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Study of copper and TeO₂ contaminations due to radon exposure¹ M. PEDRETTI, N.D. SCIELZO, LLNL, E.B. NORMAN, LLNL, UC Berkeley, C. ANGELL, UC Berkeley — The main goal of CUORE experiment is to search for neutrinoless double beta decay of ¹³⁰Te, that could give information on the effective Majorana neutrino mass and the nature of the neutrino. The sensitivity of the experiment strongly depends on the radioactive background level that can be reached. CUORE R&D has shown that surface contaminations of detector materials are major contributors to the CUORE background. In this context ²²⁰Rn and ²²²Rn, and their daughters, are dangerous isotopes that can cause potential surface contamination of detector elements, like the copper frames and TeO₂ crystals. We used silicon surface-barrier detectors to study the contamination produced by exposing copper to high radon concentrations and we investigated the diffusion of radon inside the copper. Results of these measurements will be presented.

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