

# Tritium in Air Measurement Overview

## Application

Tyne Engineering has developed a variety of tritium in room air monitors to meet all your room air monitoring needs. Our ranges of room air monitoring instruments extend from:

- Passive or Active Measurements
- Single Room or Multi Room Measurements
- Installed or easily moved
- Please see Tyne's new Model 7043 Portable Tritium in Air Monitor

## Features

- Please request Tyne's Tritium in Air Monitor Feature Comparison Chart.

## Description

Room air tritium monitors are one of the most important instruments in the field today. They are the first line of defense against body dose. Tyne Engineering has created a wide range of products, from low cost and simple to use to very high tech computer controlled systems that will deal with this issue.

The passive diffuser cell is a low cost solution to totalizing the amount of tritium in air at any single point. Room air passes through the diffuser cell and any tritium diffuses into the liquid solution. The amount of diffused tritium is then manually measured at set time intervals by a liquid scintillation counter. The results can be used to calculate the total amount of tritium seen by the diffuser cell over the time period. This method of room air monitoring is very accurate but labor intensive.

The 4-way Personnel Monitor is a four point tritium in air monitor on a movable cart with "sniffer" tubes on a stand that allow precise positioning of the sampling tubes. The tritium monitor is a real time, continuous measurement backed with a water bubbler which can be measured by liquid scintillation for the totalized tritium. The real time measurement records the tritium activity from HTO and HT and the bubbler only totalizes the HTO so the system can discriminate between the two. This system is very useful for monitoring a person that will be working at a remote location on anything that has tritium contamination.

The Tritium in Air monitor is a single room, continuous real time measurement with full environmental zeroing. The

room air monitor is mounted on the room wall with a sample tube that can be placed up to 100' away. A clean air stream from outside the room will provide the system with a background measurement. The system will continuously switch the monitoring between two channels which allows the controls to zero out all temperature drift, electronic drift, gamma radiation, and plate out. There are two alarms which can be set via the large touch screen panel. This system is the newest technology in compliance room air monitoring.

The Multi Room Tritium in Air Monitor is designed to monitor up to 32 separate rooms for tritium. The system will automatically step through a user selectable sequence of room measurements with a minimum required measurement time of 2 minutes. The system uses a zero maintenance drier with dew point measurements to calculate the background contribution from gamma radiation, other radio nuclides and any offsets from the total signal ensuring that the system only measures the amount of tritium in the HTO form. With the computer control, automatic filter cleaning and zero maintenance drier the system does not require any attention through out the year of operation. All data is logged and charted and can be accessed remotely by health physics. This high tech solution for multi room tritium in air monitoring ensures that all data is recorded without any human errors involved. This system is the perfect cost effective solution for large facilities.