Minerals Coal Environmental Tribology Food & Pharmaceutical Industrial

Edition 1 March 2011

RADIOLOGY IN FOOD AND FEEDSTUFF

METHODOLOGY

ALS uses high resolution gamma-spectrometry (HRGS) for the determination of various gamma-radiation emitting radionuclides.

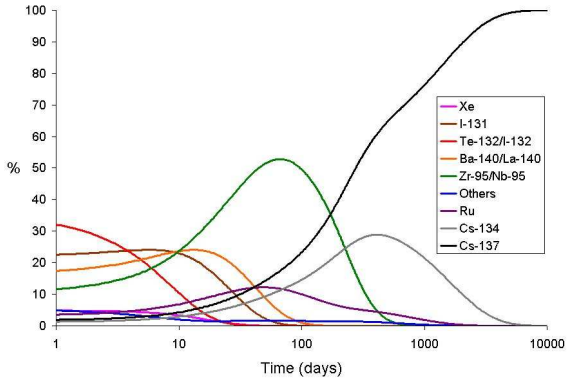
HRGS is a non-destructive testing method and enables determination of most radionuclides present in the sample relatively quickly. The systems use Germanium mono-crystals (HPGe, Ge(Li)) based detectors cooled by liquid nitrogen to decrease noise.

Sophisticated computer soft-wares are used to evaluate analysed spectra.

For the quantification, several corrections have to be applied, such as matrix composition, efficiency, decay, summation effects etc. Usually several gamma-lines are used for radio-nuclide activity evaluation.

RADIONUCLIDES RELEASED DURING NUCLEAR POWER PLANT ACCIDENTS

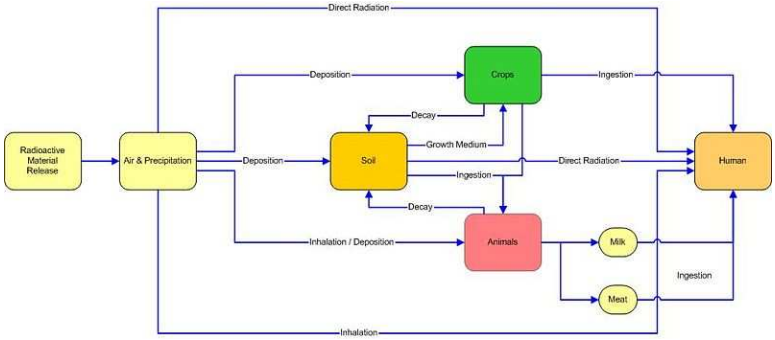
The releases from nuclear reactor accidents contain a greater amount of the short-lived radioisotopes. In several weeks following a nuclear accident predominant radionuclides are Cs-134 and Cs-137.



The contributions made by the different isotopes to the dose (in air) caused in the contaminated area in the time shortly after the accident.

FARMING AND THE TRANSFER TO HUMANS OF DEPOSITED RADIOACTIVITY

After release into the environment, radioactive materials can reach humans in a range of different routes, and the chemistry of the element usually dictates the most likely route.



Airborne radioactive material can have an effect on humans via a range of routes.

LEGISLATION

Council Regulation (Euratom) No 3954/87 of 22 December 1987 laying down maximum permitted levels of radioactive contamination of foodstuffs and of feeding stuffs following a nuclear accident or any other case of radiological emergency.

Commission Regulation (Euratom) No 944/89 of 12 April 1989 laying down maximum permitted levels of radioactive contamination in minor foodstuffs following a nuclear accident or any other case of radiological emergency.

Commission Regulation (Euratom) No 770/90 of 29 March 1990 laying down maximum permitted levels of radioactive contamination of feeding stuffs following a nuclear accident or any other case of radiological emergency.

RADIOLOGY CAPABILITIES

SERVICES FOR RADIONUCLIDES

Monitoring of artificial radionuclides in food and feedstuff

Code	Parameter	LOR Bq/kg	TAT	Sample volume
B-RAD	I-131	5	4 days	100ml
	Cs-134	5		
	Cs-137	5		
	K-40	60		
B-RAD-LL	I-131	1		500ml
	Cs-134	1		
	Cs-137	1		
	K-40	20		

Monitoring of artificial radionuclides in food and feedstuff during several days after nuclear accident

Code	Parameter	LOR Bq/kg	TAT	Sample volume
B-RAD-ACC	I-131	5	4 days	100 ml
	Te-132/I-132	10		
	Ru-103	5		
	Cs-134	5		
	Cs-136	5		
	Cs-137	5		
	Ba-140/La-140	30		
	Zr-95	20		
	Nb-95	20		

ALS CAN ALSO ANALYSE RADIONUCLIDES IN SOLID, WATER AND AIR SAMPLES FOR ENVIRONMENTAL MONITORING.

CONTACT US FOR MORE INFORMATION AND TO REQUEST A QUOTE

Contact person	Phone number	Email
Marek Jiříček	+420 602 243 802	marek.jiricek@alsglobal.com

FOR YOUR CLOSEST RECEIVING OFFICE VISIT WWW.ALSGLOBAL.EU