EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

CERTIFIED REFERENCE MATERIAL
BCR® – 273

CERTIFICATE OF ANALYSIS

SINGLE CELL PROTEIN			
Element	Mass fraction (based on dry mass)		Number of accepted sets of results p
	Certified value[1)] [mg/g]	Uncertainty [2)] [mg/g]	
Ca	11.97	0.14	16
N	121.6	0.8	10
K	2.22	0.05	15
P	26.8	0.4	15
Fe	0.156	0.004	17

1) This value is the unweighted mean of the means of p accepted sets of results obtained by different sample preparation procedures and analytical techniques. The values are therefore traceable to the International System of Units (SI).
2) The uncertainty is taken as the half-width of the 95 % confidence interval of the mean defined in (1).

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 500 mg.

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, December 1985
Revised: February 2007

Signed: 

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DESCRIPTION OF THE SAMPLE

The material consists of about 10 g single cell protein powder in a sealed argon filled ampoule. Additional information on the Mg-, Na-, S-, and N (Kjeldahl)- content is given in the certification report.

ANALYTICAL METHOD USED FOR CERTIFICATION

A wide range of sample preparation techniques was used prior to analysis, amongst those digestion with mixtures of oxidising acids at normal or elevated pressure, dry ashing, and tube combustion. The following measurement methods were applied:

- Gas volumetry (N)
- Catharometry (N)
- (Flame) atomic emission spectrometry (Ca, K)
- (Flame) atomic absorption spectrometry (Ca, K, Fe)
- Optical emission spectrometry (Ca, K, P, Fe)
- Gamma spectrometry after neutron irradiation (Ca, K, P, Fe)
- Mass spectrometry (Ca, N)
- Gravimetry (P)
- UV- or visible light spectrometry (P, Fe)
- Polarography (Fe)

PARTICIPANTS

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- Universitaire Instellingen Antwerpen, Wilrijk (BE)
- University of Strathclyde, Glasgow (GB)

SAFETY INFORMATION

The usual laboratory safety measures apply.

INSTRUCTIONS FOR USE

The material is intended to be used to check the performance of analytical methods and for calibration purposes. The correction for dry mass can be obtained by drying an aliquote of the sample for about 18 hours at 105 ºC (see Annex II of the certification report).

STORAGE

The ampoules should be kept at 20 °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-273 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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