EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

CERTIFIED REFERENCE MATERIAL
BCR® – 505

CERTIFICATE OF ANALYSIS

ESTUARINE WATER			
	Amount of substance content		Number of accepted sets of data p
	Certified value [1] [nmol/kg]	Uncertainty [2] [nmol/kg]	
Cd	0.80	0.04	12
Cu	29.4	1.5	12
Ni	24.1	2.0	10
Zn	172	11	15

[1] Unweighted mean value of the means of p accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination. The certified value is traceable to the SI.

[2] Half-width of the 95 % confidence interval of the mean defined in [1].

This certificate is valid for one year after purchase.

Sales date:

The material is a true solution and has been proven homogeneous for sample intakes of 20 µL and above.

NOTE

This material has been certified by BCR (Community Bureau of Reference, the former reference materials programme of the European Commission). The certificate has been revised under the responsibility of IRMM.

Brussels, October 1994
Revised: May 2007

Signed: 

Prof. Dr. Hendrik Emons
Unit for Reference Materials
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Indicative Values

	Amount of substance content		Number of accepted sets of data p
	Indicative value [1] [nmol/kg]	Uncertainty [2] [nmol/kg]	
Co	0.99	0.26	5
Fe	19	4	4
Pb	0.24	0.14	8

1) Unweighted mean value of the means of p accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination. The indicative value is traceable to the SI.

2) Half-width of the 95 % confidence interval of the mean defined in [1].

Additional Material Information

	Amount of substance content
	Value [1] [nmol/kg]
As	41.0
Cr	3.97
Hg	0.69
Mn	13.2
Se (IV)	0.24
V	63.8

1) The value is traceable to the SI.

DESCRIPTION OF THE SAMPLE

The material consists of a filtered (0.45 µm) estuarine water sample acidified at pH of about 1.6 with nitric acid and stored in a polyethylene bottle. The bottle contains about 1 l estuarine water and is closed with a polyethene cap.

ANALYTICAL METHOD USED FOR CERTIFICATION

- Differential pulse anodic stripping voltammetry
- Differential pulse cathodic stripping voltammetry
- Electrothermal atomic absorption spectrometry
- Electrothermal atomic absorption spectrometry with Zeeman background correction
- Flame atomic absorption spectrometry
- Inductively coupled plasma emission spectrometry
- Inductively coupled plasma mass spectrometry
- Total reflection X-ray fluorescence

PARTICIPANTS

- Biologische Anstalt Helgoland, Hamburg (DE)
- IMW-TNO, Lab. Toegepast Marien Onderzoek, Den Helder (NL)
- Instituto Hidrográfico, Lisboa (PT)
- Labor für Spurenanalytik, Bonn (DE)
- Rijkswaterstaat, Dienst Getijdewateren, Den Haag (NL)
- Aristotelian University, Thessaloniki (GR)
- Biologische Anstalt Helgoland, Hamburg (DE)
- Bundesamt für Seeschiffahrt und Hydrographie, Hamburg (DE)
- Chalmers University, AMK, Göteborg (SE)
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- Studiecentrum voor Kernenergie, Mol (BE)
- Universitaire Instelling Antwerpen, Wilrijk (BE)
- University of Liverpool, Oceanography Laboratory, Liverpool (GB)
- Universidad Nova, Lisboa (PT)
- Water Quality Insitute, VKI, Hørsholm (DK)

SAFETY INFORMATION

The usual laboratory safety precautions apply.

INSTRUCTIONS FOR USE

The material is intended for the verification or validation of an analytical procedure. This material is not intended for use as a calibrant.
The sample can be used as it is from the bottle. Before a bottle is opened, it is recommended to shake the bottle manually to remix evaporated and condensed water prior to taking a sub-sample.

STORAGE

The tightly closed bottles may be kept at room temperature.
However, the European Commission cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially of opened samples.

LEGAL NOTICE

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NOTE

A technical report on the production of BCR-505 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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