostra colhida na estação E8, no Nível B, entre os 1 e 2 metros de espessura abaixo da superfície do fundo marinho.

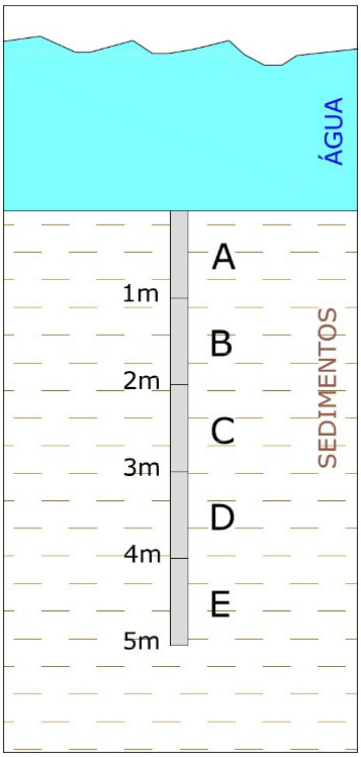


Fig. 7 – Esquema da reeferenciação vertical das amostras em cada estação.

Fig. 8 – Aspecto da retirada do liner cheio de sedimento, do amostrador.

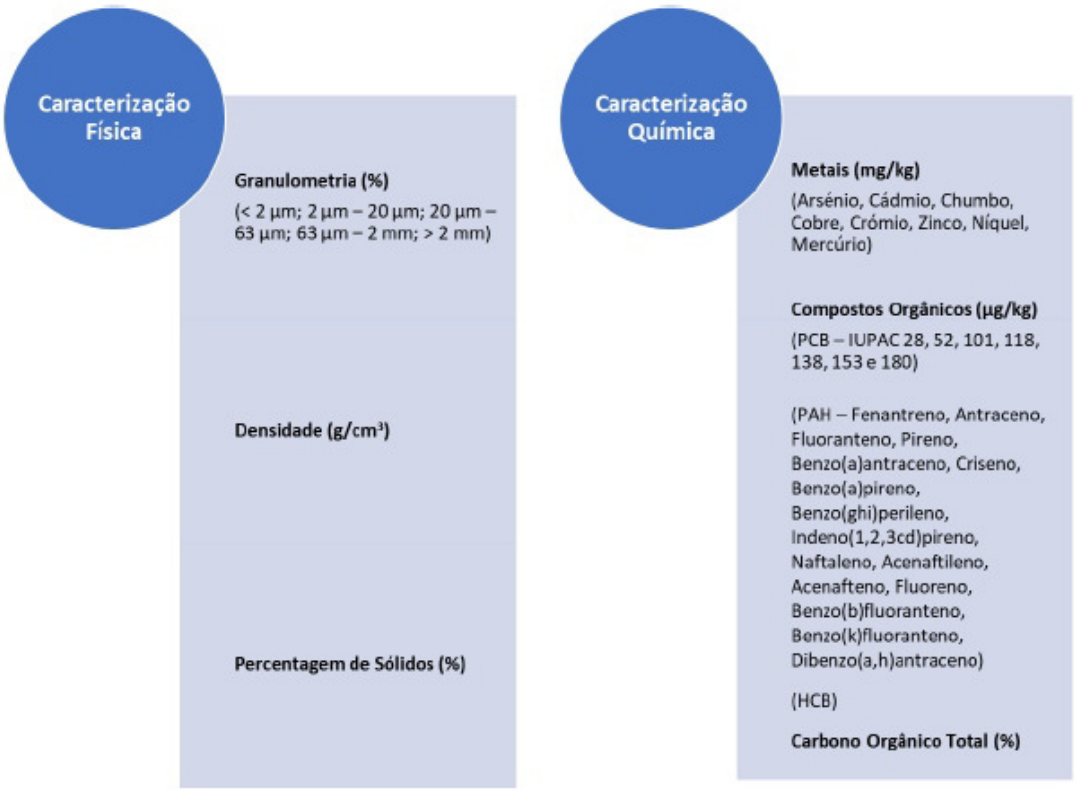
Fig. 9 – Recolha de amostra para saco plástico “cristal” após ser retirada do liner do amostrador.

O material de acondicionamento das amostras de sedimentos, composto por sacos de plástico “cristal” e malas térmicas com acumuladores congelados, foi todo preparado e fornecido em Leixões pelo Laboratório ALS-CONTROLVET.

Logo após o final das colheitas, os sacos contendo as amostras, devidamente etiquetados e referenciados, foram acondicionados em malas térmicas. Estas, ao final de cada dia, foram recolhidas por estafeta enviado pelo Laboratório ALS – Controlvet, que transportou as malas térmicas para o laboratório, para se iniciarem os processos analíticos das amostras.

2.4. As Análises laboratoriais

Os parâmetros determinados para a caracterização físico-química dos sedimentos foram os seguintes:



De acordo com a Portaria nº 1450/2007 de 12 de novembro, as análises químicas devem ser efetuadas na fração sedimentar com dimensão granulométrica inferior a 2 mm, ou seja, nos sedimentos com granulometria abaixo dos seixos. A separação das frações granulométricas com dimensão superior e inferior a 2 mm foi realizada com recurso a um peneiro com malha de 2 mm.

Seguidamente, na Tabela II apresentam-se os métodos e normas utilizados nas determinações físico-químicas dos sedimentos, assim como os limites de deteção e quantificação de cada parâmetro.

Tabela II – Métodos/Normas para as determinações físico-químicas dos sedimentos e indicação dos respetivos limites de deteção e de quantificação

Parâmetro	Método	LD[1]	LQ[2]	Unidades
Granulometria	BS ISO 11277:2009	0,033	0,1	%
Densidade	CSN EN 1936	0,0033	0,01	g/cm3
Percentagem de sólidos	CSN ISO 11465	0,033	0,1	%
Pb	CSN EN ISO 11885	1,67	5	mg/kg MS
Cr	CSN EN ISO 11885	0,17	0,5	mg/kg MS
Cu	CSN EN ISO 11885	0,17	0,5	mg/kg MS
Zn	CSN EN ISO 11885	0,17	0,5	mg/kg MS
As	CSN EN ISO 11885	1,67	5	mg/kg MS
Cd	CSN EN ISO 11885	0,13	0,4	mg/kg MS
Ni	CSN EN ISO 11885	0,17	0,5	mg/kg MS
Hg	CSN 75 7440, CSN 46 5735	0,03	0,1	mg/kg MS
PCB 28	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 52	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 101	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 118	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 138	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 153	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB 180	US EPA 429, US EPA 1668, US EPA 3550	0,23	0,7	µg/kg MS
PCB total	US EPA 429, US EPA 1668, US EPA 3550	1,63	4,9	µg/kg MS
Benzo(a)pireno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Indeno(1,2,3-cd)pireno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Benzo(ghi)perileno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Fluoranteno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Benzo(a)antraceno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Pireno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Criseno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Fenantreno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Antraceno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Naftaleno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Acenaftileno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Acenafteno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Fluoreno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Benzo(b)fluoranteno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Benzo(k)fluoranteno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
Dibenzo(a,h)antraceno	US EPA 429, US EPA 1668, US EPA 3550	3,33	10	µg/kg MS
PAH total	US EPA 429, US EPA 1668, US EPA 3550	53,33	160	µg/kg MS
HCB	US EPA 429, US EPA 1668, US EPA 3550	0,17	0,5	µg/kg MS
Carbono Orgânico Total	CSN ISO 10694, CSN EN 13137, CSN EN 15936	0,0033	0,01	% MS

Notas: 1 – Limite de Deteção; 2 – Limite de Quantificação

3. APRESENTAÇÃO E DISCUSSÃO DE RESULTADOS

3.1. Parâmetros Físicos

Na Tabela III apresentam-se os resultados analíticos de granulometria para as amostras de sedimentos avaliadas, bem como outros parâmetros físicos – teor em sólidos e densidade das partículas sólidas.

Tabela III – Resultados das análises físicas às amostras de sedimentos

Estação	Amostra	Densidade das partículas sólidas (g/cm^3)	% sólidos	% seixo	% areia	% silte	% argila
E1	E1A	2,59	80,1	1,0	98,6	0,4	<0,1
	E1B	2,62	79,1	0,7	99,0	0,2	<0,1
	E1C	2,66	77,0	1,5	97,9	0,5	<0,1
	E1D	2,38	78,6	0,5	98,4	1,0	<0,1
	E1E	2,52	76,4	1,2	97,0	1,5	0,1
E2	E2A	2,51	81,5	0,2	99,6	<0,2	<0,1
	E2B	2,54	81,7	<0,1	99,9	<0,1	<0,1
	E2C	2,55	80,6	0,1	99,6	0,2	<0,1
	E2D	2,57	78,2	0,1	99,7	<0,2	<0,1
E3	E3A	2,64	81,5	0,2	99,7	<0,2	<0,1
	E3B	2,43	80,0	0,8	99,0	<0,2	<0,1
	E3C	2,54	81,8	0,2	99,7	<0,2	<0,1
	E3D	2,65	80,9	0,4	99,5	<0,2	<0,1
E4	E4A	2,61	79,8	<0,1	99,6	0,4	<0,1
	E4B	2,65	79,7	0,2	99,3	0,5	<0,1
	E4C	2,68	77,9	<0,1	98,5	1,3	<0,1
E5	E5A	2,63	77,8	0,1	98,8	1,1	<0,1
	E5B	2,67	76,1	0,4	92,3	7,1	0,2
	E5C	2,71	74,1	0,5	96,2	3,2	<0,1
E6	E6	2,89	66,4	<0,1	86,2	13,4	0,4
E7	E7A	2,54	72,7	<0,1	84,6	14,8	0,4
	E7B	2,59	71,5	<0,1	47,8	50,4	1,7
E8	E8A	2,62	67,5	0,8	94,9	4,1	0,1
	E8B	2,63	59,3	1,5	95,9	2,5	<0,1
E9	E9	2,84	44,4	<0,1	23,3	74,4	2,2
E10	E10A	2,70	49,4	2,1	21,6	74,0	2,2
	E10B	2,60	57,9	0,5	25,7	71,6	2,2
E11	E11A	2,57	51,0	0,6	18,1	78,6	2,6
	E11B	2,81	52,5	5,2	23,5	69,1	2,2
	E11C	2,56	45,7	0,5	24,1	72,9	2,4

Estação	Amostra	Densidade das partículas sólidas (g/cm^3)	% sólidos	% seixo	% areia	% silte	% argila
	E11D	2,56	58,7	0,4	34,2	63,3	2,1
E12	E12A	2,51	53,0	0,3	20,8	76,4	2,5
	E12B	2,47	55,5	0,3	16,3	80,6	2,8
	E12C	2,17	58,4	0,3	19,3	77,9	2,5
	E12D	2,34	55,4	0,3	27,5	69,6	2,6
E13	E13	2,59	54,5	0,4	30,1	66,7	2,8
E14	E14	2,52	78,1	4,7	69,2	25,1	1,1
E15	E15	2,48	52,9	0,6	20,8	76,2	2,5
E16	E16	2,42	62,2	0,4	38,2	59,2	2,2
E17	E17	2,51	50,8	0,5	14,7	81,8	3,0
E18	E18	2,66	62,0	53,5	21,8	23,8	0,8
E19	E19	2,58	54,4	48,1	8,3	42,1	1,5

A **constituição** das amostras E1A a E8B, correspondentes às estações mais exteriores da área a dragar, tratam-se maioritariamente de areias (com excepção da E7B), enquanto que as amostras E9 a E17, localizadas no interior da bacia portuária ou na entrada da mesma, são constituídas maioritariamente por silte (a excepção verifica-se na estação E14, que apresenta maior percentagem de areia). As estações E18 e E19, igualmente localizadas no interior da bacia portuária, apresentam uma constituição onde a fracção grosseira (seixos) predomina.

A **densidade das partículas sólidas** das amostras analisadas manifestou valores compreendidos entre 2,17 a 2,89 g/cm^3 (valor médio de 2,58 g/cm^3).

A **percentagem de sólidos** apresenta valores entre os 44,4% e os 81,8%. Os valores mais baixos foram registados nas amostras E9 a E19 (Interior da bacia portuária), facto que poderá ser explicado pela constituição granulométrica das amostras, ou seja, fracções finas como a argila ou o silte retêm mais quantidade de água.

Desta forma, e atendendo aos resultados dos parâmetros físicos analisados, confirma-se uma distribuição granulométrica consonante com o zonamento que foi estabelecido para a distribuição das estações de amostragem, nomeadamente:

- **Zona Exterior** – Estações E1 a E8, com a fracção arenosa a ser a mais representativa e consonante com as condições de hidrodinamismo da zona;
- **Zona Interior** – Estações E9 a E19, onde predomina a fracção siltosa (as estações E9 e E10 apesar de se localizarem na entrada/saída da bacia portuária também se incluíram nesta zona devido às suas características físicas).

Os resultados obtidos podem ser consultados na integra nos boletins de análise, em anexo ao presente documento (Anexo I).

3.2. Parâmetros Químicos

No Quadro seguinte apresentam-se as concentrações obtidas nas análises químicas para metais e compostos orgânicos indicados pela Portaria n.º 1450/2007, de 12 de novembro, bem como a classe de contaminação em que cada amostra recolhida se insere.

A classificação global para cada amostra de sedimentos em termos de contaminação é função da pior classificação obtida por parâmetro químico individual.

Tabela IV – Resultados das análises químicas às amostras de sedimentos

Amostra	Metais (mg/kg)								Compostos orgânicos (µg/kg)			Classificação global
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	PAH[1]	PCB[2]	HCB	
E1A	6,2	<0,4	4,0	7,2	<5,0	<0,3	3,2	14,6	<160	<4,9	<0,5	I
E1B	6,1	<0,4	3,3	3,4	<5,0	<0,3	2,8	13,7	<160	<4,9	<0,5	I
E1C	8,3	<0,4	9,2	4,3	<5,0	<0,3	5,8	28,1	<160	<4,9	<0,5	I
E1D	8,2	<0,4	9,4	5,2	<5,0	<0,3	6,3	25,7	<160	<4,9	<0,5	I
E1E	8,4	<0,4	11,6	6,1	<5,0	<0,3	6,8	24,6	<160	<4,9	<0,5	I
E2A	7,9	<0,4	5,1	4,6	<5,0	<0,3	4,6	25,1	<160	<4,9	<0,5	I
E2B	8,0	<0,4	6,7	4,4	<5,0	<0,3	5,3	21,2	<160	<4,9	<0,5	I
E2C	7,2	<0,4	5,4	5,7	<5,0	<0,3	5,0	26,6	<160	<4,9	<0,5	I
E2D	7,4	<0,4	5,0	3,9	<5,0	<0,3	4,9	23,8	<160	<4,9	<0,5	I
E3A	6,6	<0,4	4,1	4,7	<5,0	<0,3	3,7	15,8	<160	<4,9	<0,5	I
E3B	6,7	<0,4	4,4	4,3	<5,0	<0,3	3,7	15,6	<160	<4,9	<0,5	I
E3C	6,2	<0,4	4,0	3,4	<5,0	<0,3	3,5	15,1	<160	<4,9	<0,5	I
E3D	6,5	<0,4	4,4	5,1	<5,0	<0,3	4,1	15,1	<160	<4,9	<0,5	I
E4A	8,7	<0,4	6,6	4,1	<5,0	<0,3	6,4	29,4	<160	<4,9	<0,5	I
E4B	8,6	<0,4	6,6	4,1	5,1	<0,3	6,7	26,6	<160	<4,9	<0,5	I
E4C	8,7	<0,4	14,4	4,2	6,7	<0,3	9,8	33,6	<160	<4,9	<0,5	I
E5A	9,1	<0,4	8,2	5,3	5,7	<0,3	7,3	32,5	<160	<4,9	<0,5	I
E5B	9,7	<0,4	9,8	9,2	6,4	<0,3	7,9	35,3	<160	<4,9	<0,5	I
E5C	9,0	<0,4	9,0	4,4	6,8	<0,3	7,6	34,8	<160	<4,9	<0,5	I
E6	9,8	<0,4	11,2	6,3	9,1	<0,3	8,6	38,6	<160	<4,9	<0,5	I
E7A	13,0	<0,4	14,8	8,7	11,0	<0,3	10,7	52,7	<160	<4,9	<0,5	I
E7B	15,0	<0,4	21,0	13,2	16,4	<0,3	13,0	70,9	<160	<4,9	<0,5	I
E8A	7,6	<0,4	6,7	5,3	<5,0	<0,3	4,9	24,2	<160	<4,9	<0,5	I
E8B	7,5	<0,4	5,7	4,4	<5,0	<0,3	4,5	20,7	<160	<4,9	<0,5	I

Amostra	Metais (mg/kg)								Compostos orgânicos (µg/kg)			Classificação global
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	PAH[1]	PCB[2]	HCB	
E9	17,9	<0,4	30,4	19,7	25,6	<0,3	19,0	89,6	<160	<4,9	<0,5	1
E10A	19,9	<0,4	31,2	19,2	25,2	<0,3	19,5	93,0	<174	<4,9	<0,5	1
E10B	20,8	<0,4	32,1	21,0	27,4	<0,3	18,8	101,0	<160	<4,9	<0,5	2
E11A	19,5	<0,4	38,6	28,6	32,6	<0,3	22,1	117,0	<160	<4,5	<0,5	2
E11B	20,9	<0,4	36,2	28,1	31,3	<0,3	21,1	111,0	<189	<7,2	<0,5	2
E11C	21,1	<0,4	36,9	27,9	30,8	<0,3	21,8	109,0	<177	<4,9	<0,5	2
E11D	17,0	<0,4	30,0	21,1	24,2	<0,3	16,8	90,5	<161	<5,0	<0,5	1
E12A	16,4	<0,4	35,8	25,6	29,6	<0,3	20,4	108,0	<160	<4,9	<0,5	2
E12B	21,0	<0,4	39,0	26,7	33,8	<0,3	21,0	117,0	<534	<13,4	<0,5	2
E12C	16,0	<0,4	35,9	28,8	30,0	<0,3	20,9	110,0	<160	<4,9	<0,5	2
E12D	27,6	<0,4	34,6	24,3	33,3	<0,3	20,6	102,0	<720	<5,2	<0,5	2
E13	40,6	<0,4	48,2	50,0	38,7	<0,3	31,2	180,0	<160	<4,9	<0,5	2
E14	27,1	<0,4	27,2	20,0	22,2	<0,3	13,2	69,1	<383	<5,0	<0,5	2
E15	21,1	<0,4	37,0	27,9	27,2	<0,3	18,5	110,0	<294	<4,9	<0,5	2
E16	5,4	<0,4	15,4	9,5	6,8	<0,3	11,9	49,5	<160	<5,3	<0,5	2
E17	25,0	<0,4	43,1	34,6	35,4	<0,3	22,6	129,0	<160	<4,9	<0,5	2
E18	34,8	<0,4	53,7	43,0	24,0	<0,3	29,9	94,8	<262	<15,3	<0,5	2
E19	27,1	<0,4	44,2	37,3	38,0	<0,3	24,3	136,0	<160	<4,9	<0,5	2

Notas: **1 – PAH (soma):** Fenantreno, Antraceno, Fluoranteno, Pireno, Benzo(a)antraceno, Criseno, Benzo(a)pireno, Benzo(ghi)perileno, Indeno(1,2,3cd)pireno, Naftaleno, Acenaftileno, Acenafteno, Fluoreno, Benzo(b)fluoranteno, Benzo(k)fluoranteno, Dibenzo(a,h)antraceno; **2 – PCB (soma)**: 28, 52, 101, 118, 138, 153, 180

Da análise dos resultados dos ensaios químicos, e tendo em conta a classificação de materiais de acordo com o grau de contaminação, disposto na Portaria n.º 1450/2007 de 12 de novembro, conclui-se que **todas as amostras se incluíram na classe 1 ou 2**.

As amostras realizadas na **Zona Exterior** (E1A a E8B) inserem-se na classe 1, tendo em conta as concentrações de metais e compostos orgânicos. Os materiais desta classe podem ser depositados no meio aquático ou repostos em locais sujeitos a erosão ou utilizados para alimentação de praias sem normas restritivas.

As amostras da **Zona Interior** da bacia portuária (E9 a E19) inserem-se dentro da classe 2 (excetuando as amostras E9, E10A e E11D que se enquadram na classe 1), tendo em conta as concentrações de metais e compostos orgânicos. Os materiais inseridos na classe 2 estão associados a uma contaminação vestigiária, os quais podem ser imersos no meio aquático, tendo em conta as características do meio receptor e o uso do mesmo.

O quadro seguinte demonstra os parâmetros responsáveis pela classificação como classe 2 nas amostras identificadas na zona interior.

Tabela V – Parâmetros responsáveis pela classe 2 (segundo a classificação disposta na Portaria n.º 1450/2007) das amostras identificadas na zona interior do anteporto

Amostra	Arsénio	Crómio	Cobre	Níquel	Zinco	PAH	PCB
E10B	X				X		
E11A					X		
E11B	X				X		X
E11C	X				X		
E12A					X		
E12B	X				X	X	X
E12C					X		
E12D	X				X	X	X
E13	X		X	X	X		
E14	X					X	
E15	X				X		
E16							X
E17	X				X		
E18	X	X	X				X
E19	X		X		X		

Verifica-se que o Arsénio e o Zinco (metais pesados) são os poluentes responsáveis na maior parte dos casos de contaminação vestigiária (classe 2). Foram ainda identificados como poluentes o Crómio, Cobre, Níquel, PAH e PCB.

Os resultados obtidos podem ser consultados na integra nos boletins de análise, em anexo ao presente documento (Anexo I).

3.3. Sobre os Mapas de Distribuição da Contaminação

As amostras recolhidas na **Zona Exterior** (E1A a E8B) apresenta-se sem contaminação, enquadrando-se como tal na classe 1. Na **Zona Interior** da bacia portuária de Leixões as amostras (E9 a E19) apresentam contaminação vestigiária, ou seja, classe 2 (exceptuando as amostras E9, E10A e E11D que se enquadram na classe 1). Esta contaminação vestigiária é maioritariamente desencadeada pelos contaminantes Arsénio e Zinco.

Não obstante não haver situações de contaminação particularmente diferenciadas, foi efectuado um exercício de interpolação da distribuição da concentração dos metais e compostos orgânicos (até 5 m de profundidade). Para a elaboração dos mapas de classificação final consideraram-se as 42 amostras recolhidas na área a dragar.

É num contexto de reduzida contaminação dos sedimentos, que se apresenta, no **Anexo II**, **o mapa de distribuição da contaminação** por parâmetro analisado. Seguidamente, nas

figuras CF01 a CF05, apresenta-se a classificação final da coluna sedimentar a dragar.

Os mapas de interpolação das concentrações de metais e de compostos orgânicos permitem visualizar a diferenciação entre a zona interior e exterior da bacia portuária de Leixões, evidenciada nas secções anteriores.

Em termos espaciais a contaminação vestigiária apresenta, no primeiro metro de profundidade (0 – 1 m), uma distribuição generalizada no interior da bacia portuária, estendendo-se para jusante da entrada da mesma.

Com a aproximação ao Quebra-mar exterior os sedimentos apresentam-se limpos (classe 1). Entre 1 - 4 m os mapas indiciam uma distribuição similar, com diferenciação entre a zona interior (classe 2) e exterior (classe 1). O mapa de classificação final entre 4 – 5 m de profundidade permite concluir sobre a zona de implementação do projecto do prolongamento do quebra-mar (onde ainda existe cobertura sedimentar), onde os resultados não apresentaram contaminação (classe 1).

4. CONSIDERAÇÕES FINAIS

A campanha de amostragem de sedimentos realizada no Porto de Leixões evidencia uma clara diferenciação entre a **Zona Interior** e a **Zona Exterior** da bacia portuária no que respeita, tanto às características físicas, como ao grau de contaminação dos materiais.

As amostras realizadas na **Zona Exterior** (E1A a E8B) inserem-se na **Classe 1**, tendo em conta as concentrações de metais e compostos orgânicos. Os materiais desta classe podem ser depositados no meio aquático ou repostos em locais sujeitos a erosão ou utilizados para alimentação de praias sem normas restritivas. É nesta zona que se encontram depositados os sedimentos mais grosseiros, nomeadamente partículas da dimensão das areias.

As amostras da **Zona Interior** da bacia portuária (E9 a E19) inserem-se dentro da **Classe 2** (exceptuando as amostras E9, E10A e E11D que se enquadram na Classe 1).

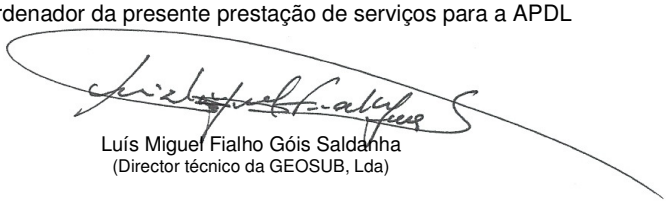
Os materiais inseridos na classe 2 estão associados a uma contaminação vestigiária, os quais podem ser imersos no meio aquático, tendo em conta as características do meio receptor e o uso do mesmo. Esta contaminação vestigiária é maioritariamente originada pelos contaminantes Arsénio e Zinco. Nesta zona do porto é a fração siltosa que predomina na composição dos sedimentos.

A presença dos contaminantes identificados poderá ser influenciada pelas actividades portuárias, mas também antrópicas desenvolvidas na bacia hidrográfica e massas de água

do Rio Leça que exercem pressões poluentes sobre os recursos hídricos, nomeadamente a rejeição de águas residuais de origem urbana, industrial e pecuária.

Carcavelos, 28 de Setembro de 2017.

O Coordenador da presente prestação de serviços para a APDL



Luís Miguel Fialho Góis Saldanha
(Director técnico da GEOSUB, Lda)

ANEXO I

Boletins Laboratoriais

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8767 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113111 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E1A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315006**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8767/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**1.0**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.59**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**98.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**80.1**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.170**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.2**	± 40.1%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**4.02**	± 20.7%
Copper	S-METOA1SE2	0.50	mg/kg DW	**7.17**	± 20.2%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**3.20**	± 21.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**14.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8769 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113113 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E1B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315008**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8769/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.7**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.62**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.0**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**79.1**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.134**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.1**	± 40.4%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**3.27**	± 21.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**3.38**	± 21.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**2.81**	± 21.4%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**13.7**	± 20.1%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 09-08-2017

N.º de Análise:	QH / 8763 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	09-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113108 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E 1C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315003**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8763/2017** / [25-Jul-2017] **Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**1.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.66**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**97.9**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**77.0**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	<0.490	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.3**	± 32.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**9.21**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.26**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**5.77**	± 20.3%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**28.1**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
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Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
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S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8768 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113112 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E1D
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Rsultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315007**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8768/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.38**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**98.4**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**78.6**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.6**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.076**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.2**	± 32.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**9.40**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**5.22**	± 20.4%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**6.31**	± 20.3%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**25.7**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8764 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113109 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E1E
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315004**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8764/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**1.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.52**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**97.0**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**76.4**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**1.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.180**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.4**	± 32.6%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**11.6**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**6.14**	± 20.3%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**6.82**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**24.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9130 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117026 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E2A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455005**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/9130/2017**	
			Client sampling date / time	[03-Aug-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.51**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**81.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.057**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**7.9**	± 33.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**5.13**	± 20.4%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.62**	± 20.5%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**4.62**	± 20.5%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**25.1**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9131 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117027 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E2B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455009**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/9131/2017** [03-Aug-2017] Result	MU
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.54**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.9**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**81.7**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	<0.140	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.0**	± 33.4%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**6.69**	± 20.2%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.44**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**5.34**	± 20.4%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**21.2**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9132 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117028 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E2C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455007**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/9132/2017**	
			Client sampling date / time	[03-Aug-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.55**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**80.6**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	<0.140	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**7.2**	± 35.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**5.37**	± 20.4%
Copper	S-METOA1SE2	0.50	mg/kg DW	**5.71**	± 20.4%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**5.03**	± 20.4%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**26.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9133 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117029 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E2D
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455008**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/9133/2017**	
			Client sampling date / time	[03-Aug-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.57**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.7**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**78.2**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.041**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**7.4**	± 35.3%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**4.99**	± 20.4%
Copper	S-METOA1SE2	0.50	mg/kg DW	**3.86**	± 20.8%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**4.86**	± 20.5%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**23.8**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8766 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113110 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E3A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315005**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8766/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.64**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.7**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**81.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.130**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.6**	± 38.0%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**4.14**	± 20.7%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.69**	± 20.5%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**3.71**	± 20.8%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**15.8**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8773 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113117 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E3B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315012**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8773/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.8**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.43**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.0**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**80.0**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.062**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.7**	± 37.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**4.37**	± 20.6%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.26**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**3.73**	± 20.8%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**15.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8777 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113121 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E3C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315016**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8777/2017** / [25-Jul-2017] **Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.54**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.7**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**81.8**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.022**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.2**	± 39.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**3.98**	± 20.7%
Copper	S-METOA1SE2	0.50	mg/kg DW	**3.40**	± 21.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**3.52**	± 20.9%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**15.1**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8770 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113114 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E3D
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315009**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/8770/2017**	
			Client sampling date / time	[25-Jul-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.65**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.5**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**80.9**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.083**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**6.5**	± 38.6%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**4.41**	± 20.6%
Copper	S-METOA1SE2	0.50	mg/kg DW	**5.06**	± 20.4%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**4.13**	± 20.7%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**15.3**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8962 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115322 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E4A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486001**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8962/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.61**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**79.8**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.027**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.7**	± 31.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**6.56**	± 20.3%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.07**	± 20.7%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**6.43**	± 20.3%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**29.4**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8967 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115327 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E4B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486006**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8967/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.65**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**99.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**79.7**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	<0.210	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.6**	± 32.0%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**6.59**	± 20.3%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.12**	± 20.7%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**6.70**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	**5.1**	± 46.4%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**26.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8963 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115323 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E4C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486002**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8963/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.68**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**98.5**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**77.9**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.7**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.107**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**8.7**	± 31.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**14.4**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.24**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**9.83**	± 20.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	**6.7**	± 37.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**33.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8969 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115329 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E5A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486008**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8969/2017** [28-Jul-2017] **Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.63**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**98.8**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**0.7**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**77.8**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.130**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**9.1**	± 30.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**8.17**	± 20.2%
Copper	S-METOA1SE2	0.50	mg/kg DW	**5.30**	± 20.4%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**7.29**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	**5.7**	± 42.6%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**32.5**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8971 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115331 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E5B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486010**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8971/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.67**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**92.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**4.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**76.1**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**2.5**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.501**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**9.7**	± 29.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**9.77**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**9.23**	± 20.1%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**7.92**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	**6.4**	± 39.0%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**35.3**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8973 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115333 / 17**

Produto : Sedimentos marino Acondicionamento : Saco
Referência : E5C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486012**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8973/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.71**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**96.2**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**1.9**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**74.1**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**1.3**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.256**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**9.0**	± 31.2%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**9.02**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.36**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**7.59**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	**6.8**	± 37.5%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**34.8**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8965 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115325 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E6
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486004**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8965/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.89**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**86.2**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**6.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**66.4**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**6.8**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.800**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**9.8**	± 29.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**11.2**	± 20.1%
Copper	S-METOA1SE2	0.50	mg/kg DW	**6.31**	± 20.3%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**8.56**	± 20.2%
Lead	S-METOA1SE2	5.0	mg/kg DW	**9.1**	± 30.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**38.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8972 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115332 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E7A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486011**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8972/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.54**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**84.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**7.4**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**72.7**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**7.4**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.14**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**13.0**	± 26.0%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**14.8**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**8.72**	± 20.2%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**10.7**	± 20.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	**11.0**	± 27.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**52.7**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8968 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115328 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E7B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486007**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8968/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.59**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**47.8**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**22.0**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**71.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**28.4**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**1.7**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.921**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**15.0**	± 24.6%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**21.0**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**13.2**	± 20.1%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**13.0**	± 20.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	**16.4**	± 23.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**70.9**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**21**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**20**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**13**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**0.72**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8819 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113504 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E8A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315018**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8819/2017** / [25-Jul-2017] **Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.8**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.62**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**94.9**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**1.8**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**67.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**2.3**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.1**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.00**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**7.6**	± 34.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**6.74**	± 20.2%
Copper	S-METOA1SE2	0.50	mg/kg DW	**5.29**	± 20.4%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**4.92**	± 20.5%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**24.2**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8818 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113503 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E8B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315017**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8818/2017** / [25-Jul-2017] **Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**1.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.63**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**95.9**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**1.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**59.3**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**1.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	<0.1	----
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**0.567**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**7.5**	± 34.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**5.70**	± 20.4%
Copper	S-METOA1SE2	0.50	mg/kg DW	**4.44**	± 20.6%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**4.54**	± 20.6%
Lead	S-METOA1SE2	5.0	mg/kg DW	<5.0	----
Zinc	S-METOA1SE2	0.50	mg/kg DW	**20.7**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8821 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113506 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E9
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315020**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8821/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	<0.1	----
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.84**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**23.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**35.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**44.4**	± 6.1%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**38.8**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.61**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**17.9**	± 23.3%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**30.4**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**19.7**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**19.0**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**25.6**	± 21.7%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**89.6**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8966 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115326 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E10A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486005**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8966/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**2.1**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.70**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**21.6**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**34.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**49.4**	± 6.1%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**39.4**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.77**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**19.9**	± 22.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**31.2**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**19.2**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**19.5**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**25.2**	± 21.7%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**93.0**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**19**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**13**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8964 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115324 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E10B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486003**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8964/2017	
				[28-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.60**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**25.7**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**31.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**57.9**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**40.4**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.77**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**20.8**	± 22.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**32.1**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**21.0**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**18.8**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**27.4**	± 21.5%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**101**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8825 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113510 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E11A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315024**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8825/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.6**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.57**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**18.1**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**32.4**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**51.0**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**46.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.6**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.89**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**19.5**	± 22.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**38.6**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**28.6**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**22.1**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**32.6**	± 21.1%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**117**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	**0.79**	± 30.0%
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8823 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113508 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E11B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315022**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8823/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**5.2**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.81**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**23.5**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**28.1**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**52.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**41.0**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.96**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**20.9**	± 22.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**36.2**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**28.1**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**21.1**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**31.3**	± 21.1%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**111**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**22**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**15**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**15**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	**1.80**	± 30.0%

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**1.69**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	**0.88**	± 30.0%
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8824 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113509 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E11C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315023**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8824/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.56**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**24.1**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**28.4**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**45.7**	± 6.1%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**44.5**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.4**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.87**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**21.1**	± 22.4%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**36.9**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**27.9**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**21.8**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**30.8**	± 21.2%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**109**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**13**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**19**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8822 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113507 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E11D
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315021**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8822/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.56**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**34.2**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**25.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**58.7**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**38.0**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.1**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.91**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**17.0**	± 23.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**30.0**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**21.1**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**16.8**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**24.2**	± 21.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**90.5**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**11**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9126 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117018 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E12A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455003**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/9126/2017** [03-Aug-2017] Result	MU
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.51**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**20.8**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**33.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**53.0**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**43.2**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.5**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.89**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**16.4**	± 23.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**35.8**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**25.6**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**20.4**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**29.6**	± 21.3%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**108**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9127 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117019 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E12B
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455002**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/9127/2017**	
			Client sampling date / time	[03-Aug-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.47**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**16.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**32.8**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**55.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**47.8**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.8**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**2.28**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**21.0**	± 22.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**39.0**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**26.7**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**21.0**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**33.8**	± 21.0%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**117**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**27**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**54**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**46**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**39**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	**38**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**66**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**52**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**41**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**48**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**59**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	**484**	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	**1.41**	± 30.0%
PCB 101	S-SMIGMS01	0.70	µg/kg DW	**1.83**	± 30.0%
PCB 118	S-SMIGMS01	0.70	µg/kg DW	**1.22**	± 30.0%
PCB 138	S-SMIGMS01	0.70	µg/kg DW	**2.67**	± 30.0%

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**2.89**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	**2.70**	± 30.0%
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	**12.7**	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9128 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117020 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E12C
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455004**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/9128/2017** [03-Aug-2017] Result	MU
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.17**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**19.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**36.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**58.4**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**41.6**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.5**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**2.02**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**16.0**	± 24.1%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**35.9**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**28.8**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**20.9**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**30.0**	± 21.2%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**110**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 01-09-2017

N.º de Análise:	QH / 9129 / 17
Data Colheita:	31-07-2017
Data Receção:	01-08-2017
Data Início Ensaio:	01-08-2017
Data Fim Ensaio:	01-09-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **117021 / 17**

Produto : Sedimentos marinhos Acondicionamento : Saco
Referência : E12D
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Eugénia Silva

Técnica Superior de Laboratório
Eugénia Silva

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1743455001**	**Work Order**	: **PR1743455**
		Issue Date	: 16-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2190	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 03-Aug-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 07-Aug-2017 - 16-Aug-2017
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1743455/007 /009, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1743455/003,004, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/9129/2017** [03-Aug-2017] Result	MU
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.3**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.34**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**27.5**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**28.0**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**55.4**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**41.6**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.6**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**2.35**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**27.6**	± 21.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**34.3**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**24.3**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**20.6**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**33.3**	± 21.0%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**102**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**60**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	**16**	± 30.0%
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**112**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**82**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**54**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	**68**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**69**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**54**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**52**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**44**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**55**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	**690**	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	**0.92**	± 30.0%
PCB 101	S-SMIGMS01	0.70	µg/kg DW	**0.77**	± 30.0%
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**0.74**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8776 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113120 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E13
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315015**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8776/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.59**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**30.1**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**23.8**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**54.5**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**42.9**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.8**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.79**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**40.6**	± 20.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**48.2**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**50.0**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**31.2**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**38.7**	± 20.8%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**180**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 09-08-2017

N.º de Análise:	QH / 8762 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	09-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113107 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E14
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315002**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**			*Laboratory sample ID*	**QH/8762/2017**	
			Client sampling date / time	[25-Jul-2017]	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**4.7**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.52**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**69.2**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**9.2**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**78.1**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**15.9**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**1.1**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.46**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**27.1**	± 21.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**27.2**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**20.0**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**13.2**	± 20.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	**22.2**	± 22.2%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**69.1**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	**26**	± 30.0%
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**44**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**55**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**48**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**26**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	**27**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**22**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**22**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**27**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**22**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	**343**	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	**0.79**	± 30.0%

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 10-08-2017

N.º de Análise:	QH / 8970 / 17
Data Colheita:	26-07-2017
Data Receção:	27-07-2017
Data Início Ensaio:	27-07-2017
Data Fim Ensaio:	10-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **115330 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E15A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1741486009**	**Work Order**	: **PR1741486**
		Issue Date	: 07-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2104	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 28-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 28-Jul-2017 - 07-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1741486/006, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1741486/003,009, method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time* **QH/8970/2017** [28-Jul-2017] Result	MU
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.6**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.48**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**20.8**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**30.3**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**52.9**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**45.9**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.5**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.79**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**21.1**	± 22.4%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**37.0**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**27.9**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**18.5**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**27.2**	± 21.5%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**110**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**24**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**49**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**43**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**17**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	**17**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**20**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**18**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**21**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**16**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**19**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	**244**	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8761 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113106 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E16
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315001**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8761/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.4**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.42**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**38.2**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**28.5**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**62.2**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**30.7**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**2.2**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.92**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**5.4**	± 44.7%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**15.4**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**9.45**	± 20.1%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**11.9**	± 20.1%
Lead	S-METOA1SE2	5.0	mg/kg DW	**6.8**	± 37.4%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**49.5**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**10**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	**0.72**	± 30.0%

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**1.09**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8775 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113119 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E17A
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315014**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8775/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**0.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.51**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**14.7**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**32.7**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**50.8**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**49.1**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**3.0**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**2.04**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**25.0**	± 21.8%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**43.1**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**34.6**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**22.6**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**35.4**	± 20.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**129**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

Telef: 232817817
Fax: 232817819
Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8772 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113116 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E18
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultados em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315011**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8772/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**53.5**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.66**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**21.8**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**11.0**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**62.0**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**12.8**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**0.8**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**1.25**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**34.8**	± 20.9%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**53.7**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**43.0**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**29.9**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**24.0**	± 21.9%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**94.8**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	**15**	± 30.0%
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**31**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	**32**	± 30.0%
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	**14**	± 30.0%
Chrysene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	**23**	± 30.0%
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	**20**	± 30.0%
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	**25**	± 30.0%
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	**18**	± 30.0%
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	**202**	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	**1.09**	± 30.0%
PCB 101	S-SMIGMS01	0.70	µg/kg DW	**2.66**	± 30.0%
PCB 118	S-SMIGMS01	0.70	µg/kg DW	**0.93**	± 30.0%
PCB 138	S-SMIGMS01	0.70	µg/kg DW	**3.41**	± 30.0%

PCB 153	S-SMIGMS01	0.70	µg/kg DW	**3.76**	± 30.0%
PCB 180	S-SMIGMS01	0.70	µg/kg DW	**2.78**	± 30.0%
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	**14.6**	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-HG-AMACS	CZ_SOP_D06_07_004 (CSN 75 7440, CSN 46 5735, samples prepared as per CZ_SOP_D06_07_P02 chap. 10-13, 16, 20) Determination of Hg by single-purpose atomic absorption spectrometer.
S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

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Controlvet Segurança Alimentar S.A.
Zona Industrial de Tondela ZIM II, Lotes 2 e 6 3460-070 Tondela

Data Emissão: 04-08-2017

N.º de Análise:	QH / 8820 / 17
Data Colheita:	21-07-2017
Data Receção:	21-07-2017
Data Início Ensaio:	24-07-2017
Data Fim Ensaio:	04-08-2017
Código Cliente:	7051

Exmo(s) Sr(s):
GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA
Estrada da Rebelva, Nº 1216, 1ºD
Carcavelos
2775-371 Carcavelos

Unidade: GEOSUB - PROSPECÇAO GEOMATICA E AMBIENTE LDA

Identificação da Amostra: **113505 / 17**

Produto : Sedimentos marino Acondicionamento : saco
Referência : E19
A colheita de amostra não foi efectuada pela Controlvet.

	Ensaio	Método	Resultado	Unidade
(a)	Sedimentos marinhos - 1450/2007/PT	-	Resultado em anexo.	.

Método interno equivalente é aquele que tem a mesma área de aplicação (parâmetros e matrizes) e que cumpre as características de desempenho, obtendo resultados comparáveis ao(s) método(s) normalizado(s) junto indicado(s)

Lista de abreviaturas: NE- Número estimado; UFC- Unidades formadoras de colónias; LQ – Limite de quantificação; LD – limite de detecção; V.L. – Valor Limite; V.R. – Valor Recomendado; VP - Valor Paramétrico; C - Conforme; A - Aceitável; NC - Não Conforme; Unid. - Unidade; DO - Densidade óptica.

O ensaio assinalado com (s) foi subcontratado e não é acreditado.
O ensaio assinalado com (a) foi subcontratado e é acreditado.
Nos resultados assinalados com (y) os microrganismos estão presentes, mas inferiores a 4xdiluição.
Para os ensaios assinalados por tecnicas de cálculo a metodologia seguida pode ser disponibilizada a pedido.

Este Relatório de Ensaio refere-se apenas às amostras analisadas.

Técnica Superior de Laboratório
Liliana Leites

CERTIFICATE OF ANALYSIS

Laboratory sample ID	: **PR1740315019**	**Work Order**	: **PR1740315**
		Issue Date	: 03-Aug-2017
Client	: **CONTROLVET - Seguranca Alimentar, S. A.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Catarina Rodrigues	Contact	: Client Service
Address	: Zona Industrial de Tondela ZIM II - Lote 6 3460-070 Tondela Portugal	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: catarinarodrigues.laboratorio@controlvet.pt	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: ECF 2017/2062	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 25-Jul-2017
C-O-C number	: ----	Quote number	: PR2015CONSE-PT0006 (PT-254-15-0938)
Site	: ----	Date of test	: 25-Jul-2017 - 03-Aug-2017
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1740315/003 /010, method S-TOC-CC - lower LOR for TOC cannot be reached due to the comparable concentrations of TC and TIC.
Sample(s) PR1740315/002,014,015,017, 019, 020, 021, 023, 024 method S-SMIGMS01 was/were alternatively extracted by Soxhlet technique.
Methods S-TC-COU, S-TIC-COU, S-TOC-CC - samples were dried at 105 °C and pulverized before analysis.

Signatories

Testing Laboratory Accredited by CAI according to CSN EN ISO/IEC 17025:2005

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: **SEDIMENT**

Parameter	*Method*	*LOR*	*Unit*	*Laboratory sample ID* / *Client sampling date / time*	
				QH/8820/2017	
				[25-Jul-2017]	
				Result	**MU**
Physical Parameters					
Sand (>2 mm)	S-TEXT-5FR	0.1	%	**48.1**	± 10.0%
Specific Gravity	S-SGRAV-GR	0.01	g/cm3	**2.58**	± 10.0%
Sand (63 µm-2 mm)	S-TEXT-5FR	0.1	%	**8.3**	± 10.0%
Silt (20-63 µm)	S-TEXT-5FR	0.1	%	**16.6**	± 10.0%
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**54.4**	± 6.0%
Silt (2-20 µm)	S-TEXT-5FR	0.1	%	**25.5**	± 10.0%
Clay (<2 µm)	S-TEXT-5FR	0.1	%	**1.5**	± 10.0%
Nonmetallic Inorganic Parameters					
Total Organic Carbon	S-TOC-CC	0.010	% DW	**2.00**	----
Total Metals / Major Cations					
Arsenic	S-METOA1SE2	5.0	mg/kg DW	**27.1**	± 21.5%
Mercury	S-HG-AMACS	0.30	mg/kg DW	<0.30	----
Cadmium	S-METOA1SE2	0.40	mg/kg DW	<0.40	----
Chromium	S-METOA1SE2	0.50	mg/kg DW	**44.2**	± 20.0%
Copper	S-METOA1SE2	0.50	mg/kg DW	**37.3**	± 20.0%
Nickel	S-METOA1SE2	0.50	mg/kg DW	**24.3**	± 20.0%
Lead	S-METOA1SE2	5.0	mg/kg DW	**38.0**	± 20.8%
Zinc	S-METOA1SE2	0.50	mg/kg DW	**136**	± 20.0%
Polycyclic Aromatics Hydrocarbons (PAHs)					
Naphthalene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthylene	S-SMIGMS01	10	µg/kg DW	<10	----
Acenaphthene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluorene	S-SMIGMS01	10	µg/kg DW	<10	----
Phenanthrene	S-SMIGMS01	10	µg/kg DW	<10	----
Anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Fluoranthene	S-SMIGMS01	10	µg/kg DW	**12**	± 30.0%
Pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benz(a)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Chrysene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(b)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(k)fluoranthene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(a)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Indeno(1.2.3.cd)pyrene	S-SMIGMS01	10	µg/kg DW	<10	----
Benzo(g.h.i)perylene	S-SMIGMS01	10	µg/kg DW	<10	----
Dibenz(a.h)anthracene	S-SMIGMS01	10	µg/kg DW	<10	----
Sum of 16 PAH	S-SMIGMS01	160	µg/kg DW	<160	----
PCBs					
PCB 28	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 52	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 101	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 118	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 138	S-SMIGMS01	0.70	µg/kg DW	<0.70	----

PCB 153	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
PCB 180	S-SMIGMS01	0.70	µg/kg DW	<0.70	----
Sum of 7 PCBs	S-SMIGMS01	4.90	µg/kg DW	<4.90	----
Organochlorine Pesticides					
Hexachlorobenzene (HCB)	S-SMIGMS01	0.50	µg/kg DW	<0.50	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
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S-METOA1SE2	CZ_SOP_D06_07_006 (CSN EN ISO 11885, CSN EN 15410, CSN EN 15411, samples prepared as per CZ_SOP_D06_07_P02 chap. 11-12, 14-16, 19) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values.
* S-SGRAV-GR	CZ_SOP_D06_07_N01 (CSN EN 1936) Determination of specific (real) gravity of solid samples.
S-TEXT-5FR	CZ_SOP_D06_07_120 (BS ISO 11277:2009) Grain size analysis of solid samples using sieve analysis and laser diffraction
S-TOC-CC	CZ_SOP_D06_07_055 (CSN ISO 10694, CSN EN 13137, CSN EN 15936) Determination of total sulfur (TS), total carbon (TC) and inorganic carbon (TIC) by coulometry and determination of total organic carbon (TOC) and carbonate by calculation from measured values.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-SMIGMS01	CZ_SOP_D06_03_181 (US EPA 429, US EPA 1668, US EPA 3550) Determination of semi volatile organic compounds by isotopic dilution method using gas chromatography method with MS detection and calculation of semi -volatile organic compounds sums from measured values
Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
* S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
* S-PPHOM2	Drying and sieving of sample on the grain size < 2 mm

A `*` symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.
The calculation methods of summation parameters are available on request in the client service.

ANEXO II

Mapas de Distribuição da Contaminação