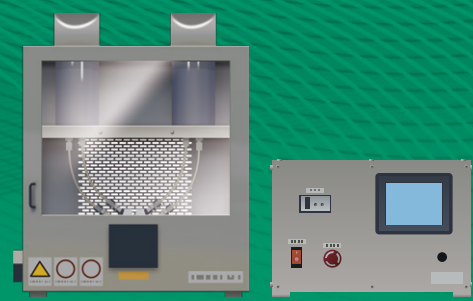


TRIPURE® Tritium enrichment apparatus



What is TRIPURE®?

"TRIPURE®" was developed with the use of our unique technology for "solid polyelectrolyte membrane electrolysis" in cooperation with Dr. Masaaki Saito of the Tokyo Metropolitan Industrial Technology Research Institute. This electrolytic tritium enrichment apparatus is also described in an electrolytic enrichment method in "Methods of Tritium Measurement" that was issued by the Ministry of Education, Culture, Sports, Science and Technology. This apparatus does not require the addition of an alkali or other electrolytes to the water samples as has been required by conventional electrolytic alkali enrichment methods. After distilling the water sample, the apparatus can directly electrolyze and enrich the sample. Hence, this greatly simplifies the process of electrolytic enrichment. The enrichment speed of the water sample depends on the current-carrying capacity. If a water sample is electrolyzed and enriched at the maximum current value that can be set, 1,000 ml of the sample can be enriched to 50 ml in about 60 hours. As the electrolytic products of hydrogen and oxygen are separated, generated, and discharged, the tritium enrichment method is more effective at reducing the explosion risk than conventional electrolytic alkali enrichment methods.

Characteristics of TRIPURE®

"TRIPURE®" offers superior characteristics to conventional electrolytic alkali condensation methods. Its characteristics are as follows:

01 Operability

The TRIPURE® apparatus does not require the troublesome addition of electrolytes or pH control, and can directly electrolyze and enrich a distilled water sample.

After the start of enrichment, it automatically stops at the target enrichment amount. Accordingly, monitoring is not necessary.

02 High-speed condensation

It can operate at a high current density and thus reduce the enrichment time.

03 Safety

Since it separates, generates, and discharges the hydrogen and oxygen, it greatly reduces the risk of explosion. In addition, a continuous monitoring system stops the process automatically and safely upon the occurrence of any anomaly. So, the system can be used with confidence.

Specifications of TRIPURE®

Specifications

Liquid to be enriched	Distilled water sample
Maximum amount of charged liquid	3,000ml
Minimum amount of enriched liquid to be recovered	50ml(Adjustable)
Power	AC100V 50/60Hz
Power consumption	Maximum 1,100 W
Dimensions/weight	
Power control unit	W450mm×H310mm×D600mm/52kg
Electrolytic condensation unit	W555mm×H880mm×D320mm/43kg

* The catalog specifications are subject to change without notice.

Name and dimension of each component

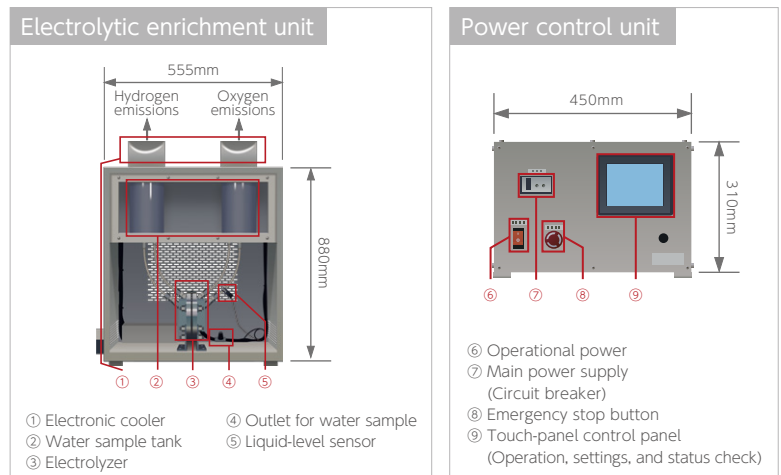


Figure Outline of the apparatus

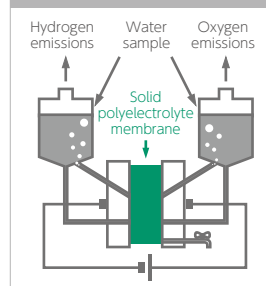
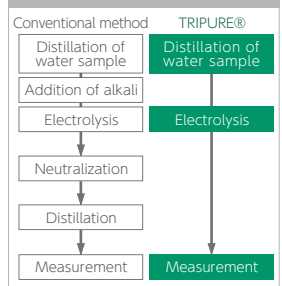
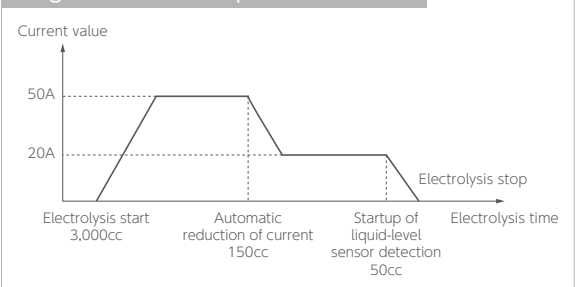


Figure Comparison of operational flows



* As a result of their developing the technology used in this electrolytic tritium enrichment apparatus, which greatly improves the reliability of radioactivity measurement, two of our employees have been awarded the Prize for Science and Technology (Development Category) of the Commendation of Science and Technology by the Minister of Education, Culture, Sports, Science and Technology of Japan for Fiscal Year 2013.

Diagram model for operational status



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