EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

CERTIFIED REFERENCE MATERIAL
VDA-004

CERTIFICATE OF ANALYSIS

POLYETHYLENE		
	Mass Fraction	
	Certified value [1] [mg/kg]	Uncertainty [2] [mg/kg]
Cadmium	407	12

1) Result obtained by the isotope dilution thermal ionisation mass spectrometry applied as a primary method of measurement. The certified value and its uncertainty are traceable to the International System of Units (SI).

2) The certified uncertainty is the expanded uncertainty of the measurement described in 1, estimated in accordance with the Guide to the Expression of Uncertainty in Measurement (GUM) 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 1 g.

NOTE

This material has been certified by IRMM on behalf of the Verband der Automobilindustrie (VDA e.V, Frankfurt, DE). The certificate has been revised under the responsibility of IRMM.

Geel, June 1993
Latest revision: December 2008

INFORMATION ONLY

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DESCRIPTION OF THE SAMPLE

The material consists of 30 g polyethylene granulate “Sicolen bordeaux 49/16496” prepared by BASF, Köln (DE).

ANALYTICAL METHOD USED FOR CERTIFICATION

Isotope-dilution mass spectrometry after digestion in $H_2SO_4/HNO_3/H_2O_2$. Final method of quantification was thermal-ionisation mass spectrometry (TIMS).
The certified values were confirmed in an International Measurement Evaluation Programme (IMEP) conducted by IRMM under the auspices of the International Union of Pure and Applied Chemistry (IUPAC), Commission on “Isotope-specific Measurements as Reference to Toxic and Life-essential Elements”. The results of this IMEP-round are discussed in Fresenius J. Anal. Chem. (1993) 345:310-313.

PARTICIPANTS

BASF Farben und Lacke, Köln (DE)
European Commission, Joint Research Centre, Institute for Reference Materials and Measurements, Geel (BE)

SAFETY INFORMATION

The usual laboratory safety measures apply.

INSTRUCTIONS FOR USE

The main purpose of the materials is to assess method performance, i.e. for checking accuracy of analytical results. As any reference material, it can also be used for control charts or validation studies.

STORAGE

The material should 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 VDA-004 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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