

REFERENCE MATERIAL CERTIFICATE

BCR® – 059

Titanium-aluminum-vanadium alloy Ti Al6 V4			
	Mass fraction		Number of individual measurement results
	Certified value ¹⁾ [mg/kg]	Uncertainty ²⁾ [mg/kg]	
Oxygen	1750	70	240
Nitrogen	172	27	106
1) Certified values are values that fulfil the highest standards of accuracy. The given values represent the unweighed mean of the individual measurement results independently obtained in different laboratories and/or with different methods of determination. The certified values and their uncertainty are traceable to the International System of Units (SI). 2) For oxygen, the certified uncertainty is taken as standard deviation of the individual measurement results described in 1). For nitrogen, the certified uncertainty is the expanded uncertainty with a coverage factor 2, corresponding to a level of confidence of about 95 %.			

This certificate is valid for five years after purchase.

Sales date:

The minimum amount of sample to be used is 1 mg for oxygen and 100 mg for nitrogen.

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 the Joint Research Centre.

Brussels, November 1978
Latest revision: December 2020

Signed: 

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DESCRIPTION OF THE SAMPLE

The samples are available in two forms, a and b:

- a) discs: 26 mm in diameter and 9 mm thickness
- b) 0.2 g samples (in bottles of 25).

ANALYTICAL METHOD USED FOR CERTIFICATION

- 14 MeV neutron activation analysis
- Reducing fusion
- Triton activation analysis
- Surface analysis by prompt (d,p) reaction
- Kjeldahl method
- Heat extraction
- Charged particle activation analysis
- Fast neutron activation analysis
- Photon activation analysis
- Surface analysis by measurement of charged particles from nuclear reactions

PARTICIPANTS

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- CEZUS, Usine de Venthon, Albertville (FR)
- Metallwerk Plansee GmbH, Reutte, Tirol (AT)

SAFETY INFORMATION

The usual laboratory safety precautions apply.

INSTRUCTIONS FOR USE

The form a of the samples is particularly intended for 14 MeV neutron activation analysis, while the form b is particularly intended for reducing fusion.

Before use, samples must be etched for 60 s at 20 °C in a solution containing 4 volumes of HNO₃ (density = 1.4 g/cm³) and 1 volume of HF (40 %), preferably under ultrasonic vibration; the remains of the etching solution are removed by successive immersion of the sample in 3 vessels containing distilled water (the first one preferably under ultrasonic vibration) and 3 vessels containing methanol (same remark). The samples are dried in a warm air stream. Residual surface oxygen is estimated 0.3-0.6 µg/cm² while residual surface nitrogen is estimated 0.1-0.3 µg/cm².

The analysis should be performed as soon as possible after chemical etching of the sample.

For general information on handling of reference materials, please see ERM Application Note 6, available on <https://crm.jrc.ec.europa.eu/e/132/User-support-Application-Notes>.

STORAGE

Store the samples 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.

For more information regarding the shelf life of reference materials please see ERM Application Note 7, available on <https://crm.jrc.ec.europa.eu/e/132/User-support-Application-Notes>.

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NOTE

A detailed certification report is available at <https://crm.jrc.ec.europa.eu/>.

A paper copy can be obtained from the Joint Research Centre, Directorate F – Health, Consumers and Reference Materials on request.



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