Isotopic Separation System

Model: 7029-ISS-001

Application

The isotopic separation system is used to separate tritium from deuterium and hydrogen. It may be used as the stage following electrolysis in the removal of tritium from heavy water or light water. This product shown is normally used for small quantities. It is designed for 8M³/hr

Features

- Controlled from flowsheet mimic diagram on touch sensitive screen
- Automatic or manual operation
- Stores pure tritium in getter beds

Description

This equipment is based on two molecular sieve packed columns, each cryogenically cooled with liquid nitrogen, and can alternatively be heated in small increments along their length.

Mixed isotopes of hydrogen from an electrolyzer are batch injected into the system and deposited onto one of the two cooled columns. Temperatures are regulated to allow the isotopes to come off the first column in order of molecular size. By manipulating both columns simultaneously and transferring between the columns, it is possible to achieve a clean cut between the different isotopes and to deposit clean pure tritium onto a getter bed, and to discharge pure hydrogen to the stack thus reducing the volume before adding another batch.

The system is contained in a glove box for safety, though every care is taken to provide a safe leak tight system which is fully welded or utilizes high class low leakage fittings where welding is not possible. Some tritium transfer into the box through permeation is unavoidable because of the high temperatures. Valves are all of the bellows sealed types and instrumentation is of the highest caliber.

Specifications

Hydrogen Addition Rate	Batch process, 25 Nl/min, or 50 Nl/min max.
Ionization Chamber	1000cc Tyne Monitor
Operating Pressure Range	Vacuum to 120 psig
Display	19in flat panel color display monitor, mounted in a 6 foot cabinet.
Power Supply	240VAC, 50/60 Hz
Tritium Wetted Parts	316L/304L Stainless Steel, High Density Ceramics
Dimensions	The cabinet (kiosk) measures 72" high x 24" wide and 24" deep Glove box : 10 foot long, 7 foot high, 50 inches wide.
QA	ISO 9001:2000
Instrument Compliance	DOE Tritium Monitor Standard, Rev 4 June 1999