



Tritium analysis H-3 - STUK

Measurement	Liquid scintillation counting
Method used for matrices	Water Biological Swipe filters
Separation Method	other
Radionuclide(s)	H-3
Quantity of sample used (in kg, l, ...)	0.5 liter (water)
Counting time for the method	10 hours
MDA of the technique	0.008 Bq/sample
FWHM (Energy MeV)	-
Method Evaluated	No
Method Accredited	Yes
Procedure	

Description of the method

Water samples (500 ml) are distilled twice and in the first distillation also 0.1 mg of AgNO₃ is added to the samples. Distilled water samples are transferred to 250 ml plastic bottles to wait for the measurement.

Plastic scintillation vials are rinsed with 20 ml distilled water. Caps of the vials need to be tight. Small blank labels are placed on the caps and ID is written on the sample with a ballpoint pen. 8 ml of distilled water is added in the sample. After that 12 ml of UltimaGold uLLT scintillation cocktail is added and the sample is shaken thoroughly. Background sample is prepared by adding 8 ml of Pori-Vuoltee-groundwater to the empty scintillation vial and 12 ml of UltimaGold uLLT scintillation cocktail is added and the sample is shaken thoroughly.

In every sample sequence also a H-3 standard sample is measured. One sample from Wallac Standard Kit (H-3 for aqueous solvents) is placed in an empty vial, 8 ml of background water and 12 ml of UltimaGold uLLT scintillation cocktail is added and the sample is shaken thoroughly. Scintillation vials are washed in an ultrasonic bath for 3 minutes with water and 3 minutes with technical alcohol. The samples are placed on the tray and they are let to dry. After final cleaning, samples are handled only from the caps. The liquid scintillation vials are cool dried for two days in Quantulus or in the refrigerator.

Measurement time for samples is 300 minutes, for background 1000 minutes and for standards 15 minutes.

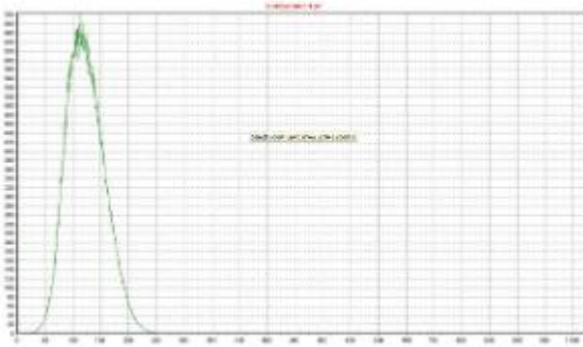


Figure. Tritium spectrum of watersample.

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Contact details

Radiation and Nuclear Safety Authority – STUK, Pia Vesterbacka, Email:
pia.vesterbacka@stuk.fi