



# CERTIFIED REFERENCE MATERIAL BCR<sup>®</sup> – 109

## CERTIFICATE OF ANALYSIS

ZINC ORE CONCENTRATE			
	Mass Fraction based on dry mass		Number of accepted sets of data p
	Certified value <sup>1)</sup> [g/kg]	Uncertainty <sup>2)</sup> [g/kg]	
Hg	0.00096	0.00012	9
Pb	7.38	0.03	11
Mg	0.20	0.01	11
Fe	145.1	0.6	12
Cd	4.61	0.09	12
Cu	9.46	0.08	13
F	0.081	0.004	8

1) The certified value is the unweighted mean value of the means of p accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination. The certified value is traceable to the International System of Units (SI).  
2) The certified uncertainty is based on the half-width of the 95 % confidence interval of the mean as defined in 1).

This certificate is valid for one year after purchase.

Sales date:

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

### DESCRIPTION OF THE SAMPLE

The zinc ore concentrate sample consists of homogeneous powder with a grain size smaller than 250 µm. Each unit contains around 200 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, May 1982  
Revised: May 2007

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

Prof. Dr. Hendrik Emons  
Unit for Reference Materials  
EC-JRC-IRMM  
Retieseweg 111  
2440 Geel, Belgium

## **ANALYTICAL METHOD USED FOR CERTIFICATION**

Cold vapor atomic absorption spectrometry (CV-AAS)  
Electrogravimetry  
Flame atomic absorption spectrometry (FAAS)  
Gravimetry  
Ion selective electrodes  
Polarography  
Spectrophotometry  
Titrimetry  
X-ray fluorescence spectrometry (XRF)

## **PARTICIPANTS**

AG des Altemberg für Bergbau und Zinkhüttenbetrieb, Essen (DE)  
Bundesanstalt für Materialprüfung, Berlin (DE)  
Duisburger Kupferhütte, Duisburg (DE)  
Institute for Industrial Research and Standards, Dublin (IE)  
European Commission, Joint Research Centre, CETIS, Ispra (IT)  
European Commission, Joint Research Centre, Chemistry Division, Ispra (IT)  
Métallurgie Hoboken Overpelt, Hoboken (BE)  
Minemet Recherche, Trappes (FR)  
Preussag AG Metall, Goslar (DE)  
Rhur-Zink GmbH, Datteln (DE)  
Ridsdale & Co. Ltd., Middlesbrough (GB)  
Société de la Vieille Montagne S.A., Angleur (BE)  
Universität Frankfurt/M, Frankfurt (DE)

## **SAFETY INFORMATION**

The usual laboratory safety precautions apply.

## **INSTRUCTIONS FOR USE**

Before use the sample contained in the bottle must be homogenised. Extreme care should be taken to avoid any sample contamination.

The sample size required for the analysis should be obtained from the whole sample through the coning and quartering procedure. For this purpose the entire content of the bottle should be spread on a sheet of paper, cardboard or glass to form a 5 mm thick layer. By means of a spatula the amount for the analysis as well as two 20 g fractions should be taken along the crossing diagonals.

The two 20 g fractions should be placed in weighing bottles, weighed to  $\pm 0.1$  mg, dried at 105 °C for 2 hours, cooled to room temperature in a desiccator and weighed. The drying at 105 °C should be repeated for periods of 1 hour until constant mass is achieved. The moisture content thus determined should be taken into account in order to calculate the content of the sought element(s) on a dry basis.

The two dried fractions combined with the remainder of the fraction taken for the analysis may be combined and bottled and stored in a desiccator provided all sample contamination has been avoided.

## **STORAGE**

The material must be kept in the tightly closed bottle at 18 °C; it may be damaged by moisture. 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.

## **LEGAL NOTICE**

Neither IRMM, its subsidiaries, its contractors nor any person acting on their behalf,

(a) make any warranty or representation, express or implied that the use of any information, material, apparatus, method or process disclosed in this document does not infringe any privately owned intellectual property rights; or

(b) assume any liability with respect to, or for damages resulting from, the use of any information, material, apparatus, method or process disclosed in this document save for loss or damage arising solely and directly from the negligence of IRMM or any of its subsidiaries.

## **NOTE**

A technical report on the production of BCR-109 is available on the internet (<http://www.irmm.jrc.be>). A paper copy can be obtained from IRMM on request.