



REFERENCE SHEET

REFERENCE MATERIAL

IAEA-156

RADIONUCLIDES IN CLOVER

Date of issue: January 2000[⊕]

Recommended Values
(Based on dry weight)

Reference Date for decay correction: 1st August 1986

Element	Recommended Value Bq/kg	95% Confidence Interval Bq/kg	N*
⁴⁰ K	657	637 – 676	40
⁹⁰ Sr	14.8	13.4 – 16.3	20
¹³⁴ Cs	132	126 – 138	48
¹³⁷ Cs	264	254 – 274	48

* Number of accepted laboratory means which were used to calculate the recommended values and confidence intervals.

⊕ Revision of the original reference sheet dated January 1991

The values listed above were established on the basis of statistically valid results submitted by laboratories which had participated in an international intercomparison exercise organized during 1989. The details concerning the criteria for qualification as a recommended value can be found in the report (IAEA/AL/035) "Report on the Intercomparison Run IAEA-156: Radionuclides in Clover" [1]. This report is available free of charge upon request.

Intended Use

This sample is intended to be used as a reference material for the measurement of radionuclides in vegetation samples. It can also be used as a quality control material for the assessment of a laboratory's analytical work, for the validation of analytical methods and for quality assurance within a laboratory.

Origin and preparation of the material

The clover sample was harvested from a small geographical region in Austria in the summer of 1986. It was anticipated that the material would be contaminated with radioactive fallout resulting from the Chernobyl incident in April 1986.

A bulk sample of approximately 1000 kg of the raw clover material was obtained by the Agency's Laboratories at Seibersdorf. The material was air dried and then ground to give a grain size below 0.3 mm before being homogenized in agricultural animal nutrition mixer. The material was dispensed into plastic bottles in 250 g units without any further processing. Subsequently, the samples were irradiated to a dose of 2.5×10^4 Gy using a ^{60}Co source to ensure long-term stability of the material by inhibiting microbial action.

Homogeneity

The homogeneity of the bottled material was screened by comparing the ^{40}K and ^{137}Cs gamma count rates in all bottles used for the intercomparison, chosen at random from the whole production run. The variability of all of the measured count rates fell within the interval predicted from counting statistics and on this basis the material was considered to be homogeneous for a sample size 250 g.

Dry weight determination

All recommended values are expressed on a dry weight basis. Therefore the dry weight must be determined at the time of analysis, using separate sub-samples of at least 500 mg dried to constant weight in a drying oven set to 105 °C. Subsequent weighings should differ by less than 5 mg.

Instructions for use

The recommended sample size for analysis is 250 g. Analysts are reminded to take appropriate precautions in order to avoid contamination of the material during handling. No special precautions are required for the storage of this material.

Legal disclaimer

The IAEA makes no warranties, expressed or implied, with respect to the data contained in this reference sheet and shall not be liable for any damage that may result from the use of such data.

References

- [1] Strachnov V., Valkovic V. and Dekner R., Report on the Intercomparison run IAEA-156: Radionuclides in Clover. IAEA/AL/035, IAEA, Vienna, Austria 1991.

Issued & supplied by

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