EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

CERTIFIED REFERENCE MATERIAL
BCR® – 402

CERTIFICATE OF ANALYSIS

WHITE CLOVER			
	Mass fraction based on dry mass		Number of accepted sets of data p
	Certified value [1] [mg/kg]	Uncertainty [2] [mg/kg]	
As	0.093	0.010	15
Co	0.178	0.008	7
Mo	6.93	0.19	13
Se	6.70	0.25	15

[1] 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 SI.

[2] 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 100 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, November 1991
Revised: May 2007

Signed: 

Prof. Dr. Hendrik Emons
Unit for Reference Materials
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Additional Material Information	
	Mass fraction based on dry mass
	Value [1] [mg/kg]
Cr	5.19
Fe	244
Ni	8.25
Zn	25.2
1) The value is traceable to the SI.	

DESCRIPTION OF THE SAMPLE

The material consists of a white clover powder in a glass bottle. The bottle contains about 25 g of powder and a small PTFE ball which has been added to facilitate the homogenisation prior to use.

ANALYTICAL METHOD USED FOR CERTIFICATION

- Direct current plasma atomic emission spectrometry
- Energy dispersive X-ray fluorescence
- Electrothermal atomic absorption spectrometry
- Electrothermal atomic absorption spectrometry with Zeeman background correction
- Hydride generation atomic absorption spectrometry
- Hydride generation inductively couples plasma emission spectrometry
- Inductively coupled plasma emission spectrometry
- Inductively coupled plasma mass spectrometry
- Instrumental neutron activation analysis
- Neutron activation analysis with radiochemical separation
- Visible light or U.V. spectrometry

PARTICIPANTS

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- Università di Pavia, Chimica Generale, Pavia (IT)
- Universität Ulm, Sektion Analytik und Höchtsreinigung, Ulm (DE)

SAFETY INFORMATION

The usual laboratory safety precautions apply.

INSTRUCTIONS FOR USE

The material is intended for the verification or validation of an analytical procedure. This material is not intended for use as a calibrant.
The sample can be used as it is from the bottle. Before a bottle is opened, it should be shaken manually for 5 min so that the material is re-homogenised. The correction to dry mass should be made on a separate portion of 100 mg which should be dried in an oven at 102 °C for 3-4 h until constant mass is attained (successive weightings should not differ by more than 0.2 mg).

STORAGE

After having been opened, the bottle with remaining material should be stored in a dry empty dessicator and may be kept 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.

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NOTE

A technical report on the production of BCR-402 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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