

SibFU Researchers Develop a Device Cutting Desalination Costs Tenfold

The R&D product by the researchers of Siberian Federal University will allow cutting desalination costs tenfold by reducing energy costs for heating and stopping the use of chemical additives in desalination.



The authors of the research developed a technology for fresh water production by cavitation, a phenomenon in which rapid changes of pressure in a liquid lead to the formation of small vapor-filled voids (cavitation microbubbles). The microbubbles collapse causes temperature rise to 15 thousand degrees Celsius, generate intense shock waves up to 10 atmospheres and needle-like jets, in which water moves at a speed of up to 500 meters per second.

“During the desalination process, with cavitation effect, we create a cavern inside a water stream like a soap bubble. Water from the surface of the ocean, river or in one's mug always evaporates. Water molecules on the inner surface of our “bubble”, formed in water, also evaporate, but inside. Therefore, they form the cleanest, almost distilled fraction of the liquid, the indicators of which can later be easily brought to the indicators of drinking water by increasing the content of minerals and organic substances in it,” — said **Dr. Vladimir Kulagin**, Dr.Sc. (engineering), head of the department of heat engineering and fluid dynamics, Polytechnic School SibFU.



The researcher clarified that the device developed at SibFU pumps the molecules of clear water, while salts and other impurities are carried away with the flow of treated water.

Compared with the technology of water desalination by heating, the method by SibFU researchers does not require both high energy consumption and costs for chemical additives used as an alternative way to make groundwater fit for drinking and household use.

“Compared with the above mentioned methods, our technology allows reducing the costs of obtaining one cubic meter of fresh water tenfold,” — **Dr. Kulagin** pointed out.

The technology developed at Siberian Federal University has already been implemented at an enterprise in the city of Nizhny Novgorod. The research was supported by the Russian Foundation for Basic Research (RFBR).

Journalists of the Russian News Agency TASS wrote about the development of researchers.

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Web page address: <https://news.sfu-kras.ru/node/22304>