

Tokyo-based Haman Technology Announces Breakthrough Water Purification Technology, Patents for Low-cost, Low-energy Process for Portable through Industrial Use

Haman Technology, Inc., an interdisciplinary R&D institute, is pleased to announce a low-cost, energy-saving water purification technology that produces high-purity clean water from sources such as seawater or wastewater, and also recovers useful substances from all kinds of waste liquids. Haman's newly-patented reduced pressure distillation technology can produce 3.7 liters of fresh water from 10 liters of source water - desalinating seawater at less than 1/5 the cost of conventional processes, with equipment about 1/3 the size of conventional systems.

Haman's new system is designed with processes that are essentially automated, unlike membrane or reverse-osmosis processes, requiring that operators only turn the equipment on or off, thus keeping running costs down. The new system can also be powered by solar energy and wind-generated electricity, or used with commercial power supplies. In addition, it is possible to produce industrial use salt without having to use waste processes when seawater is used as source water.

"Our technology enables equipment small enough to be transported by automobile, or it can be applied to the construction of a large plants," explains Tetsuo Miyasaka, chief developer of the new technology. "If water purification facilities based on our technology are deployed in various places in Japan, for example, it is not impossible for Japan to become a purified water exporter using seawater, a natural resource which is abundant around us."

Haman's new technology is characterized by its compact decompressor, efficient multi-staging through a three-dimensional evaporation surface, simple operation, and natural water flow through differences in height. The compact decompressor and the multi-staging of evaporation surface enable a reduction in the size of desalination equipment and help simplify the process of equipment production, leading to reductions in deployment and operation costs as well as power consumption.

The new system is based on reduced pressure distillation technology, which typically lowers the boiling point of water by reducing pressure, enabling the production of a large amount of distilled water at a lower temperature, with correspondingly less energy. The height of the equipment needed to maintain reduced pressure has typically been at least 10 m. However, Haman's decompression technology achieves the same efficiency with equipment less than 1 m high.

The compact decompressor also paves the way for development of a transportable unit. As a result, the technology is expected to be used in numerous applications, ranging from portable

water purification systems to water purification equipment for emergency use at public facilities, in areas with underdeveloped infrastructures, and for use at medical institutions as well as on ocean vessels.

The official certificates for the granted patents concerning this technology are Patent No. (Japan): 3434238 (2003), Patent No. (US): US6,506,284 B1 (2003), and Patent No. (EU): 1062995 (2004).

“Securing a supply of fresh water is a big issue for all of humanity,” added Miyasaka. “I hope that this technology can be utilized by as many people as possible.”

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