EUROPEAN COMMISSION

JOINT RESEARCH CENTRE

Institute for Reference Materials and Measurements

CERTIFIED REFERENCE MATERIAL
BCR® – 536

CERTIFICATE OF ANALYSIS

CHLOROBIPHENYLS IN FRESHWATER HARBOUR SEDIMENT

Congener number	IUPAC name	Mass fraction based on dry mass		No. of accepted sets of data p
		Certified value [1] [µg/kg]	Uncertainty [2] [µg/kg]	
PCB 28	2,4,4'-Trichlorobiphenyl	44	5	10
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	38	5	14
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	44	4	15
PCB 105	2,3,3',4,4'-Pentachlorobiphenyl	3.5	0.6	8
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	27.5	2.2	16
PCB 128	2,2',3,3',4,4'-Hexachlorobiphenyl	5.4	1.2	8
PCB 138	2,2',3,4,4',5'-Hexachlorobiphenyl	27	5	6
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl	49	4	13
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl	50	4	14
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	3.0	0.4	8
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl	17.2	2.6	6
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	13.4	1.4	7
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	22.4	2.1	14

[1] This value is the unweighted mean of the means of p accepted sets of results. The values have been obtained after correction for water content, blank values and recovery (if applicable). The certified values are traceable to GC-based methods.

[2] The uncertainty is taken as the half-width of the 95 % confidence interval of the mean given in [1].

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 500 mg.

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, March 1997
Latest revision: February 2007

Signed: _____

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Additional Material Information [1)]	
Sediment characteristics	Mass Fraction [%]
organic matter content	12
loss on ignition	14
inorganic carbon content	7.5
moisture content (Karl Fischer titration)	1.28
$CaCO_3$ content	7.2
particle size fraction < 2 mm	22.8
1) It is stressed that these values are not certified.	

DESCRIPTION OF THE SAMPLE

The sample consists of approximately 40 g of freshwater harbour sediment in brown glass bottles with a polythene insert. Additional information on the material is given in the report.

ANALYTICAL METHOD USED FOR CERTIFICATION

Calibration was done with BCR-CRM's for PCB (28, 52, 101, 118, 138, 153, 180) or from compounds of verified purity and stoichiometry. The samples were extracted with one or a mixture of solvents or supercritical CO_2. Clean-up was carried out by column chromatography (on alumina, silica or florisil), high performance liquid chromatography (HPLC) after desulphurization of the extract. Capillary gas chromatography (CGC) with electron capture detection or mass-spectrometry was performed using different injection systems, different columns including multidimensional GC and different temperature programmes.

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SAFETY INFORMATION

Because of the fine particle size, appropriate safety measures should be taken when opening the bottle. Opening should preferably take place under a hood.

INSTRUCTIONS FOR USE

For analysis the sample should be taken as it is. Before opening the bottle it is recommended to let a cooled bottle reach ambient temperature and to shake it manually for two to four minutes.
The correction to dry mass must be determined on a separate portion of 1 g taken at the same time of the analysis from the same bottle. It should be done by dying in an oven at 105 ± 1 ºC for 2 hours.
When the reference material is used to assess the performance of a method, the user should refer to the recommendations of the certification report.

STORAGE

The bottles should be stored at a temperature of maximum + 20 °C.
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.

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NOTE

A technical report on the production of BCR®-536 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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