

Acute inhalation of ^{241}Am

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➤ EVENT OF EXPOSURE

- ❖ **Characteristics of work:** The person was in charge with handling an ^{241}Am source in a laboratory.
- ❖ **The event:** While examining an old 370 MBq sealed ^{241}Am source, the person discovered loose contamination in the immediate vicinity of the work area. Subsequent measurements revealed loose ^{241}Am contamination in the general work area.
- ❖ **Actions taken:** A nose swap was taken and a lung measurement was carried out 3 hours after the incident. Positive nose swap indicated inhalation.

A program of monitoring was set up that included in-vivo lung measurements and the collection of urine and faecal samples.

➤ OTHER DATA OF EXPOSURE EVENT

- ❖ Personal data: Male, 35 years, 70 Kg
- ❖ Radionuclide: ^{241}Am
- ❖ Chemical form: Oxide (type M)
- ❖ Type of exposure: Acute
- ❖ Route of incorporation: Inhalation
- ❖ Size of particle: AMAD= 5 μm
- ❖ Date of intake: 10/04/2025 10:00h
- ❖ Activity results in **lung**
- ❖ Activity results in **faeces**
- ❖ Activity results in **urine (normalized 24h)**
- ❖ **Other comments:** The urine data are normalized to Bq/d considering an excretion rate of 1,6 L/day for an adult male.

Measurements of ^{241}Am activity



Time after intake (d)	Activity in lungs (Bq)	Uncertainty 2 σ (%)
0,125	73	52
3	62	52
10	52	52
30	47	52
60	40	52
100	23	52
180	15	52



Time after intake (d)	Urinary excretion (Bq/d)	Uncertainty 2 σ (%)
2	2,88E-01	19
9	5,82E-02	19
15	4,75E-02	19
25	3,42E-02	19
40	2,85E-02	19
60	2,03E-02	19

Time after intake (d)	Faecal excretion (Bq/d)	Uncertainty 2 σ (%)
1	3,1E+01	19
2	9,1E+01	19
3	2,5E+00	19
9	6,7E+00	19
15	3,4E-01	19
25	1,1E+00	19
60	9,8E-02	19