

## Progress of tritium detection and detritiation technique in INPC

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The tritium is widely used in tritium research, tritium technology and future fusion energy, the tritium must be detected while the tritium treatment for the safety of profession man, and the tritium contended waste gas must also be treated for the safety of environment. These two techniques have been developed in INPC of CAEP.

A tritium surface contamination detector(Fig. 1) based on Ar-CH<sub>4</sub> gas has been developed, and the lowest detected contamination standard could be 0.2Bq/cm<sup>2</sup>,the detection base is lower than 80cpm,the efficiency is higher than 55%,theweight is only 2kg. A tritium concentration detector called “Open-Type” Ionization Chamber(Fig. 2) has also been developed, and the lowest detected concentration could be 3.7×10<sup>5</sup>Bq/m<sup>3</sup>, the memory influence could be most lpwered,it could be widely used in various circumstance.

The detritiation technique for waste gases treatment has also been developed, and a serious detritiation system have been obtained. The wetproofed catalyst was employed as the reaction oxidize material, low temperature water collect technique and liquid nitrogen temperature molecular sieve absorb technique was employed to lower the water content of exhaust gases.The treatment capacity could be 10L/min to 100 L/min, and the detrition factor could be higher than 10<sup>3</sup> as the former tritium concentration of 3.7×10<sup>10</sup>Bq/m<sup>3</sup>.



Fig.1 Tritium surface contamination detector

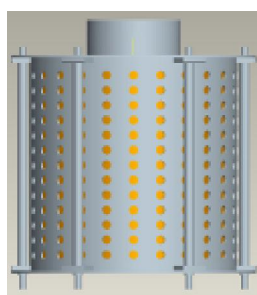


Fig.2 “Open-Type” Ionization chamber



a) DTS- 50      b)DTS- 100  
Fig.3 The detritiation system

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