



CERTIFIED REFERENCE MATERIAL BCR[®] – 615

CERTIFICATE OF ANALYSIS

FLY ASH						
Compound	Mass fraction				Number of accepted sets of data p	
	Certified value ¹⁾		Uncertainty ²⁾			
2,3,7,8-T ₄ CDD (D48)	27	ng/kg	5	ng/kg	9	
1,2,3,7,8-P ₅ CDD (D54)	92	ng/kg	12	ng/kg	9	
1,2,3,4,7,8-H ₆ CDD (D66)	74	ng/kg	12	ng/kg	9	
1,2,3,6,7,8-H ₆ CDD (D67)	103	ng/kg	13	ng/kg	10	
1,2,3,7,8,9-H ₆ CDD (D70)	108	ng/kg	16	ng/kg	9	
1,2,3,4,6,7,8-H ₇ CDD (D73)	0.87	µg/kg	0.13	µg/kg	10	
O ₈ CDD (D75)	1.75	µg/kg	0.20	µg/kg	9	
2,3,7,8-T ₄ CDF (F83)	86	ng/kg	28	ng/kg	8	
1,2,3,7,8-P ₅ CDF (F94)	176	ng/kg	26	ng/kg	8	
2,3,4,7,8-P ₅ CDF (F114)	125	ng/kg	20	ng/kg	8	
1,2,3,4,7,8-H ₆ CDF (F118)	203	ng/kg	21	ng/kg	8	
1,2,3,6,7,8-H ₆ CDF (F121)	204	ng/kg	23	ng/kg	10	
1,2,3,7,8,9-H ₆ CDF (F124)	13.3	ng/kg	2.0	ng/kg	7	
2,3,4,6,7,8-H ₆ CDF (F130)	130	ng/kg	15	ng/kg	9	
1,2,3,4,6,7,8-H ₇ CDF (F131)	0.75	µg/kg	0.09	µg/kg	10	
1,2,3,4,7,8,9-H ₇ CDF (F134)	61	ng/kg	6	ng/kg	10	
O ₈ CDF (F135)	0.29	µg/kg	0.04	µg/kg	10	

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-MS.
²⁾ Uncertainties are expanded uncertainties with a coverage factor k = 2, corresponding to a level of confidence of about 95 %.

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 5 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, March 2002

Latest revision: April 2007

Signed: _____

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DESCRIPTION OF THE SAMPLE

The sample consists of approximately 50 g of dried fly ash in brown glass bottles with a polyethylene insert and screw cap. The approximate total contents of PCDD and PCDF, expressed as toxicity equivalents (I-TEQ), amounts to less than 500 ng/kg.

ANALYTICAL METHOD USED FOR CERTIFICATION

Calibration was done with BCR-614 S0 to S5. The samples were treated with hydrochloric or acetic acid, extracted with one or a mixture of solvents and cleaned-up in one or several steps. Separation and quantification was carried out by GC-HRMS using two chromatographic phases of different polarity. The water mass fraction is lower than 1 %, so it was not taken into account for the calculation of the certified values.

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SAFETY INFORMATION

The usual laboratory safety precautions apply.

INSTRUCTIONS FOR USE

For analysis the sample should be taken as it is. The water content is lower than 1% by mass. Thus any correction will fall well within the uncertainty of the analytical procedure. But it is recommended to verify the water content on a separate portion of material on each occasion of analysis, preferably by Karl Fischer titration to avoid possible contamination due to volatilisation of contaminations during drying.

STORAGE

The material should be stored at a constant temperature of about 20 °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-615 is available on the internet (<http://www.irmm.jrc.be>). A paper copy can be obtained from IRMM on request.