

Reduce of water contaminated radioactive substance by freezing method

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Reduce of water contained radioactive substance by freezing method

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Accident of Fukushima 1st Nuclear power plant broke out a lot of radioactive substance. The power plant made tremendous amount of contaminated water by radioactive substance. Many tanks were made to store the contaminated water. We thought to apply glaciological technique in order to reduce the contaminated water. It is well known that the water contains every substances and elements, but freezing removes every contaminants.

Experiments were carried out for city water, water contained NaCl or H₂SO₄. Relative concentration was measured by electric conductivity meter. When contaminated water is frozen in vessel of 5 l in cold room of -10C, obtained ice contained concentration of 1/10~1/100 to mother liquid. In these case, ice contained air bubble which become origin of contamination. Next, as an another experiment, cooling pipe immersed in contaminated water and ice formed. This freezing attained clear ice and concentration became smaller to 1/1000 compared for mother liquid. We believe that freezing method can apply for reduce of contaminated radioactive water.