EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Institute for Reference Materials and Measurements (Geel)

CERTIFIED REFERENCE MATERIAL
BCR® – 113

CERTIFICATE OF ANALYSIS

POTASSIUM CHLORIDE FERTILISER			
	Mass fraction		Number of accepted sets of results p
	Certified value [2] [mg/g]	Uncertainty [3] [mg/g]	
K	502.5	1.1	11
K (water soluble)[1]	501.3	0.7	9
Cl	478.0	0.9	14
Na	15.3	0.2	13
Ca	1.03	0.04	11
Mg	0.24	0.01	12

1) Defined according to 77/535/EEC.
2) Unweighted mean value of the means of p sets of data, each being obtained in a different laboratory and/or with a different method. The certified value is traceable to the SI.
3) Half-width of the 95 % confidence interval. The 95 % confidence interval is a measure of the uncertainty and is applicable when the reference material is used for calibration purposes.

When the reference material is used to assess the performance of a method, the user should refer to the recommendations laid down in the last chapter (instructions for use) of the certification report.

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, December 1986
Latest revision: May 2013

Signed:

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DESCRIPTION OF THE SAMPLE

The sample consists of a homogeneous powder (particle size less than 500 µm). The CRM is available in units of 100 g. As the sample is representative for this type of potassium fertilisers, it contains a special anticaking product (a commercial mixture of aliphatic primary amines with chain lengths C_{16}-C_{18}) with a mass fraction of 0.02-0.03 %.

ANALYTICAL METHODS USED FOR CERTIFICATION

With the exception of the determination of the water soluble potassium, the sample was completely dissolved. Methods of determination were:

For potassium:	gravimetry (tetraphenyl borate and perchlorate) titrimetry (thallium nitrate) flame emission photometry
For chloride:	titrimetry (argentometric with potentiometric end point detection or according to Volhard or Mohr) gravimetry (as silver chloride)
For sodium:	flame emission photometry inductively coupled plasma atomic emission spectrometry gravimetry (sodium magnesium uranyl acetate)
For calcium:	flame atomic absorption spectrometry titrimetry (oxydimetric via calcium oxalate or chelatometric) inductively coupled plasma atomic emission spectrometry
For magnesium:	flame atomic absorption spectrometry titrimetry (chelatometric) gravimetry (as magnesium pyrophosphate) spectrophotometry (as quinolate)

PARTICIPANTS

- Mines de Potasse d'Alsace, Mulhouse (FR)
- Joint Research Centre, Commission of the European Communities, Ispra (IT)
- Anic (Azienda Nazionale Idrocarburi), Milano (IT)
- APC (Azote Produits Chimiques), Toulouse (FR)
- Laboratory of the Government Chemist, London (GB)
- Landesanstalt für Landwirtschaftliche Chemie Universität Hohenheim, Stuttgart (DE)
- Landwirtschaftskammer Rheinland, Bonn (DE)
- Services Techniques de l'Agriculture, Ettelbruck (LU)
- State Laboratory, Dublin (IE)
- Station Agronomique de l'Aisne, Laon (FR)
- Università di Bologna, Istituto di Chimica Agraria, Bologna (IT)
- Windmill Holland B.V., Vlaardingen (NL)

The statistical analysis was carried out by the Community Bureau of Reference (BCR).

SAFETY INFORMATION

Not applicable.

INSTRUCTIONS FOR USE

The moisture content can be determined by drying a portion of the sample during at least 4 hours at a temperature of 105 ± 2 °C (5 g of sample in a weighing bottle with an inner diameter of 5.5 cm). The portion for analysis should be taken from the sample as it is. The sample size for analysis should be 1 g or more.

STORAGE

Storage should take place at 18 °C, in the dark and protected from humidity.
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 is available on the internet (http://www.irmm.jrc.be). A paper copy can be obtained from IRMM on request.

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