



Atlas Minerals & Chemicals, Inc.



DATA SHEET

5-51PI (1-00²)
Supersedes 5-51PI (1-93)

VITREX® II MORTAR

DESCRIPTION AND TYPICAL USES

VITREX II MORTAR is a special silicate based, corrosion resistant mortar formulated to be water resistant while exhibiting excellent resistance to oxidizing and mineral acids. VITREX II MORTAR has a thermal resistance range up to 1,500°F (816°C) which allows it to be used with chemical resistant brick to construct masonry sheathing to protect chimneys, incinerators and other high temperature equipment. Where the corrosive environment precludes the use of resin and sulfur mortars, VITREX II MORTAR may be used for floor construction. VITREX II MORTAR will provide optimum chemical resistance as well as resist the large quantities of water required to flush away high concentrations of acids. Floors installed with VITREX II MORTAR should utilize a minimum brick thickness of 2-1/4" for trucking service and a 1-3/8" brick with scored sides for light-duty service.

CHEMICAL RESISTANCE

Refer to the chemical resistance chart for specific information.

PACKAGING

VITREX II MORTAR

180 lb. (81.6 kg.) Unit Consisting of:

One - 5-gal. pail of Liquid (55 lb. [24.9 kg.]*)

Two - bags of Powder (62 lb. 8 oz. [28.4 kg.]) ea.

*VITREX II Liquid is also available in a 620 lb. (281.2 kg.) drum.

MIXING OF THE VITREX II MORTAR

VITREX II MORTAR is prepared by mixing VITREX II Powder with VITREX II Liquid to form a workable mix. The mix ratio is one part VITREX II Liquid to 2.25 parts VITREX II Powder by weight. Mix ratios may be varied slightly without harm to the material to accommodate environmental conditions. VITREX II MORTAR is a chemical setting mortar. The temperature at the time of use should be between 60°F (16°C) and 85°F (29°C). Mechanical mixing of the mortar is recommended using a KOL or equivalent mixer.

When mechanically mixing, the batch size should not exceed 30 lb. (13.6 kg.). When mixing by hand, use a shallow mixing pan (stainless steel, aluminum or porcelain). Thoroughly mix only the amount of mortar

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
Density	ASTM C905	116 lb./cu. ft. (1.86 g./cc.)
Bond Strength, 7 days @ 77°F (25°C)	ASTM C321	80 psi. (0.55 MPa)
Tensile Strength, 7 days @ 77°F (25°C)	ASTM C307	375 psi. (2.59 MPa)
Compressive Strength, 7 days @ 77°F (25°C)	ASTM C579	2,200 psi. (15.2 MPa)
Flexural Strength, 7 days @ 77°F (25°C)	ASTM C580	1,000 psi. (6.89 MPa)
Coefficient of Thermal Exp., in./in./°F (cm./cm./°C)	ASTM C531	4.3 x 10 ⁻⁵ (7.7 x 10 ⁻⁵)
Water Absorption	ASTM C413	8.0%
Linear Shrinkage	ASTM C531	0.8%

that can be used in 20 minutes. The mortar cannot be used after it begins to stiffen. Do not attempt to retemper. Remove all material from the mixing container before another batch is mixed. When working at temperatures above 85°F (29°C), use small batches no larger than 6 lb. (2.7 kg.). If the working life is still too short, cool the VITREX II Liquid before using. Minimum air and substrate temperature for application is 60°F (16°C).

APPLICATION OF THE VITREX II MORTAR

VITREX II MORTAR is buttered on a chemical resistant brick using the Bricklayer's method. Brick should be clean, dry and at a moderate temperature before installing. Temperature at the time of installation should be between 60°F (16°C) and 85°F (29°C). During and after completion of the installation, the area must be kept clean, dry and free from foreign matter, such as dirt, portland cement, plaster and other contaminants which would interfere with the setting of the cement.

TYPICAL WORKING & SETTING TIMES OF THE VITREX II MORTAR

Temperature	Working Time	Setting Time
60°F (16°C)	25-30 min.	3-1/2 to 4-1/2 hours
70°F (21°C)	20-25 min.	2-1/2 to 3 hours
80°F (27°C)	10-15 min.	1-1/2 to 2 hours
90°F (32°C)	5-10 min.	1 to 1-1/2 hours

CLEANING OF TOOLS AND EQUIPMENT

Steel wool, soap and warm water will remove the materials referred to in this Data Sheet from mixing tools and equipment if cleaning is done immediately after use. Solvents, such as methyl ethyl ketone, toluene or xylene, will have to be used after the material has begun to harden. 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. Ideal storage temperature is 75°F (24°C). Protect from freezing. If VITREX II Liquid freezes, warm to 100°F (38°C) and stir vigorously before using. In unopened original containers, VITREX II Powder has a shelf life of approximately nine months. VITREX II Liquid has a shelf life of approximately one year.

PRODUCT SPECIFICATION

The system shall be VITREX II MORTAR as manufactured by Atlas Minerals & Chemicals, Inc. The manufacturer shall be ISO 9001 registered for the manufacture and sale of corrosion resistant products.

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.**

CHEMICAL RESISTANCE OF VITREX® II (5-51PI)

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

	80°F	H
Formic Acid	R	R
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	N	N
Hydrofluosilicic Acid	N	N
Hydrogen Peroxide	R	R
Hydrogen Sulfide Gas, Dry or Wet	R	R
Iron Chloride, Nitrate	R	R
Iron Sulfate	G	G
Isopropyl Ether	R	R
Kerosene	R	-
Lactic Acid	R	R
Lead Acetate, Nitrate	R	R
Linseed Oil	R	R
Magnesium Chloride, Nitrate	R	R
Magnesium Sulfate	G	G
Magnesium Hydroxide	N	N
Maleic Acid	R	R
Mercuric Acetate	R	R
Methyl Acetate	R	R
Methyl Alcohol	R	R
Methyl Ethyl Ketone	R	R
Methyl Sulfate	R	R
Mineral Oil	R	R
Mineral Spirits	R	R
Muriatic Acid	R	R
Nickel Chloride, Nitrate	R	R
Nickel Sulfate	G	G
Nitric Acid	R	R
Nitrobenzene	R	R
Oleic Acid	R	R
Oxalic Acid	R	R
Perchloric Acid	R	R
Phenol, to 5%	R	R
Phosphoric Acid	R	R
Phosphorous Acid	R	R
Phosphorous Trichloride	R	R
Phthalic Acid	R	R
Picric Acid	R	R
Potassium Bicarbonate, Carbonate	N	N
Potassium Chloride, Nitrate, Sulfate	R	R
Potassium Cyanide, Ferricyanide, Ferrocyanide	N	N

	80°F	H
Potassium Hydroxide	N	N
Pyridine	N	N
Rochelle Salt	R	R
Salicylic Acid	R	R
Silver Nitrate	R	R
Sodium Acetate	R	R
Sodium Bicarbonate, Carbonate	N	N
Sodium Chloride, Nitrate	R	R
Sodium Cyanide	N	N
Sodium Hydroxide	N	N
Sodium Hypochlorite	N	N
Sodium Sulfate	G	G
Sodium Sulfide	N	N
Sodium Sulfite, Thiosulfate	R	R
Soya Oil	R	R
Stearic Acid	R	R
Sulfur Dioxide Gas, Dry or Wet	R	R
Sulfur Trioxide Gas, Dry or Wet	R	R
Sulfuric Acid	G	G
Sulfurous Acid	R	R
Tannic Acid	R	R
Tartaric Acid	R	R
Tin Chloride, Sulfate	R	R
Toluene	R	R
Trichloroethylene	R	R
Trisodium Phosphate	N	N
Tung Oil	R	R
Urea	R	R
Water, Tap	R	R
Xylene	R	R
Zinc Chloride, Nitrate	R	R
Zinc Sulfate	G	G

(1-00)

KEY

R - Recommended

N - Not Recommended

C - Conditional; May be serviceable if the contaminant is immediately removed or washed off the surface.

G - Possible failure through crystalline growth.

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.