

Review of MQC and MQA by material and manufacturing factors on wrinkle formation and propagation of geomembranes before/after installation

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ABSTRACT: Geomembranes (GM) should be exposed before/after installation periods under exposure circumstances especially in waste landfill application and GM can be degraded when in contact with sunlight and ultraviolet (UV). Especially, elevated temperatures may be a serious cause of wrinkle formation and propagation of GM and the radiation of the sun, particularly UV is mainly responsible for limiting the lifetime of GM. It is considered that many factors are included to lessen the service life and accelerate a wrinkle formation and propagation of GM before/after field installation. The reasonable way to assess the service life of GM would be done by explaining the connectivity between index and field examining data to be tested under exposure circumstances for simulating the service life feasible because it would take too long to obtain results under field conditions. In this study, it is presented that the GM material and manufacturing factors what effect the wrinkle formation and propagation of GM to be occurred during before/after installation period. Firstly, specific polymeric composition feature as GM material factor is reviewed to explain the connectivity how they affect the wrinkle formation and propagation through analysis of durable performance tests. Secondly, process parameters of GM manufacturing type e.g., extruded, blown and co-extruded type etc. because these manufacturing type can change the GM material structure related performance and this maybe a serious cause of wrinkle formation and GM fracture. Finally, it is reviewed and suggested how to control the connectivity among GM material factor, manufacturing type, MQC and MQA by experimental and theoretical analysis to consider UV exposure condition.