

Qualifying Geosynthetic Materials for Construction of Landfill Lining Systems or Final Covers

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Sometimes material specifications for a specific project, i.e., lining system or final cover system, may be a performance-based specification and does not specify the type of product to be used in construction. What does the engineer need to do when the selected contractor submits a product for approval in accordance with a performance-based specification? Or, what should the engineer do when the owner purchases the material and identifies a product for use based on the performance-based specification?

Specifications that the author prepared in the past are performance-based and include a qualifying procedure whether the product is introduced by a contractor or owner. This qualifying procedure is specifically left to the engineer to carry out by laboratory testing of typical samples of the specific product to be used in construction. Typical reported values by the manufacturer or test results submitted by the contractor or owner are not acceptable under these procedures. Since the engineer takes the liability of accepting a specific type of product for

his or her project, the engineer should have the right to perform laboratory testing before the product is approved



Rolls of geomembrane delivered to project site.

for use in the project, which only makes sense in the world of taking liabilities.



Rolls of GCL delivered to project site.

The testing performed by the engineer for qualifying a product are not counted toward conformance testing of materials delivered to the site. The qualifying procedures are

solely for accepting a certain type of product to be used in the project, but the specific rolls of pre-qualified product manufactured for use in engineer's project must go through the required conformance testing specified in the specifications before use in the project.

The process of qualifying a product, ordering the qualified product, and performing conformance testing on the pre-qualified materials takes time. The engineer needs to build the necessary timing for the involved stages of approval into the construction schedule.

If the material is purchased by the owner, the owner needs to have the timeline in mind to allow the engineer to carry out all necessary testing for the approvals to be in place before construction begins.

Whether the qualifying procedure for a product should be repeated from one project to the next depends on how the performance-based specification is written. Sometimes, the engineer accepts a product that was qualified for use in a prior project as long as the product has not changed since last use in accordance with statements by the

manufacturer. If the performance-based specification includes such options, it is highly recommended that the time period between a prior project and the next project be identified in

the specification. This means the product must go through a qualifying process if the previous set of qualifying data is older than a certain number of years set in the specifications even if the product has not changed for many years.

The time period is based on engineer's judgement; the author normally uses five years in his specifications. During a five-year period, if the product changes or if any reported value by the manufacturer associated with the product specifications change, the qualifying process must be repeated for a new project irrespective of the number of years passed since a recent past project.

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Photos courtesy of SCS Engineers.



Rolls of geotextile delivered to project site.



Rolls of GCL being unloaded at project site.