



CETCO[®]

SOLUTIONS FOR WORLDWIDE MINING APPLICATIONS



OUR STANDARDS. YOUR PEACE OF MIND.



CETCO[®]

BENTOMAT® THE GLOBAL STANDARD FOR GEOSYNTHETIC CLAY LINERS

CETCO BENTOMAT®

Sodium bentonite-based GCLs provide an excellent hydraulic barrier in applications where leachate in direct contact with the GCL is relatively non-aggressive, or in composite lining applications where the GCL is overlain by a thermally welded geomembrane and hydrates from uptake of innocuous moisture from the subgrade.

APPLICATIONS

- Impoundments
- Leach Pads
- Capping

A geosynthetic clay liner (GCL) is an engineered hydraulic barrier consisting of high-swelling clay bonded to a geosynthetic material or encapsulated between layers of geosynthetic materials that is mass-produced under controlled factory conditions producing a thin, composite barrier of uniform quality that exceeds the performance of conventional compacted clay barriers.

Through our proprietary, high-density needlepunching technology, CETCO encapsulates high-quality bentonite, or our patented polymer-modified bentonites, between geotextiles to produce GCLs with industry-leading shear strength performance meeting the slope stability demands commonly found in mining applications.

RESISTEX® THE SOLUTION FOR CHEMICALLY AGGRESSIVE MINING AND MINE WASTE STORAGE

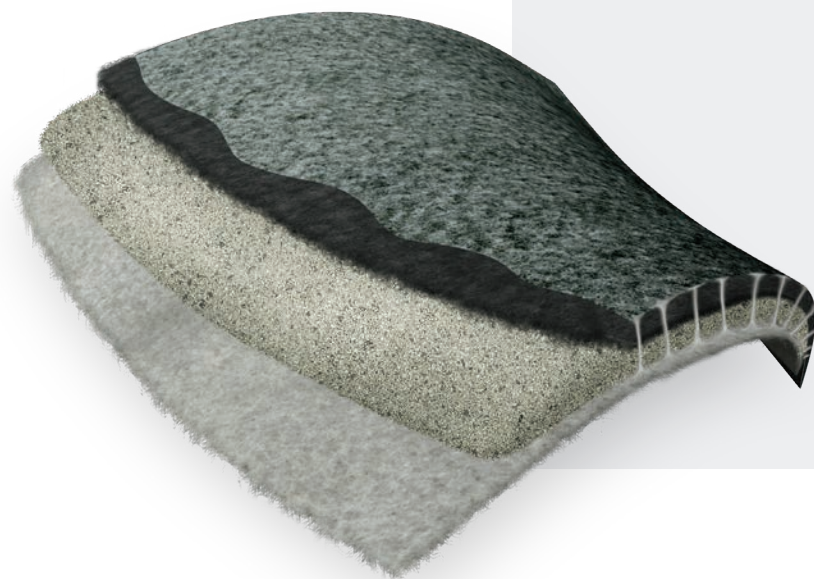
CETCO RESISTEX®

Polymer-modified bentonite GCLs are engineered to provide the highest level of chemical compatibility for hydraulic barrier performance in extremely aggressive leachate environments.

Our RESISTEX® family of GCLs offer compatibility with a wide range of pH, electrical conductivity, and ionic strengths that are common to mining liquids. CETCO recommends project-specific compatibility testing for the proper selection from the RESISTEX® family of GCLs.

APPLICATIONS

- Bauxite Residual Storage
- Evaporation/Retention Basins
- Leach Pads
- Capping



CETCO RESISTEX® won the award for “Best Geosynthetics Innovation and Technology” at GeoME 2015.

CETCO developed a membrane-laminated RESISTEX® GCL for the containment of caustic liquor from the bauxite refining process at the ALCOA-Ma’aden integrated aluminum project in Ras Al Khair, Saudi Arabia.



SINGLE DEPLOYMENT COMPOSITE LINER SOLUTION



CETCO C-GARD

is an innovative geosynthetic composite for applications where protection and cushioning to prevent puncture and other damage to the primary geosynthetic liner system is needed. In comparison to ordinary nonwoven geotextiles, CETCO C-GARD offers superior protection, and lays flat when deployed for intimate contact with the primary liner. It is an ideal solution for superior protection of the primary geosynthetic liner system for mining leach pads.



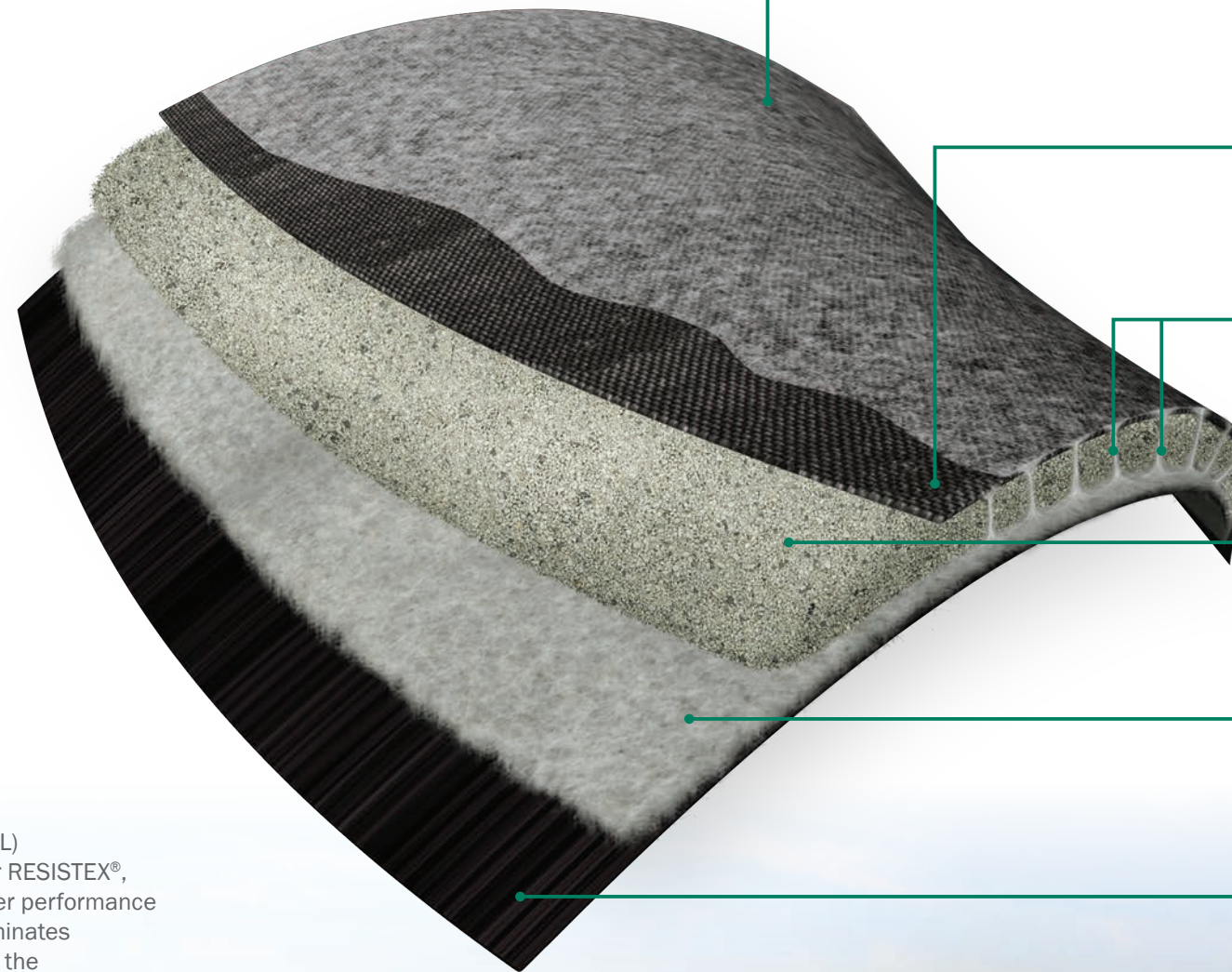
CETCO has long sought a variety of ways to be environmentally responsible. For example CETCO C-GARD production recycles rubber. Old rubber is among the largest and most problematic source of waste, due to the large volumes produced and durability.

UNMATCHED FLEXIBILITY TO CUSTOMIZE OUR GCLS TO FIT THE NEEDS OF OUR CUSTOMERS

APPLICATIONS

- Bauxite Residual Storage
- Evaporation/Retention Basins
- Leach Pads
- Secondary Containment
- Capping

CETCO Composite Laminates offer either smooth membrane laminate (CL) or textured membrane laminate (CLT) bonded to a core of BENTOMAT® or RESISTEX®, as appropriate for project-specific compatibility, to provide composite liner performance in a single product deployment. CETCO uses polyethylene membrane laminates produced via either blown-film or calendar processes, and conforming to the requirements of industry-recognized standards.



Carrier Geotextile: nonwoven or woven, mass per unit area, mechanical properties, durability.

Optional Woven Scrim Reinforcement: combined with a nonwoven carrier geotextile as needed to achieve project-specific mechanical properties or dimensional stability.

Needlepunching: as needed to achieve project-specific performance.

Clay: sodium bentonite or our proprietary polymer-modified bentonite.

Nonwoven Cap Geotextile: mass per unit area, mechanical properties, durability.

Polyethylene Membrane Laminate: thickness, mechanical properties, smooth or textured, durability; governing standard.



PROVIDING INSIGHT, HELPING YOU SUCCEED

RESEARCH AND DEVELOPMENT

The CETCO commitment to innovation has led to new industry-leading products and solutions. Our international team of clay mineralogists, chemists and polymer scientists, transform ordinary minerals into extraordinary technologies. Our multidisciplinary research and development team creates new products to support our customers' needs. Our growing portfolio of patents demonstrates our commitment to technological innovation across the markets that we serve.



TECHNICAL SUPPORT

Our experience and application knowledge provide you insight into project design. In addition to offering high quality products, CETCO provides unparalleled technical support. Our multi-disciplinary technical staff are recognized subject matter experts, fluent in our products and technologies with application experience throughout the world. We are here to provide solutions for your project challenges. Contact your local CETCO technical sales manager about any of our environmental products for your next project.

CETCO ENVIRONMENTAL AND WASTE WATER PRODUCTS

VARIED TECHNOLOGIES APPLICABLE TO ACTIVE MINING, REMEDIATION AND CLOSURE



SOLIDIFICATION/ STABILIZATION

TYPICAL APPLICATIONS

- Soil stabilization/solidification
- Dredging waste stabilization
- Low level radioactive waste



WASTE/WATER CONTAINMENT

TYPICAL APPLICATIONS

- Mining waste containment
- Industrial waste containment
- MSW containment
- Water containment



SEDIMENT REMEDATION

TYPICAL APPLICATIONS

- Permeable reactive barriers
- Sediment capping
- Slurry walls
- Collection trenches



VAPOR MITIGATION SYSTEMS

TYPICAL APPLICATIONS

- Under-slab vapor intrusion
- Subterranean vapor intrusion
- Methane barriers

WASTEWATER TREATMENT PRODUCTS



FLOCCULANT TECHNOLOGIES

TYPICAL TREATMENT APPLICATIONS

- Emulsified Oils
- Heavy Metals
- Suspended Solids

We constantly seek new, innovative technologies and efficient business processes to remain a market leader. We strive for success by focusing on continuous improvement in all facets of the business—processes, systems, products, services and people.

As a group we are present in 35 countries with 159 locations and 12 own R&D centres.

Thousands of delivered projects allowed us to build expertise, trust and our strong position as global market leader.

We place the health and safety of people ahead of all else. The safety of our workforce, visitors, customers and neighbors is the primary concern of CETCO. Responsibility for health and safety is shared by all employees.

Strategically located people, manufacturing and research facilities give us the ability to serve the toughest project demands around the world.