

R&D of tellurium-loaded liquid scintillator

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One of the methods for determining the nature of the neutrino mass is the search for neutrinoless double beta decay. Tellurium is one of the promising isotopes undergoing this decay and liquid scintillator detectors are among the most competitive instruments. Herein the results of the research and development of a new tellurium containing liquid scintillators (Te-LS) based on linear alkylbenzene. Two different approaches to loading of tellurium into a scintillation matrix are proposed and discussed in comparison. The dependence of the transparency and light yield as a function of tellurium concentration has been discussed, optimization of the scintillation composition has been done and the stability of properties of Te-LS has been determined.

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