

 Report from a French incident**Sulphur 35 contamination in a medical research glovebox****Description of the incident**

During research work, Mr. A spilled a S-35 labelled methionine solution of activity of 259 MBq (7mCi) in a laminar flow hood used for the culture of cells. It is during the dispensing of aliquots of solution that this contamination occurred. Unaware of the significance of the contamination, Mr. A took no decontamination measure, and did not advise the qualified person about this incident. Because of this, the contamination remained in place and no one knew about it.

Some hours later, Mrs. B was called upon to work at this station for approximately 15 minutes.

The qualified person in charge of radiation protection had only been advised of the incident the next day, and immediately banned access to the contaminated hood. A decontamination procedure was undertaken - some time after the incident, to allow for radioactive decay (the half-life of S-35 is 88 days).

Radiological consequences

Because of the nature and β - radiation energy emitted by the S-35 (167 KeV), the main potential risk is from internal contamination. 24-hour urine tests were undertaken : no significant residual radioactivity was detected in the urine of either of the persons concerned.

Lessons to be learned from the incident

Regulations require an inspection of the workstations at the end of each handling operation involving radioactive solutions in order to prevent the accumulation of contamination and any subsequent exposures.

The use of colored solutions (as already exist for some radioisotopes) would have allowed the contamination of the workstation to be visually identified.

A logbook, specific to each workstation, should be kept, indicating the nature of the work, the radionuclide and activity used, and the result of contamination checks, thus allowing any incidents to be traced.

Procedures should be drawn to describe the actions to be taken in the event of contamination spills, and to allow for the demarcation of the contaminated area to prevent it being used by other persons.

Staff should receive suitable training on the risk from working with radioactive materials, and on safe working practices including the procedures to be followed in the event of contamination. This training should be provided before they are considered qualified to handle radioactive materials.

As in this specific case, urine analysis should be carried over 24 hours out to assess the level of internal contamination and should be repeated (in the event of significant contamination) the following days to determine the mode of contamination (inhalation or ingestion).