REHABILITATION PRODUCTS
Manholes, Pipes and other Civil Infrastructure

- Geopolymers
- Epoxies
- Hybrid Cements
A Geopolymer is a formulated mortar comprised of aluminosilicate powder with an alkaline activator to form a monolithic mineral polymer with ceramic properties. A geopolymer is not an epoxy or a plastic blended with aggregate.

GeoKrete® Geopolymer cures through a process of polycondensation and possesses proven, high early and long-term compressive strength. Additionally, with superior bond strength, GeoKrete liners can be applied in layers and under multiple mobilizations. The chemical composition of GeoKrete Geopolymer makes it inherently resistant to the microbial induced corrosion prevalent in many sewer environments. Geopolymers contain greatly reduced concentrations of calcium hydrates, commonly found in cementitious mortars, furthering the suitability of GeoKrete in low PH environments.

Application Method
GeoKrete® is specially designed for ease of use with mechanical pumping, spraying and spin-casting equipment.

Since 1991, QUADEX LLC has been developing and manufacturing superior quality lining and structural restoration materials for water and wastewater infrastructure. All Quadex™ materials and application systems are designed to restore deteriorated structures to “like new” condition and prolong infrastructure service life for up to 50 or more years.

When combined with Quadex’s highly engineered spinMASTER™ and sprayMASTER™ equipment, Quadex Repair Materials can renew old manholes and other infrastructure quickly, precisely and deliver decades of uninterrupted service.
**Structure Guard**

**Description**
Structure Guard® is a 100% solids, monolithic epoxy with zero shrinkage and can be applied up to 250 mils in a single pass. Once applied, Structure Guard will not delaminate, is holiday-free, and provides an impermeable, corrosion resistant coating on deteriorated structures. Structure Guard provides superior adhesion to moist surfaces and an uncompromised application in damp, humid environments.

**Application Method**
Structure Guard can be hand, spray or spin applied with approved plural component spray equipment.

**Recommended For**
- Sewer pipes and manholes
- Pump stations
- Concrete or masonry vaults and tanks
- Treatment plant headworks and diversion structures
- Steel pipes and tanks

**Features and Benefits**
- 100% Solids, no VOCs
- No de-lamination
- Quick drying
- Smooth surface greatly decreases time spent cleaning high maintenance structures at treatment plants

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**Structure Guard® - Water**

**Description**
Structure Guard® - Water is NSF Certified for pipe 4” and greater and tanks 50 gallons and larger.

**Application Method**
Can be plural component sprayed or trowel applied.

**Recommended For**
- Concrete and steel potable water tanks
- Potable water pipe (perfect for long pipes)
- Raw water pipe and tanks
- Fiberglass potable water tanks

**Features and Benefits**
- 25-minute pot life, for extended recoat time
- NSF 61 & 61.5 Certification

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**Flex Guard™**

**Description**
Flex Guard™ is a 100% solids, hybrid epoxy coating that provides both strength and chemical resistance while delivering 30-40% flexibility.

**Application Method**
Flex Guard is designed for spray or trowel applications.

**Recommended For**
Flex Guard is engineered and formulated for concrete, brick and steel structures affected by freeze/thaw.

**Features and Benefits**
- 100% Solids, no VOCs
- Quick drying
- Can be applied in areas of high humidity
- Unaffected by freeze/thaw
### ALUMINALINER™
**Calcium Aluminate Mortar**

**Description**
AluminaLiner™ is a factory blended, one component, fiber reinforced, fused calcium aluminate cement mortar, enhanced with mono crystalline quartz aggregate. It is designed for moderate corrosion protection while simultaneously rebuilding structural integrity and eliminating ground water infiltration.

**Application Method**
Low pressure spray application is recommended for best coverage.

**Recommended For**
Stand alone lining on concrete or masonry sewer structures such as manholes and wet wells with a pH of 2 or higher. Can also be utilized as a structural underlayment for an epoxy top-coat.

**Features & Benefits**
- Fully structural
- Quality controlled one-component blend for uniform results
- High early and ultimate compressive, flexural and bond strengths
- Corrosion resistant in an environment with a pH of 2 or higher
- Excellent freeze/thaw and abrasion resistance
- Low permeability

**Also Available:**
AluminaLiner PF
Available upon request, AluminaLiner PF is enhanced Calcium Aluminate (100% CA) clinker aggregate and is recommended for mildly aggressive corrosive environments.

AluminaLiner Cure
AluminaLiner Cure is a curing compound specifically designed for use with Calcium Aluminate cements. The compound forms a thin layer, on top of the primary liner, to allow the majority of the liner to cure at a slower, more consistent rate avoiding an extreme exothermic reaction.

### QM-1s RESTORE™
**High Strength Cement Based Mortar**

**Description**
QM-1s Restore™ is a factory blended, one component, high strength cement based, fiber reinforced, Portland-based cement mortar enhanced with a mono crystalline quartz aggregate. It is designed for low/non-corrosive environments while simultaneously rebuilding structural integrity and eliminating ground water infiltration.

**Application Method**
Low pressure spray application is recommended for best coverage.

**Recommended For**
Stand alone lining on concrete or masonry sewer structures such as manholes with a pH of 3 or higher. Can also be utilized as a structural underlayment for an epoxy top-coat.

**Features & Benefits**
- Fully structural
- Quality controlled one-component blend for uniform results
- High early and ultimate compressive, flexural and bond strengths
- Resistant to sulfate attack
- Low permeability
CONSTRUCTION MATERIALS

QUADEX PATCHING MATERIALS

Hyperform™

Description
Hyperform™ is a one component, rapid-setting, high early strength patching material designed for repairing vertical and horizontal concrete and masonry structures. With invert lining, flow can be released with 25-30 minutes post mixing.

Application Method
Prepare surface to be patched by removing all loose concrete using an air or electric hammer. After area is completely free of contaminants, trowel apply.

Recommended For
Filling large voids in manhole walls, reconstructing inverts, catch basins and pipe repair.

Features & Benefits
• Rapid-setting
• High early and ultimate strengths
• Non-shrinking
• No calcium chloride
• Ready to use - just add water
• Excellent resistance to freeze/thaw

Quad-Plug™

Description
Quad-Plug™ is a blend of hybrid cements and admixtures and designed to instantly stop running water or seepage in all types of concrete and masonry structures.

Application Method
Prepare crack or hole by chipping out loose material to a minimum depth and width of 3/4”. With a rubber gloved hand, place a generous amount of dry Quad-Plug and apply with a smooth, fast motion over the active leak. Maintain external pressure for 30 seconds. Repeat until leaks stop.

Recommended For
Sewer pipes and manholes, concrete tanks, elevator pits, cisterns, basements, concrete and masonry walls.

Features & Benefits
• Stops running water immediately
• Non-shrink, expands as it sets
• Contains no calcium chloride
• Non-metallic
• Sulfate resistant
• No mixing

SOURCE ONE ENVIRONMENTAL CHEMICAL GROUTS

SealGuard II - for high flow leakage

Description
SealGuard II is highly reactive dual component hydrophobic polyurethane with a 1 - 3 second reaction time. It is designed to stop rapid water flows (> 50 GPM) into concrete or other underground structures. SealGuard II is hydrophobic, so it won’t shrink, gives off no VOCs and requires no special breathing apparatus or other special PPE.

Recommended For
For water control and I & I in manholes, vaults and other concrete, brick or stone structures, above or below grade.

HyperFlex - for lower flow rate infiltration

Description
Certified NSF 61-2007, HyperFlex is a pre-catalyzed chemical grout with no mixing required. It foams when it contacts water. It is flexible and non-shrinking.

Recommended For
Cracked or honeycombed concrete, voids between walls, floor or ceiling expansion joints, cold joints, pipe intrusions and any other void which needs to be filled. HyperFlex reacts slower by design to migrate further.

X-SEAL - for bonding and sealing concrete, metal, plastic, wood

Description
X-SEAL is a single component, hydrophobic polyurethane sealant. X-Seal is also an excellent general construction adhesive and sealant and can be used to join virtually any porous surface.

Recommended For
Manhole frames, chambers and vaults, X-SEAL bonds and seals concrete, metal, plastic, wood and pre-cast connections, and expands to fill voids and seal all substrates.
**QRM PERFORMANCE SNAPSHOT**

**GeoKrete® Geopolymer Mortar**
Corrosion Protection Level — High (pH of 1 or higher)
Structural Level — Fully Structural
Recommended For — Corroded metal, concrete or masonry structures such as pipe, manholes, wet wells and treatment plant structures where microbiologically induced corrosion (MIC) is a problem.

**Structure Guard® SE 1000 Powered by Stag Technologies**
Corrosion Protection Level — High (pH of less than 1)
Structural Level — Structural Enhancement
Recommended For
- Sewer pipes and manholes
- Pump stations
- Concrete or masonry vaults and tanks
- Treatment plant headworks and diversion structures
- Steel pipes and tanks

**Structure Guard® - Water SE 3000 Powered by Stag Technologies**
Corrosion Protection Level — High
Structural Level — Structural Enhancement
NSF Certification — 61 & 61.5 (Pipes ≥4", Tanks ≥50 gal)
Recommended For
- Concrete and steel potable water tanks
- Potable water pipe
- Raw water tanks
- Raw water pipe
- Fiberglass potable water tanks

**AluminaLiner™ Calcium Aluminate Mortar**
Corrosion Protection Level — Moderate (pH of 2 or higher)
Structural Level — Fully Structural
Recommended For — Stand alone lining on concrete or masonry sewer structures such as manholes, wet wells with a pH of 2 or higher. Can also be utilized as a structural underlayment for an epoxy top-coat.

Note: AluminaLiner PF, available upon request, is enhanced with Calcium Aluminate clinker aggregate (100% CA).

**QM-1s Restore™ Cement Based Mortar**
Corrosion Protection Level — Low (pH of 3 or higher)
Structural Level — Fully Structural
Recommended For — Stand alone lining on concrete or masonry sewer structures such as manholes, wet wells with a pH of 3 or higher. Can also be utilized as a structural underlayment for an epoxy top-coat.

More details on these products can be found inside this brochure.