INNOVATION STORY : IMPROVING PRODUCT EFFICIENCY

A "GROOVY" SOLUTION TO WASTE CONTAINMENT

THE INNOVATION: CREATING THE SUPERGROOVE™ TECHNOLOGY FOR CETCO GEOSYNTHETIC CLAY LINERS (GCL)

BACKGROUND: Waste sites such as landfills, are lined to prevent toxic materials from contaminating surrounding soil and groundwater. Traditional liner systems are layers of compacted clay 2-3 feet thick. Landfills cover hundreds of thousands of square feet of land which require vast quantities of clay that has to be mined, transported, and applied to the desired location. Lining a standard landfill with compacted clay requires several hundred truckloads of clay, making it an expensive and inefficient method. As a result, geosynthetic clay liners, or GCLs, came onto the scene. Easy to transport and install while being highly effective, GCLs contain two layers of polypropylene geotextiles which encompass a layer of low-permeability bentonite clay, that acts as a barrier against contaminants.

GCLs are laid-out in long panels over the waste containment area with adjacent panels simply overlapped. Supplemental bentonite must be added at the overlapped seams both left/right and top/bottom. The supplemental bentonite seals the panels, preventing preferential flow of water and contaminants through the liner system. Applying bentonite to the overlap is an additional cost in terms of labor and material.

These issues prompted one CETCO employee to come up with alternatives to the overlap zone bentonite application. He realized that if there were a way to remove a small strip of the GCL's fabric along the edge, the bentonite that was already in the material would be exposed and free to exude into the overlap area sealing the overlap.

Using an air knife—a hand-held wand that shoots out hot air and is used to cut thread and fabric fibers, CETCO was able to successfully create a SuperGroove™ in the GCL. The air knife worked on several levels. Not only were there no blades to go dull, but issues regarding the depth of the cut were eliminated. Also, no removal of a fabric strip was required because the air knife melted the fabric right off. This tool was modified for the masses and today, this process is a part of the manufacturing line.

RESULT: The SuperGroove™ is a precision cut in the non-woven geotextile of CETCO GCL products that allows bentonite to more freely extrude into the overlap zone, ensuring that the hydraulic performance of the entire seamed GCL system is equal to that of unseamed portions. In addition, by reducing the amount of supplemental bentonite needed for seaming, SuperGroove™ lowers costs and speeds up installation. SuperGroove™ is an innovation that performs consistently and uniformly, saving time and money for our customers. At AMCOL we don't stop at good ideas, we strive to make them better.

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http://lining.cetco.com/LeftSideNavigation/GEOSYNTHETICCLAYLINERS/tabid/1467/

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