

## Analysis of radionuclides

Test report no.: 12345-6

Client: Client Name  
Client Address 1  
Client Address 2

Date of order: 23 November 2015

Type of samples: Biological material (marine biota)  
S1 - S3  
Order No.: xyz

Number of samples: 11

Sampling by: Client

Date of sampling: not specified

Delivery of the samples: 25 November 2015

Date of analytical works: 25 November 2015 - 15 December 2015

Analytical methods: Gamma-ray spectrometry ( $\gamma$ )

Evaluation and uncertainties: Measurement uncertainties and decision thresholds are determined according to standard DIN ISO 11929 with  $k_{1-\alpha} = 1,645$ ,  $k_{1-\beta} = 1,645$

General remarks: None

Release date: 15 December 2015

Number of pages: 2

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The accreditation is valid for the methods mentioned in the certificate. Test results refer to the tested samples. The test report may be forwarded to other parties provided that it is not changed in any way. Excerpts from the test reports require the prior, written permission of IAF - Radioökologie GmbH.

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# IAF - Radioökologie GmbH

Radionuclide Analytics | Radiation Safety Experts | Radiological Consulting



Deutsche  
Akkreditierungsstelle  
D-PL-11201-01-00

Accredited in accordance with DIN EN ISO  
17025:2005 by DAKKS, the official German  
accreditation body.

Test report no.: 12345-6

Client: Client Name  
Client Address 1  
Client Address 2

Type of samples: Biological material (marine biota)

Reference date: 15 December 2015

Analytical results			Series 1		Series 2		Series 3	
Name of the sample			S1		S2		S3a	
Specification								
Nuclide		Units	Result	U [%]	Result	U [%]	Result	U [%]
<i>U-238-series</i>								
U-238	γ	Bq/kg	< 1.3	-	< 1.3	-	< 3.0	-
Ra-226	γ	Bq/kg	< 0.50	-	< 0.50	-	< 0.50	-
Pb-210	γ	Bq/kg	4.8	30	5.7	25	9.0	18
<i>U-235-series</i>								
U-235	γ	Bq/kg	< 0.13	-	< 0.27	-	< 0.27	-
Ac-227	γ	Bq/kg	< 0.58	-	< 0.59	-	< 0.59	-
<i>Th-232-series</i>								
Ra-228	γ	Bq/kg	< 1.0	-	< 1.0	-	< 1.0	-
Th-228	γ	Bq/kg	< 0.30	-	< 0.30	-	< 0.50	-
<i>Further Radionuclides</i>								
Cs-134	γ	Bq/kg	< 0.20	-	< 0.20	-	< 0.20	-
Cs-137	γ	Bq/kg	< 0.17	-	< 0.20	-	< 0.18	-
I-131	γ	Bq/kg	< 0.13	-	< 0.12	-	< 0.12	-
Co-60	γ	Bq/kg	< 0.22	-	< 0.21	-	< 0.22	-
K-40	γ	Bq/kg	30	15	44	12	54	11

U [%]: relative expanded measurement uncertainty with coverage factor  $k = 2$ .

Data indicated with "<" are below the decision threshold.

The results refer to the fresh mass.