Accelerated aging testing of geomembranes for tailings liquor

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ACCELERATED AGING TESTING OF GEOMEMBRANES FOR TAILINGS LIQUOR

Geomembranes selected for various applications often start with considering target properties developed by industry organisations such as Geosynthetic Research Institute (GRI), and test methods developed by ASTM and other Standards organisations. Geomembranes considered for this project included trade-off studies where the material properties exceeded the minimum target values of various tests. The difficulty is in selection which parameters are most important for a particular application and also what service life can be expected for the geomembrane under various chemical and environmental exposure conditions.

Accelerated aging testing of candidate geomembranes in actual process conditions can be useful to select the preferred geomembrane and predict the service life of the geomembrane under different exposure conditions. The exposure conditions of immersion in acidic tailings liquor, splash zone and freeboard zone were considered for evaporation ponds on a site with significant heat and UV radiation. Candidate geomembranes considered a range of different types of polyethylene liners.

The results of the accelerated aging testing have allowed the selection of the geomembrane for the range of exposure conditions and evaluation of the expected service life of the geomembrane.