

**Interface
LINAC
ID 18 – Hydrogen and Tritium Safety**

DRAFT



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1. HYDROGEN AND TRITIUM SAFETY

The ion source will use hydrogen for plasma creation. There will be one bottle of hydrogen attached to the source at all times, and likely there will be one or a few bottles kept as spares in the source building. These must be kept safe in the case of fire, and a fire resistant cupboard for gas bottles should be available in the area. In this low-energy part of the machine even prompt radiations is low, thus no tritium will be produced in the hydrogen bottles and no special measures are needed for the sake of preventing tritium releases.

Tritium will be produced in the cooling water circuits in the warm part of the linac and in the HEBT. These circuits will be closed circuits, so the tritium bound to the water will stay in there. However, tritiated water decay, and TH or T₂ molecules tend to escape enclosure, so a small release of gaseous tritium from the cooling circuits should be anticipated. The amounts released shall be evaluated by studies. Most of the circuits will be inside the accelerator tunnel, so the leakage of tritium will mainly occur there.