



# CERTIFIED REFERENCE MATERIAL BCR<sup>®</sup> – 490

## CERTIFICATE OF ANALYSIS

FLY ASH			
	Mass fraction		Number of accepted sets of data p
	Certified value <sup>1)</sup> [µg/kg]	Uncertainty <sup>2)</sup> [µg/kg]	
2,3,7,8-T4CDD (D48)	0.169	0.012	13
1,2,3,7,8-P5CDD (D54)	0.67	0.04	13
1,2,3,4,7,8-H6CDD (D66)	0.95	0.11	16
1,2,3,6,7,8-H6CDD (D67)	4.8	0.4	16
1,2,3,7,8,9-H6CDD (D70)	2.84	0.17	15
2,3,7,8-T4CDF (F83)	0.90	0.05	15
1,2,3,7,8-P5CDF (F94)	1.71	0.12	14
2,3,4,7,8-P5CDF (F114)	1.85	0.11	15
1,2,3,4,7,8-H6CDF (F118)	2.37	0.12	8
1,2,3,6,7,8-H6CDF (F121)	2.64	0.14	15
1,2,3,7,8,9-H6CDF (F124)	0.34	0.05	11
2,3,4,6,7,8-H6CDF (F130)	2.47	0.17	16

<sup>1)</sup> The certified value was calculated from the average of the p accepted datasets based on dry mass. The certified value is traceable to determinations by GC.  
<sup>2)</sup> The uncertainty is taken as the half-width of the 95 % confidence interval of the mean given in <sup>1)</sup>.

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 1 g.

### 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 1996  
Revised: May 2007

Signed: \_\_\_\_\_

Prof. Dr. Hendrik Emons  
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## DESCRIPTION OF THE SAMPLE

The sample consists of a homogeneous municipal waste incinerator fly ash in amber glass bottles containing approx. 30 g.

## ANALYTICAL METHOD USED FOR CERTIFICATION

Capillary gas chromatography with low or high resolution mass spectrometry was performed using different injection systems, different columns and different temperature programmes.

## PARTICIPANTS

- BASF, ZAX/Analytik, Ludwigshafen (DE)
- Bayer, Zentralforschung-DZA, Leverkusen (DE)
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- Elf Atochem, Centre d'Application de Levallois, Levallois-Perret (FR)
- ENEL, Centro Ricerca Termica, Pisa (IT)
- Institute for Reference Materials and Measurements (IRMM), Geel (BE)
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- KCL, Oy Keskuslaboratorio – Centrallaboratorium Ab, Espoo (FI)
- Ministry of Agric., Fisheries and Food (MAFF), CSL Food Science Lab., Norwich (GB)
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- University of Umeå, Institute of Environmental Chemistry, Umeå (SE)
- Vlaamse Instelling voor Technologisch Onderzoek (VITO), Mol (BE)
- Zeneca, Zeneca Specialties, Manchester (GB)

## SAFETY INFORMATION

The usual laboratory safety precautions apply.

## INSTRUCTIONS FOR USE

This material is intended for quality control purposes, but should not be used for calibration. The bottles should be stored unopened at about 20 °C. The water content is approximately 2 % by mass. The correction to dry mass must be determined spread in a layer of less than 1 cm thickness and dried in a well-ventilated oven at 105 °C until constant mass.

## STORAGE

Upon arrival the material shall be stored at 18 °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-490 is available on the internet (<http://www.irmm.jrc.be>). A paper copy can be obtained from IRMM on request.