EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

# CERTIFIED REFERENCE MATERIAL
# BCR®–058

## CERTIFICATE OF ANALYSIS

| CONTINUOUS CAST COPPER | | |
|---|---|---|
| | Mass Fraction | |
| | Certified Value [1] [μg/g] | Uncertainty [2] [μg/g] |
| Oxygen | 390 | 24 |

1) Unweighted mean of 108 accepted individual measurement results obtained with 3 independent methods by 8 laboratories. The certified value and its uncertainty are traceable to the International System of Units (SI).
2) The certified uncertainty is two times the reproducibility standard deviation from the characterisation intercomparison, corresponding to a level of confidence of about 95 %.

This certificate is valid for three years 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, November 1978
Latest revision: December 2008

**Signed:**

Prof. Dr. Hendrik Emons
Reference Materials Unit
JRC -IRMM
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## DESCRIPTION OF THE SAMPLE

The samples are available as rods 7 mm in diameter and 50 mm long.

## ANALYTICAL METHOD USED FOR CERTIFICATION

- 14 MeV neutron activation analysis
- Hydrogen reduction
- Reducing fusion
- In addition, surface analysis by prompt (d,p) reaction were performed to test for the influence of surface oxygen.

## PARTICIPANTS

- Bundesanstalt für Materialprüfung, Berlin (DE)
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- Centre de Recherches Aluminium Péchiney, Voreppe (FR)
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- European Commission, Joint Research Centre, CETIS, Ispra (IT)
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- Rijksuniversiteit Gent, Instituut voor Nucleaire Wetenschappen, Gent (BE)
- Université de Liège, Institut de Physique Nucléaire, Liège (BE)

## SAFETY INFORMATION

The usual laboratory safety measures apply.

## INSTRUCTIONS FOR USE

The material is intended for quality control purposes, i.e. to demonstrate analytical proficiency.

Before use, samples must be prepared on a lathe, according to recommended procedures described in the report EUR 6241 or chemically etched for 3 min at 20 °C in HCl (d = 1.2) and subsequently for 1 min at 70 °C in a mixture of equal parts of $HNO_3$ (d = 1.4), $CH_3COOH$ (d = 1.06) and $H_3PO_4$ (d = 1.7), rinsed successively in 3 vessels of water and 3 vessels of methanol and dried in a warm air stream. Corrections for surface oxygen can then be neglected.

The analysis should be performed as soon as possible after this treatment.

## STORAGE

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®-058 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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