EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Institute for Reference Materials and Measurements (Geel)

CERTIFIED REFERENCE MATERIAL
BCR® – 275

CERTIFICATE OF ANALYSIS

ZIRCALOY			
	Mass fraction		
	Certified value [1] [g/kg]	Uncertainty [2] [g/kg]	Number of accepted sets of results p
C	0.113	0.004	5
N	0.0390	0.0017	7
O	1.67	0.05	5

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

This certificate is valid for five years after purchase.

Sales date:

The minimum amount of sample to be used is 200 mg for oxygen and carbon measurements, and 500 mg for nitrogen measurements.

DESCRIPTION OF THE SAMPLE

The material is available in bottles containing 10 disks of 13 mm diameter and 1 mm thickness (0.9 g each).

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, November 1983
Latest revision: August 2015

Signed:

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European Commission
Joint Research Centre
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ANALYTICAL METHODS USED FOR CERTIFICATION

- Kjeldahl method
- Reducing fusion
- Combustion
- Charged particle activation analysis
- Photon activation analysis
- Surface analysis by nuclear methods

PARTICIPANTS

- Bundesanstalt für Materialprüfung, Berlin (DE)
- CEZUS, Usine de Venthon, Albertville (FR)
- CNRS, Centre d'Etudes de Chimie Métallurgique, Vitry-sur-Seine (FR)
- CNRS, GARNAC, Service du Cyclotron, Orléans (FR)
- Joint Research Centre, Central Bureau for Nuclear Measurements, Geel (BE)
- Kraftwerk Union AG, Erlangen (DE)
- Max-Planck Institut für Metallforschung, Schwäbisch Gmünd (DE)
- Metallwerk Plansee GmbH, Reutte (AT)
- Rijksuniversiteit Gent, Instituut voor Nucleaire Wetenschappen, Gent (BE)
- Université de Liège, Institut de Physique Nucléaire, Liège (BE)
- Université Technique de Compiègne, Département de Génie Mécanique, Compiègne (FR)

SAFETY INFORMATION

The usual laboratory safety measures apply.

INTENDED USE

The material is intended to be used to control the accuracy of the analytical methods used in industry, and as a calibrant.

INSTRUCTIONS FOR USE

1. Before analysis, the samples must be etched as follows:
   - dip the sample for 50 seconds in a mixture of 10 volumes of nitric acid (ρ = 1.4 kg/l), 1 volume of hydrofluoric acid (40 %) and 10 volumes of water at 20 °C;
   - immerse successively in 3 vessels with distilled water and 3 vessels with methanol;
   - dry in a stream of warm air (60 °C)

   Surface carbon, nitrogen and oxygen on freshly etched samples are evaluated at 0.092 ± 0.014 µg/cm^2, < 0.01 µg/cm^2 and 0.34 ± 0.03 µg/cm^2, respectively.
2. The analysis should be performed as soon as possible after etching.

STORAGE

The samples can be stored at room temperature.
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

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NOTE

A technical report on the production of BCR-275 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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