Atlas Minerals & Chemicals, Inc.

DATA SHEET

3-28PI (6-03²)
Supersedes 3-28PI (1-98)

CHEMESTER® GROUT

DESCRIPTION AND TYPICAL USES

CHEMESTER GROUT is a sanitary corrosion resistant novolac vinyl ester resin grout formulated specifically for grouting tile and paver floors utilizing the "Waxed-Tile" technique. CHEMESTER GROUT is used to grout vertical joints of tile set in conventional sand / cement beds or epoxy resin bond coats. The consistency of CHEMESTER GROUT provides dense, homogenous joints ensuring a completely sanitary chemical resistant floor. CHEMESTER GROUT offers superior chemical resistance to cleaning agents and sanitizers when compared to many epoxy grouts being used in the food and beverage industries. CHEMESTER GROUT is suitable for intermittent temperature service to 225°F (107°C). CHEMESTER GROUT complies with ASTM C658 specifications for chemical resistant resin grouts.

CHEMICAL RESISTANCE

CHEMESTER GROUT is resistant to many acids, alkalies, salts, cleaning agents, detergents, oils, fats, greases, bleaches and solvents. It has outstanding resistance to chlorine, chlorine dioxide, sodium and calcium hypochlorite and nitric acid used in the food process industries as cleaners and sanitizers. CHEMESTER GROUT is unaffected by many food processing residues, wastes and bacteria. CHEMESTER GROUT is resistant to the chemicals used in the C.I.P. process. The black pigmented materials are not color stable when exposed to free chlorine and chlorine bleaches. Black joints will turn white, however, the performance of the floor is not impaired. Refer to the chemical resistance chart for specific information.

AVAILABLE COLORS

CHEMESTER GROUT is available in white, black or gray. Custom colors are available upon request.

PACKAGING AND COVERAGE

CHEMESTER GROUT

20 lb. (9.1 kg.) Unit Consisting of:
One - 1-gal. can of Resin (4 lb. [1.8 kg.])
One - bottle of Hardener (28 grams)
One - bag of Powder (15 lb. [6.8 kg.])

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
Density	ASTM C905	125 lb./cu. ft. (200 g./cc.)
Bond Strength, 14 days @ 77°F (25°C)	ASTM C321	245 psi. (1.69 MPa)
Tensile Strength, 7 days @ 77°F (25°C)	ASTM C307	1,800 psi. (12.4 MPa)
Compressive Strength, 7 days @ 77°F (25°C)	ASTM C579	10,600 psi. (73.1 MPa)
Modulus of Rupture, 7 days @ 77°F (25°C)	ASTM C580	3,700 psi (25.5 MPa)
Coefficient of Thermal Exp., in./in./°F (cm./cm./°C)	ASTM C531	1.8×10^{-5} (3.2×10^{-5})
Water Absorption	ASTM C413	< 0.1%
Linear Shrinkage	ASTM C531	0.3%
Working Time @ 75°F (24°C)		25 min.

198.1 lb. (89.9 kg.) Unit Consisting of:
One - 5-gal. pail of Resin (40 lb. [18.1 kg.])
One - bottle of Hardener (9.6 oz [272 g.]) ea.
Three - bags of Powder (52 lb. 8 oz. [23.8 kg.]) ea.

METHOD OF CONSTRUCTION

Tile: The tile should be a premium grade low absorbing, impervious unit with smooth, non-skid or abrasive surface. Scratch bottom, shallow groove, or V-Back design is recommended.

Waxing: The top surface of the tile must be given a coat of hot paraffin wax. Tile with abrasive surface may require double waxing of the surface. The wax can be applied by the tile or paver manufacturer or at the jobsite using waxing units available from ATLAS. The coating of wax should never have a milky or cloudy appearance which indicates the paraffin is being applied too cold or too thick. The paraffin coating should always be continuous and transparent. The wax **must** be kept off the sides of the tile. Waxed tile must be stacked back to back, or waxed surface to waxed surface. Never stack waxed surface to unwaxed surface.

Floor Slab & Setting Bed: Structural slabs above grade should contain the standard waterproofing membrane used in floor construction. The membrane should be continued up the walls well above the final floor elevations. When structural slabs are laid on grade at the option of the architect or owner, the

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ESTIMATING TABLE - CHEMESTER GROUT

FLOOR AREA

Brick / Tile Size	Pieces per Sq. Ft.	1/4" Wide x Full Depth Joint – Square Feet per Unit	
		20 lb. Unit	198.1 lb. Unit
6" x 6" x 1/2"	3.686	48 sq. ft.	485 sq. ft.
6" x 6" x 3/4"	3.686	32 sq. ft.	323 sq. ft.
8" x 3-7/8" x 1"	4.231	21 sq. ft.	213 sq. ft.
8" x 3-7/8" x 1-3/16"	4.231	18 sq. ft.	179 sq. ft.
8" x 3-7/8" x 1-3/8"	4.231	15 sq. ft.	155 sq. ft.
8" x 4" x 1/2"	4.107	43 sq. ft.	435 sq. ft.
8" x 4" x 1-3/8"	4.107	15 sq. ft.	158 sq. ft.
8" x 4" x 1-1/2"	4.107	14 sq. ft.	145 sq. ft.

Material estimating quantities may vary depending on job conditions and application techniques. Material quantities above are theoretical and don't include a safety factor.

waterproofing membrane may be omitted. When the membrane is omitted and a sand / cement bed is placed on the structural slab, a concrete tie cement should be used to ensure positive bond of the sand / cement bed to the structural slab. Use the sand / cement bed to establish proper elevations and pitch to drains of approximately 1/4" (6.4 mm.) per foot. The tile are bedded just deep enough into the sand / cement bed to permit tamping for leveling. Care should be taken to ensure that the bed material does not go up into the open vertical joints more than 1/8" (3.2 mm.). No joint spacing mixes are permitted. The CHEMESTER GROUT must be the full depth of the tile. Grouting can proceed after allowing the bed to cure for 72 hours at a temperature of 75°F and relative humidity of less than 70%.

CHEMESTER GROUT can also be used with other setting beds, such as ATLAS RED FURNANE®, Data Sheet 5-55PI or REZKLAD® MORTAR, Data Sheet 5-34PI. For additional information, refer to ATLAS Bulletin 5-500.

MIXING AND APPLICATION INSTRUCTIONS

NOTE: ODORS FROM UNCURED CHEMESTER GROUT WILL CONTAMINATE CERTAIN FOOD, BEVERAGE AND PHARMACEUTICAL PRODUCTS. REMOVAL OF THESE PRODUCTS IS NECESSARY DURING THE INSTALLATION AND CURE OF THE FLOOR. EVACUATE ODORS TO EXTERIOR ENVIRONMENT AND RESTRICT ODORS FROM CIRCULATING THROUGHOUT THE BUILDING.

CHEMESTER GROUT is completely unitized for ease of mixing and to eliminate on the job weighing. Pour the contents of the one-gallon (4 lb. [1.8 kg.]) can of Resin into a five-gallon mixing can. Place the mixing can onto a KOL Mixer and begin mixing. Add the contents of one 28 gram bottle of Hardener and mix until the color is uniform (not more than two minutes). After thoroughly blending the two liquid components, add the bag of powder to the liquid mixture. Mix until uniform. Immediately place the material on the floor to be grouted and spread out to extend the working life. CHEMESTER GROUT has a working time of 25 minutes at 75°F (24°C). Spread the freshly mixed grout with a rubber-faced trowel. On the last pass, hold the trowel at a right angle to the tile surface and pull diagonally across the open joints, leaving as little grout as possible on the surface of the tile. ATLAS recommends double grouting to ensure full joints when using brick or pavers. The second pass must be made within 24 hours of the initial pass.

Steam Cleaning: The floor should remain undisturbed, free from traffic, liquids, dirt and contaminants until the CHEMESTER GROUT has set. Initial set will require four to six hours at 75°F (24°C). Steam cleaning should not be done before 24 hours of curing time has elapsed. In-plant steam or a portable steam unit capable of generating 80-100 pounds pressure is recommended to melt and remove the coating of wax and excess CHEMESTER GROUT from the surface of the tile.

Regrouting Existing Floors: CHEMESTER GROUT can be used to regrout floors with firmly bedded tile or pavers. All joints must be cut out to a minimum depth of 1/2" (12.7 mm.) to provide adequate surface bonding area. After cutting, thoroughly scrub and degrease open joints with appropriate detergent to remove grease, dirt and other contaminants. After scrubbing the floor, rinse thoroughly with clean water and allow to dry. Clean out joints with an air hose or vacuum before proceeding with grouting. Follow grouting technique for new tile floors using a rubber-faced trowel. This technique will leave a slight residue on the floor of the tile which will wear off in time. Do not attempt to water wash this residue as it may interfere with the cure of the joints.

COVE BASE

Adjust the consistency of CHEMESTER GROUT by adding Powder as necessary for application in vertical joints.

CLEANING OF TOOLS AND EQUIPMENT

Solvents, such as methyl ethyl ketone, toluene or xylene will remove the materials referred to in this Data Sheet from mixing tools and equipment if cleaning is done immediately after use. Fully hardened material will have to be removed by mechanical means.

Dispose of residues and wastes in accordance with the directions in the Material Safety Data Sheets and government regulations.

STORAGE AND SHELF LIFE

Store all materials in a cool, dry environment. Keep all materials out of direct sunlight. CHEMESTER GROUT Resin and Hardener must be stored at 60°F (16°C) or less. Protect from freezing. In unopened original containers, CHEMESTER GROUT Resin and Hardener have a shelf life of approximately four months. CHEMESTER GROUT Powder has a shelf life of approximately one year.

PRODUCT SPECIFICATION

The grout shall be CHEMESTER GROUT as manufactured by Atlas Minerals & Chemicals, Inc. The grout shall comply with the requirements of ASTM C658. The grout shall consist of an epoxy novolac vinyl ester resin with a silica filler.

PRECAUTIONS

The materials referred to in this Data Sheet are for Industrial Use Only. They contain materials that present handling and potential health hazards. Consult Material Safety Data Sheets and the container labels for complete precautionary information.

TECHNICAL SERVICES

ATLAS maintains a staff of Technical Service Representatives who are available to assist you with the use of ATLAS products. In the event of difficulties with the application of ATLAS materials, the installation should be stopped immediately and ATLAS' Technical Service Department consulted for assistance.

WARRANTY

ATLAS warrants that its products will be free from defects in workmanship and materials under normal use for a period of one (1) year from the date of shipment by ATLAS (provided the products are installed before the expiration of the shelf life). THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR THE PURPOSE FOR THIS PRODUCT WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. ATLAS' LIABILITY FOR ALLEGED BREACH OF THIS WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT (BUT NOT INCLUDING REMOVAL OF THE DEFECTIVE PRODUCT OR INSTALLATION OF REPLACEMENT PRODUCTS). ATLAS SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES DURING THE WARRANTY PERIOD OR THEREAFTER. **ATLAS' WARRANTY IS VOIDED IF PAYMENT FOR PRODUCT IS NOT RECEIVED IN FULL.**

Note: Atlas makes it a practice to continuously update and enhance our CCM (Corrosion Resistant Construction Materials) products. This may result in slight discrepancies between our printed Data Sheets and the current version. For the most recent version of any Data Sheet, please visit our Web site at www.atlasmin.com

CHEMICAL RESISTANCE OF CHEMESTER® GROUT (3-28PI)

	80°F	H
Acetaldehyde	N	N
Acetic Acid, to 10%	R	R
Acetic Acid, Glacial	N	N
Alum or Aluminum Sulfate	R	R
Aluminum Chloride, Nitrate	R	R
Ammonium Chloride, Nitrate, Sulfate	R	R
Ammonium Hydroxide, to 25%	R	R
Amyl Acetate	N	N
Amyl Alcohol	R	C
Aniline	C	N
Aqua Regia	N	N
Barium Chloride, Nitrate, Sulfate	R	R
Barium Hydroxide	R	R
Barium Sulfide	R	R
Benzene	R	N
Benzene Sulfonic Acid, 30%	R	R
Benzoic Acid	R	R
Boric Acid	R	R
Bromine Water	N	N
Butyl Acetate	C	N
Butyl Alcohol, normal	R	C
Butyric Acid	R	C
Cadmium Chloride, Nitrate, Sulfate	R	R
Calcium Bisulfite	R	R
Calcium Chloride, Nitrate, Sulfate	R	R
Calcium Hydroxide, to 25%	R	R
Carbon Disulfide	N	N
Carbon Tetrachloride	R	R
Chlorine Dioxide, Water Solution	R	R
Chlorine, Dry or Wet	R	R
Chlorine Water	R	R
Chloroacetic Acid, to 10%	R	C
Chlorobenzene	R	C
Chloroform	N	N
Chromic Acid, to 5%	R	R
Chromic Acid, 5% to 20%	R	R
Chromic Acid, above 50%	N	N
Citric Acid, to 10%	R	R
Copper Chloride, Nitrate, Sulfate	R	R
Dichloroacetic Acid, 10%	R	N
Dichlorobenzene	R	C
Diethyl Ether	N	N
Ethyl Acetate	N	N
Ethyl Alcohol	R	C
Ethyl Sulfate	R	C
Ethylene Dichloride	N	N
Ethylene Glycol	R	R

	80°F	H
Fluosilicic Acid, 30%	R	C
Formaldehyde	R	R
Formic Acid	R	C
Gasoline	R	R
Glycerine	R	R
Gold Cyanide	R	R
Hexane	R	R
Hydrobromic Acid	R	R
Hydrochloric Acid	R	R
Hydrocyanic Acid	R	R
Hydrofluoric Acid	RA	RA
Hydrofluosilicic Acid	RA	RA
Hydrogen Peroxide	R	C
Hydrogen Sulfide Gas, Dry or Wet	R	R
Iron Chloride, Nitrate, Sulfate	R	R
Isopropyl Ether	N	N
Kerosene	R	C
Lactic Acid	R	R
Lead Acetate, Nitrate	R	R
Linseed Oil	R	R
Magnesium Chloride, Nitrate, Sulfate	R	R
Magnesium Hydroxide, to 25%	R	R
Maleic Acid	R	R
Mercuric Acetate	R	R
Methyl Acetate	R	C
Methyl Alcohol	R	C
Methyl Ethyl Ketone	C	N
Methyl Sulfate	C	N
Mineral Oil	R	R
Mineral Spirits	R	R
Muriatic Acid	R	R
Nickel Chloride, Nitrate, Sulfate	R	R
Nitric Acid, to 20%	R	R
Nitric Acid, 40%	N	N
Nitrobenzene	R	C
Oleic Acid	R	R
Oxalic Acid	R	R
Perchloric Acid, to 30%	R	C
Phenol, to 5%	R	R
Phosphoric Acid	R	R
Phosphorous Acid	R	R
Phosphorous Trichloride	N	N
Phthalic Acid	R	R
Picric Acid, to 10%	R	R
Potassium Bicarbonate, Carbonate	R	R
Potassium Chloride, Nitrate, Sulfate	R	R
Potassium Cyanide, Ferricyanide, Ferrocyanide	R	C

	80°F	H
Potassium Hydroxide, to 25%	RA	RA
Pyridine	N	N
Rochelle Salt	R	R
Salicylic Acid	R	R
Silver Nitrate	R	R
Sodium Acetate	R	R
Sodium Bicarbonate, Carbonate	R	R
Sodium Chloride, Nitrate, Sulfate	R	R
Sodium Cyanide, 10%	R	R
Sodium Hydroxide	RA	RA
Sodium Hypochlorite, to 6%	R	R
Sodium Hypochlorite, 6% to 12%	R	C
Sodium Sulfide, Sulfite, Thiosulfate	R	C
Soya Oil	R	R
Stearic Acid	R	R
Sulfur Dioxide Gas, Dry or Wet	R	R
Sulfur Trioxide Gas, Dry	R	R
Sulfur Trioxide Gas, Wet	R	R
Sulfuric Acid, to 50%	R	R
Sulfuric Acid, above 50%	R	R
Sulfurous Acid	R	R
Tannic Acid	R	R
Tartaric Acid	R	R
Tin Chloride, Sulfate	R	R
Toluene	R	C
Trichloroethylene	N	N
Trisodium Phosphate	R	R
Tung Oil	R	R
Urea	R	R
Xylene	C	N
Zinc Chloride, Nitrate, Sulfate	R	R

(6-03²)

KEY

R - Recommended
N - Not Recommended
C - Conditional; May be serviceable if the contaminant is immediately removed or washed off the surface.
A - Silica filler may be attacked.
H - Up to temperature limitations of the mortar. When the chemical boils below this point, resistance is shown to the boiling point.

Note - The information presented in the chemical resistance tables is based on judgments derived from laboratory testing and field service performance. The tables have been prepared as a guide to performance. No guarantee of results is made or implied and no liability in connection with this information is assumed. The information presented herein should be supplemented by in-service testing. The data furnished in the tables may be revised on the basis of further testing.