

Water Purification in Borexino

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Water is used in the Borexino Solar Neutrino Experiment as a shielding against external gamma radiation, as well as a medium to be used in purification processes and cleaning of various part of the equipment.

The Borexino Water Purification System uses normal fresh Water (10^{-3} Bq/kg of U-238, Th-232, K-40, 0.3 Bq/kg of Ra-226 and 10 Bq/kg of Rn-222) and makes use of various purification processes to improve radiopurity. Reverse Osmosis, Ultrafiltration, Continuous Deionization and Ga Stripping are used to improve purity.

The final results in term of radioactivity removal are of a factor of 1000 for U,Th,K, about five orders of magnitude for Ra-226 and six orders of magnitude for Rn-222

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