
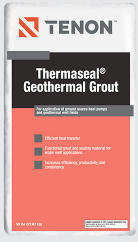
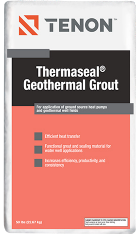


ADVANTAGES/USES	CONSTRUCTION GROUT	THERMASEAL GEOTHERMAL GROUT HF	THERMASEAL GEOTHERMAL GROUT (MN MIX)	HIGH STRENGTH PRECISION GROUT
				
	<ul style="list-style-type: none"> • Non-shrink, non-metallic, cement-based mixture of hydraulic cement, aggregate, and additives for structural grouting and general purpose grouting, anchoring, and hole filling • Can be mixed to plastic, flowable, or fluid consistency based on application requirements • Above and below grade • Interior and exterior • Commercial use 	<ul style="list-style-type: none"> • Thermally conductive cementitious grout engineered for application of vertical ground source heat pumps and geothermal well fields. • High-solids grout with low permeability • Non-toxic • Safe with potable water • Functional grout and sealing material for water well applications • Easy to pump with conventional geothermal grout pumps 	<ul style="list-style-type: none"> • Thermally conductive cementitious grout engineered for application of vertical ground source heat pumps and geothermal well fields. • High-solids grout with low absorption • Non-toxic • Safe with potable water • Functional grout and sealing material for water well applications 	<ul style="list-style-type: none"> • Non-shrink, non-metallic, mixture of hydraulic cement, aggregate, and additives for structural grouting and general purpose grouting, anchoring, and hole filling • Can be mixed to plastic, flowable, or fluid consistency based on application requirements • Above and below grade • Interior and exterior • Commercial use
APPLICATION				
Thickness	Min ½" Max 4"	N.A.	N.A.	1-4" (neat) 4-8" (extended)
Initial Set Time @ 70°F	0:15 (hr:min)	0:30 (hr:min)	> 2:00 (hr:min)	Varies. See data sheet.
Final Set Time @ 70°F	N.A.	N.A.	> 4:00 (hr:min)	Varies. See data sheet.
Pot Life @ 70°F	15 min	30 min	30 min	Varies. See data sheet.
Open to Use	1-3 days	30 min	30 min	1-3 days (depending on project requirements)
Temperature Use Range	50°F-90°F	50°F-90°F	50°F-90°F	40°F-80°F
Industry Standards	Meets ASTM C-1107 Meets Corps of Engineers Specification CRD-C 621	HF (high-flow) mix is approved for use by the Illinois Department of Health	MN Mix conforms to Chapter 4725 of the Minnesota Department of Health Administrative Rules (Section 4725.01; Subp.226)	Meets ASTM C1107, CRD-C621
Enhancements	Non-shrink Pumpable and flowable	Target thermal conductivity standard of 0.75-1.0 BTU/hr-ft-F° (varies by product)	Target thermal conductivity standard of 1.0 BTU/hr-ft-F°	Non-shrink Pumpable
Compressive Strength	1,750-3,450 psi (24 hr) 8,200-10,500 psi (28 day)	N.A.	N.A.	Varies. See data sheet.
Suitable Substrates (Refer to Data Sheet for restrictions and notes)	Fully cured, structurally sound concrete	Pressure grouting to fill bore holes in rock, soil, concrete, masonry, and similar materials Ground source heat loops	Pressure grouting to fill bore holes in rock, soil, concrete, masonry, and similar materials Ground source heat loops	Fully cured, structurally sound concrete
Color	Gray	Gray	Gray	Gray

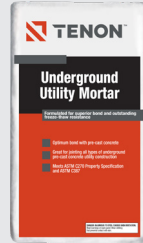
ADVANTAGES/USES

REFRACTORY MORTAR



- For fireplaces, fire pits, flues, brick pizza ovens, etc.
- Good for applications up to 2550°F
- Air entrained for freeze-thaw resistance
- One hour working time
- Interior/exterior use
- ASTM C199

UNDERGROUND UTILITY MORTAR



- Optimum bond with pre-cast concrete
- Excellent freeze-thaw resistance
- Air-entrained, preblended moisture
- 60 minute working time
- No curing is required
- Above/below grade applications
- Jointing all types of underground pre-cast concrete utility construction
- Laying concrete brick in manhole catch basins
- Parge coat over brick

INSTANT ANCHORING CEMENT



- Expands as it hardens to set securely
- Accelerated, sets in approximately 20 minutes
- Excellent flowability and workability
- Add water, mix, and use
- Interior/exterior
- Sets handrails, bolts, poles, and fixtures
- Used with concrete or masonry

INSTANT HYDRAULIC CEMENT



- Bonds to wet walls
- Sets in 3-5 minutes
- Just add water, mix, and use
- Stops seepage leaks
- Interior and exterior use
- Above and below grade
- Paintable when cured
- Plugs holes in walls
- Seals water flow in ponds or fountains
- Swimming pool repairs

APPLICATION

	REFRACTORY MORTAR	UNDERGROUND UTILITY MORTAR	INSTANT ANCHORING CEMENT	INSTANT HYDRAULIC CEMENT
Thickness	Fire/Clay Brick: 1/8" - 3/8" Flue Tile: 1/8"	N.A.	N.A.	N.A.
Initial Set Time @ 70°F	0:60 (hr:min)	1:00 (hr:min)	< 0:20 (hr:min)	0:03 (hr:min)
Final Set Time @ 70°F	N.A.	1:30 (hr:min)	< 0:30 (hr:min)	0:05 (hr:min)
Pot Life @ 70°F	60 min	60 min	20 min	5 min
Open to Use	N.A.	N.A.	1 hr	N.A.
Temperature Use Range	40°F-100°F	> 40°F	40°F-80°F	40°F-100°F
Industry Standards	ASTM C-199	Meets ASTM C270, ASTM C1714	Meets ASTM C191, ASTM C109	ASTM C109
Enhancements	Air-entrained for freeze-thaw resistance	Air-entrained	Fast setting, interior and external use	Non-metallic
Compressive Strength	N.A.	3,780 psi (28 day, ASTM C387) 5,050 psi (28 day, ASTM C270)	> 5,000 psi (24 hr) > 10,000 psi (28 day)	> 2,500 psi (24 hr) > 5,500 psi (28 day)
Suitable Substrates (Refer to Data Sheet for restrictions and notes)	Fire brick, clay flues	Above or below grade, jointing of all types of underground precast concrete, utility construction laying, and concrete brick in manholes and catch basins	Concrete and masonry	Concrete and masonry
Color	White	Gray	Gray	Gray