

Tritium by Dissolution

Metals were dissolved in acid in an enclosed system that leads the hydrogen given off through a heated alumina/platinum catalyst. This oxidises the hydrogen to water, or in the case of tritium, to HTO.

This was collected in a water bubbler after the catalysis stage. After dissolution was complete, the bubbler contents and the acid metal solution were bulked together and weighed.

This was then distilled twice, firstly at boiling point to remove the bulk of the metal salts and excess acid, and again at low temperature after neutralising with solid sodium carbonate.

The resulting water was analysed by liquid scintillation counting, using a Quantulus 1220 low-background instrument.