SOP Alpha Sources

PI: Peter Kammel, 7/24/2024

Occasionally sealed alpha sources (Am-241, Cm-244) are used to test the high resolution silicon detectors. All procedures will follow the General CENPA Sealed Source SOP. Here we add specifics for the measurements.

- Properties

$^{241}_{95}$Am	432.6 y	α	5.433	13%	0.0595409	36%
			5.486	85%	Np L x rays	38%
$^{244}_{96}$Cm	18.11 y	α	5.763	24%	Pu L x rays	$\sim$ 9%
			5.805	76%		

- As seen above, the sources also emit low energy X-rays
- Alpha particles are stopped by sheet of paper, the surface layers of skin and cm of air. The activity is low (uC) and danger comes primarily from contamination getting into your body.
- Only handle alpha sources with gloves and wash hands after operation. Never touch the source foil. Used areas must be checked for alpha source contamination using a wipe test after extended usage. The reason is that the coating of these sources is thin, and activity might escape and contaminate the surroundings.
- Rm. 110 contains a locked cabinet, marked with a radiation sign, where the sources will be stored when not in use. The radiation sign will be updated for the sources stored.
- The sources are located behind wrapped lead shielding blocks. As described in the lead SOP, ALWAYS wear gloves when handling metallic lead. As the lead of the source is wrapped, you don't need gloves, but can use them as precaution. Always wash your hands after handling the sources.
- Safe distances for personnel will be established with radiation monitor, taking the RBE (for relative biological effectiveness) of the specific particles into account.

I have read and understand the content of this SOP:

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