



Atlas Minerals & Chemicals, Inc.



# DATA SHEET

5-41PI (2-01<sup>2</sup>)  
Supersedes 5-41PI (9-00)

## CARBO-KOREZ® MORTAR

### DESCRIPTION

CARBO-KOREZ MORTAR is a 100% carbon filled phenolic resin mortar for chemical resistant brick construction.

### TYPICAL USES

CARBO-KOREZ MORTAR is recommended for floors, trenches, sumps, containment dikes, process vessels, storage tanks, scrubber towers and dryers requiring the chemical, physical or thermal resistance of chemical resistant brick construction.

### CHEMICAL RESISTANCE

CARBO-KOREZ MORTAR is resistant to sulfuric acid, up to 93%, and a variety of solvents, such as trichloroethylene and methylene chloride. CARBO-KOREZ MORTAR is resistant to all non-oxidizing acids, dilute oxidizing acids and agents, salts and most organic solvents. Refer to the chemical resistance chart for specific information. CARBO-KOREZ MORTAR complies with the specifications of ASTM C395 for chemical resistant resin mortars.

### METHOD OF INSTALLATION

CARBO-KOREZ MORTAR is installed using conventional bricklaying techniques. CARBO-KOREZ MORTAR can be used as a mortar for chemical resistant brick construction, as a bed joint over an impervious membrane or with RED FURNANE® SETTING BED, Data Sheet 5-55PI.

### AVAILABLE COLORS

CARBO-KOREZ MORTAR is available in black only.

### PACKAGING

#### 150 lb. (68.0 kg.) Unit Consisting of:

- One - 5-gal. pail of Resin (50 lb. [22.7 kg.]
- Two - bags of Powder (50 lb. [22.7 kg.]) ea.

### TEMPERATURE DURING APPLICATION

Store CARBO-KOREZ MORTAR at 70°F (21°C) to 80°F (27°C) for 24 hours prior to use. The best working characteristics of the materials will be attained when the temperature of the substrate, air and CARBO-KOREZ MORTAR are between 65°F (18°C) and 85°F (29°C).

Minimum temperature for installation is 60°F (16°C).

## PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
Density	ASTM C905	94 lb./cu. ft. (1.51 g./cc.)
Bond Strength, 7 days @ 77°F (25°C)	ASTM C321	200 psi. (1.38 MPa)
Tensile Strength, 7 days @ 77°F (25°C)	ASTM C307	1,250 psi. (8.62 MPa)
Compressive Strength, 7 days @ 77°F (25°C)	ASTM C579	8,500 psi. (58.6 MPa)
Flexural Strength, 7 days @ 77°F (25°C)	ASTM C580	2,700 psi. (18.6 MPa)
Coefficient of Thermal Exp., in./in./°F (cm./cm./°C)	ASTM C531	3.5 x 10 <sup>-5</sup> (6.3 x 10 <sup>-5</sup> )
Water Absorption	ASTM C413	0.2%
Temperature Resistance Continual		370°F (188°C)
Linear Shrinkage	ASTM C531	0.3%

### MIXING OF THE CARBO-KOREZ MORTAR

Stir the contents of the resin container prior to blending. Mix components by hand using a clean, dry, plastic or metal container and a mason's trowel.

#### 150 lb. (68.0 kg.) Unit

The following mixing instructions are for a batch size of 6 lb. (2.7 kg.):

- a. Place 2 lb. (907 g.) or 26 fluid ounces (0.8 liters) of CARBO-KOREZ MORTAR Resin in the 5-gallon capacity mechanical mixer.
- b. Add approximately 4 lb. (1.8 kg.) or 78 fluid ounces (2.3 liters) of CARBO-KOREZ MORTAR Powder.
- c. Mix the combined components for approximately two minutes or until all the powder is thoroughly dispersed.

**Note:** Proportionally increase or decrease the resin and powder quantities to attain larger or smaller batch sizes. For larger batch sizes, a KOL type mixer with a 5-gallon capacity may be used. The mixing speed should be between 60 and 75 RPM.

**Note:** The amount of the powder may be varied slightly to obtain the desired consistency. Decreasing the powder component will decrease the estimated coverage and will increase the cure time of the mortar.

**THE POWDER MUST BE WITHIN 5%, BY WEIGHT, OF THE SUGGESTED AMOUNT.**

### APPLICATION OF THE CARBO-KOREZ MORTAR

**BRICK JOINTS:** Install the mortar using conventional

**MIX RATIO CHART - CARBO-KOREZ MORTAR**

<b>CARBO-KOREZ MORTAR</b>	<b>Parts by Weight</b>	<b>Weight</b>	<b>Volume</b>
CARBO-KOREZ MORTAR Resin	100	2 lb. (907 g.)	26 fl. oz. (0.8 liters)
CARBO-KOREZ MORTAR Powder	200	4 lb. (1.8 kg.)	78 fl. oz. (2.3 liters)
<b>Batch Size</b>		6 lb. (2.7 kg.)	0.06 cu. ft. (1.8 liters)

**TYPICAL WORKING AND SETTING TIMES OF THE CARBO-KOREZ MORTAR**

<b>Temperature</b>	<b>Working Time</b>	<b>Support Foot Traffic</b>	<b>Cure Before Steam Cleaning</b>
60°F (16°C)	20-25 min.	8-10 hours	48 hours
75°F (24°C)	15-20 min.	3-4 hours	24 hours
85°F (29°C)	10-15 min.	2-3 hours	18 hours

bricklaying techniques. Apply the mortar to two sides of the brick forming a “V” profile. Place the brick on the setting bed and slide it into place to attain a 1/8” (3.2 mm.) wide joint. Strike excess mortar before the mortar begins to set.

**BED JOINT:** Apply the mortar with a 3/16” V-notched trowel held at a 45 degree angle. Place a sufficient amount of mortar to provide a continuous bond coat to the specified thickness. Do not apply more mortar than can be covered in 10 to 15 minutes at 75°F (24°C).

**WAXING OF THE BRICK FOR FLOORS**

CARBO-KOREZ MORTAR can stain red shale brick during installation. Paraffin wax can be applied to the surface face of the brick to eliminate staining. The wax coating and excess mortar are removed from the surface of the brick by steam cleaning. Use a minimum 60 psi. nozzle pressure for cleaning. Allow 24 hours at 65°F (18°C) or 12 hours at 85°F (29°C) minimum cure time before steam cleaning.

**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. CARBO-KOREZ MORTAR Resin must be stored between 40°F (4°C) and 60°F (16°C). Protect from freezing. In unopened original containers, CARBO-KOREZ MORTAR Resin has a shelf life of approximately three months. CARBO-KOREZ MORTAR Powder has a shelf life of approximately one year.

**PRODUCT SPECIFICATION**

The mortar shall be CARBO-KOREZ MORTAR as

manufactured by Atlas Minerals & Chemicals, Inc. and comply with the requirements of ASTM C395. The mortar shall consist of a phenolic resin with a 100% carbon filler and be resistant to 93% sulfuric acid and chlorinated solvents.

**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.**

**ESTIMATING TABLE - CARBO-KOREZ MORTAR****FLOOR AREA**

<b>Brick Size</b>	<b>Installed Thickness</b>	<b>Pieces per Sq. Ft.</b>	<b>1/8" Wide x Full Depth Joint Square Feet per Unit</b>	<b>1/8" Setting Bed &amp; 1/8" Wide x Full Depth Joint Square Feet per Unit</b>
			<b>150 lb. Unit</b>	<b>150 lb. Unit</b>
8" x 3-7/8" x 1-3/16"	1-3/16"	4.431	345 sq. ft.	105 sq. ft.
8" x 3-7/8" x 1-3/8"	1-3/8"	4.431	300 sq. ft.	100 sq. ft.
8" x 4" x 1-3/8"	1-3/8"	4.297	305 sq. ft.	100 sq. ft.
8" x 4" x 1-1/2"	1-1/2"	4.297	280 sq. ft.	95 sq. ft.
8" x 3-3/4" x 2-1/4"	2-1/4"	4.574	180 sq. ft.	80 sq. ft.
8" x 3-3/4" x 2-1/4"	3-3/4"	7.462	75 sq. ft.	50 sq. ft.
8" x 3-3/4" x 4-1/2"	3-3/4"	3.832	120 sq. ft.	65 sq. ft.
8" x 3-3/4" x 4-1/2"	4-1/2"	4.574	90 sq. ft.	55 sq. ft.

Bed Joint over membrane at 1/8": 150 sq. ft. (13.9 m<sup>2</sup>) per 150 lb. unit

**COVE BASE**

<b>Cove Size</b>	<b>1/8" Wide x Full Depth Joint Linear Feet per Unit</b>	<b>1/8" Setting Bed &amp; 1/8" Wide x Full Depth Joint Linear Feet per Unit</b>
	<b>150 lb. Unit</b>	<b>150 lb. Unit</b>
5" H x 8" L x 1-3/16"	720 lin. ft.	155 lin. ft.
5" H x 8" L x 1-3/8"	620 lin. ft.	150 lin. ft.
3-7/8" H x 8" L x 1-3/8"	890 lin. ft.	300 lin. ft.
8" H x 3-3/4" L x 2-1/4"	225 lin. ft.	115 lin. 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.

## CHEMICAL RESISTANCE OF CARBO-KOREZ® MORTAR (5-41PI)

	80°F	H
Acetaldehyde	R	R
Acetic Acid	R	R
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	R	N
Aqua Regia	N	N
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	R	C
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	C	N
Chlorine Water	R	-
Chloroacetic Acid, to 10%	R	R
Chlorobenzene	R	R
Chloroform	R	N
Chromic Acid, to 5%	R	N
Chromic Acid, above 10%	N	N
Citric Acid, to 10%	R	R
Copper Chloride, Nitrate, Sulfate	R	R
Dichloroacetic Acid, 10%	R	R
Dichlorobenzene	R	R
Diethyl Ether	R	R
Ethyl Acetate	R	R
Ethyl Alcohol	R	R
Ethyl Sulfate	R	R
Ethylene Dichloride	R	R
Ethylene Glycol	R	R
Fluosilicic Acid	R	R
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	N	N
Hydrochloric Acid	R	R
Hydrocyanic Acid	R	R
Hydrofluoric Acid	R	R
Hydrofluosilicic Acid	R	R
Hydrogen Peroxide	N	N
Hydrogen Sulfide Gas, Dry or Wet	R	R
Iron Chloride, Nitrate, Sulfate	R	R
Isopropyl Ether	R	R
Kerosene	R	-
Lactic Acid	R	R
Lead Acetate, Nitrate	R	R
Linseed Oil	R	R
Magnesium Chloride, Nitrate, Sulfate	R	R
Magnesium Hydroxide	N	N
Maleic Acid	R	R
Mercuric Acetate	R	R
Methyl Acetate	R	R
Methyl Alcohol	R	C
Methyl Ethyl Ketone	R	R
Methyl Sulfate	R	R
Methylene Chloride	C	N
Mineral Oil	R	R
Mineral Spirits	R	R
Muriatic Acid	R	R
Nickel Chloride, Nitrate, Sulfate	R	R
Nitric Acid, to 5%	R	N
Nitric Acid, above 20%	N	N
Nitrobenzene	R	R
Oleic Acid	R	R
Oxalic Acid	R	R
Perchloric Acid, to 30%	N	N
Phenol, to 5%	R	C
Phosphoric Acid	R	R
Phosphorous Acid	R	R
Phosphorous Trichloride	C	N
Phthalic Acid	R	R
Picric Acid	N	N
Potassium Bicarbonate	R	R
Potassium Carbonate	R	N
Potassium Chloride, Nitrate, Sulfate	R	R
Potassium Cyanide, Ferricyanide, Ferrocyanide	R	N

	80°F	H
Potassium Hydroxide	N	N
Pyridine	C	N
Rochelle Salt	R	R
Salicylic Acid	R	R
Silver Nitrate	R	R
Sodium Acetate, Bicarbonate	R	R
Sodium Carbonate	R	N
Sodium Chloride, Nitrate, Sulfate	R	R
Sodium Cyanide	R	N
Sodium Hydroxide	N	N
Sodium Hypochlorite, to 3%	C	N
Sodium Hypochlorite, above 15%	N	N
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	R	R
Sulfur Trioxide Gas, Wet	R	N
Sulfuric Acid, to 50%	R	R
Sulfuric Acid, 80% to 93%	R	N
Sulfuric Acid, above 93%	N	N
Sulfurous Acid	R	R
Tannic Acid	R	R
Tartaric Acid	R	R
Tin Chloride, Sulfate	R	R
Toluene	R	N
Trichloroethylene	R	R
Trisodium Phosphate	R	N
Tung Oil	R	R
Urea	R	R
Xylene	R	R
Zinc Chloride, Nitrate, Sulfate	R	R

**KEY**

R - Recommended

N - Not Recommended

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

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.

(2-01<sup>2</sup>)