



CERTIFIED REFERENCE MATERIAL BCR[®] – 449

CERTIFICATE OF ANALYSIS

WASTE MINERAL OIL				
Congener number	IUPAC name	Mass fraction based on dry mass		Number of accepted sets of results p
		Certified value ¹⁾ [mg/kg]	Uncertainty ²⁾ [mg/kg]	
28	2,4,4'-Trichlorobiphenyl	0.80	0.07	11
52	2,2',5,5'-Tetrachlorobiphenyl	31.4	1.8	20
101	2,2',4,5,5'-Pentachlorobiphenyl	57.2	1.9	16
105	2,3,3',4,4'-Pentachlorobiphenyl	17.4	1.0	13
118	2,3',4,4',5-Pentachlorobiphenyl	46.6	2.4	17
128	2,2',3,3',4,4'-Hexachlorobiphenyl	12.5	0.7	13
153	2,2',4,4',5,5'-Hexachlorobiphenyl	39.0	1.7	19
156	2,3,3',4,4',5-Hexachlorobiphenyl	6.9	0.5	10
170	2,2'3,3',4,4',5-Heptachlorobiphenyl	6.6	0.6	14
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10.4	0.4	18
¹⁾ This value is the unweighted mean of the means of p accepted sets of results. The certified values are traceable to determinations by 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, April 1993

Revised: April 2007

Signed: _____

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DESCRIPTION OF THE SAMPLE

The sample consists of approximately 50 g of waste mineral oil in brown glass ampoules sealed under argon. Additional information on the presence of chlorobiphenyls other than those tabulated is given in the certification report.

ANALYTICAL METHOD USED FOR CERTIFICATION

Calibration was done with solutions of BCR-CRMs (291, 293-298) or with compounds of verified purity and stoichiometry (CB 105, 128, 156, 170). The samples were dissolved in hexane and clean-up was carried out by sulfuric acid and/or column chromatography (on alumina, silica gel or florisil). Capillary gas chromatography with electron capture detection or mass spectrometry was performed using different injection systems, different columns and different temperature programmes.

PARTICIPANTS

- Abt. Analytische Chemie, Universität Ulm (DE)
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- CSIS-CID, Environmental Chemistry Department, Barcelona (ES)
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- Department of Agriculture and Fisheries for Scotland, Aberdeen (GB)
- Direcção General da Qualidade do Ambiente, Lisbon (PT)
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- Laboratoire Municipal de la ville de Rouen, Rouen (FR)
- National Swedish Environm. Prot. Board, Solna (SE)
- Netherlands Institute for Fishery Invest., IJmuiden (NL)
- S.G.S. Depauw & Stokoe n.v. EcoCare, Antwerpen (BE)
- Vlaamse Instelling voor Technologisch Onderzoek (VITO), Mol (BE)

SAFETY INFORMATION

Cancer suspect agent. The material must be handled with great care, especially avoiding skin contamination, ingestion or inhalation.

INSTRUCTIONS FOR USE

For analysis the sample should be taken as it is. Solutions of the oil should only be prepared at the time of the analysis and then be discarded. The water content is typically below 1 % by mass. In case the user would need to correct for the water content a titration is recommended (e.g. Karl Fischer).

STORAGE

After opening, the content should be transferred to a clean glass container which has a ground stopper, and then be stored at 5 °C in the dark.

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-449 is available on the internet (<http://www.irmm.jrc.be>). A paper copy can be obtained from IRMM on request.