



Atlas Minerals & Chemicals, Inc.



# DATA SHEET

4-2101PI (2-02<sup>2</sup>)  
Supersedes 4-2101PI (1-98)

## CHEMPRUF<sup>®</sup> 2101 Membrane System CHEMPRUF<sup>®</sup> 2102 Membrane System

### DESCRIPTION

CHEMPRUF 2101 and CHEMPRUF 2102 Membrane Systems are fiberglass reinforced furfuryl alcohol resin membrane systems. The systems are a composite of a **furfuryl alcohol** resin, inert carbon fillers and fabric reinforcement. The membranes are designed to be used with a chemical resistant brick masonry sheathing providing a strong durable membrane to protect steel and concrete from corrosive attack. Both systems are resistant to a broad range of acids, alkalies and solvents. The CHEMPRUF 2102 Membrane is recommended for concrete surfaces. CHEMPRUF 2101 Membrane can be applied to concrete and carbon steel substrates.

### CHEMICAL RESISTANCE

CHEMPRUF 2101 and CHEMPRUF 2102 Membrane Systems are resistant to a broad range of nonoxidizing acids, alkalies, salt solutions and organic solvents including toluene, xylene and ethylene dichloride. Refer to the CHEMPRUF 2000 Series Chemical Resistance Chart, 4-2000, for specific information.

**ChemPruf 2101** is an elastomeric base and a carbon filled basecoat and topcoat with an intermediate layer of fiberglass reinforcement system.

**ChemPruf 2102** is a carbon filled basecoat and topcoat with an intermediate layer of fiberglass reinforcement system.

### CHEMPRUF 2101 - Elastomeric Base

**Atlatic<sup>®</sup> CT-30 Primer**, a one-component, brush or roller applied primer.

**Atlatic CT-30**, a trowel applied two-component urethane asphalt.

### CHEMPRUF 2102 - Primer

**ChemPruf F Primer**, a one-component, brush or roller applied primer.

### CHEMPRUF 2101 & CHEMPRUF 2102 BASECOAT / TOPCOAT

**Carbo-Alkor<sup>®</sup> Mortar**, a furan resin, carbon filled basecoat and topcoat, each trowel coat applied at a nominal thickness of 1/16" (1.6 mm.).

### PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE 2101 & 2102
Density, Composite	ASTM C905	100 lb./cu. ft. (1.60 g./cc.)
Tensile Strength, Composite 7 days @ 77°F (25°C)	ASTM D638	2,000 psi. (13.8 MPa)
Compressive Strength, Mortar 7 days @ 77°F (25°C)	ASTM C579	5,200 psi. (35.9 MPa)
Flexural Strength, Composite 7 days @ 77°F (25°C)	ASTM C580	4,600 psi (31.7 MPa)
Coefficient of Thermal Expansion, Composite in./in.°F (cm./cm.°C)	ASTM C531	1.25 x 10 <sup>-5</sup> (2.25 x 10 <sup>-5</sup> )
Temp. Resistance, Composite Dry Heat	—	350°F (177°C)
Hardness, Barcol	—	50-60
Cure Rate @ 77°F (25°C)	—	7 days

### REINFORCING FABRIC

**ChemPruf 10 oz. Reinforcing Fabric**, 10 oz./sq. yd. (339 g./m<sup>2</sup>) woven fiberglass reinforcing fabric for use with ChemPruf 2101 or ChemPruf 2102 Membrane Systems.

### SMOOTHING LIQUID

**ChemPruf E Smoothing Liquid**, a one-component, roller applied material used to smooth the basecoat and topcoat surfaces.

### AVAILABLE COLORS

**ChemPruf 2101 & ChemPruf 2102 Membrane Systems** are available in black only.

### ADDITIONAL INFORMATION

For specific information pertaining to Surface Preparation, Packaging or Mixing and Application, refer to the following ATLAS literature:

- Surface Preparation Data Sheet (PS-30)
- ChemPruf 2101 Membrane System Installation Instructions (I-4-2101)
- ChemPruf 2102 Membrane System Installation Instructions (I-4-2102)
- Lining System Termination Drawing (4-3000DG)
- Termination at Drain Drawing (4-3001DG)
- Control Joint & Structural Crack Drawing (4-3003DG)
- Horizontal / Vertical Transition Drawing (4-3004DG)
- Pipe Outlets Drawing (4-3005DG)

**NOTE:** ATLAS makes it a practice to continuously update and enhance our CCM (Corrosion Resistant Construction Materials) products. For the most recent version of any Data Sheet, please visit our Web site at [www.atlasmin.com](http://www.atlasmin.com).

## SURFACE PREPARATION

The substrate must be structurally sound, clean, dry and free of all contaminants, such as sealers, curing compounds, coatings, oil, dirt, dust and water. Previously applied coatings or paint must be removed.

**Concrete:** The prepared concrete substrate shall have a minimum tensile strength of 250 psi. (1.72 MPa). Concrete surface must be sufficiently cured and comply with moisture testing as prescribed by ACI Test Method 515 R-16 "Dryness of Surface".

Concrete surfaces should be grit blasted to a finish similar to the profile of 100 to 120 grit sandpaper. Cracks in the concrete substrate 1/16" (1.6 mm.) wide or greater must be opened to a minimum 1/4" (6.4 cm.) cleaned, and filled.

**Carbon steel:** Carbon steel surfaces should be grit blasted to a SSPC-SP5 or NACE #1 white metal blast cleaned surface finish. Profile height must be 3 (0.076 mm.) to 4 mils (0.102 mm.).

Should flash rusting occur at any time before ChemPruf 2101 elastomeric base is applied, the surface must be grit blasted again and reprimed.

For additional information, refer to Surface Preparation, Data Sheet PS-30.

## TEMPERATURE DURING APPLICATION

Store all materials referred to in this Data Sheet at 70°F (21°C) to 80°F (27°C) for 24 hours prior to use. Minimum temperature for installation is 60°F (16°C). Do not apply when the relative humidity is greater than 75% or the substrate temperature is less than 5°F (3°C) above the dew point.

## APPLICATION OF CHEMPRUF 2101

1. Trowel apply a 30 mil (0.8 mm.) coat of Atlastic CT-30 Membrane.
2. Trowel apply a 1/16" (1.6 mm.) WFT basecoat of Carbo-Alkor Mortar. Imbed the ChemPruf Reinforcing Fabric and roll into the wet basecoat. Allow basecoat to harden.
3. Trowel apply a 1/16" (1.6 mm.) WFT topcoat of Carbo-Alkor Mortar. Smooth with a short nap roller lightly wetted with ChemPruf E Smoothing Liquid. Allow to harden.

## APPLICATION OF CHEMPRUF 2102

1. Apply ChemPruf F Primer with a brush or roller.
2. Trowel apply a 1/16" (1.6 mm.) WFT basecoat of Carbo-Alkor Mortar. Imbed the ChemPruf Reinforcing Fabric and roll into the wet basecoat. Allow basecoat to harden.
3. Trowel apply a 1/16" (1.6 mm.) WFT topcoat of Carbo-Alkor Mortar. Smooth with a short nap roller lightly wetted with ChemPruf E Smoothing Liquid. Allow to harden.

Protect uncured primer, elastomeric base, basecoat and topcoat from moisture contamination until minimum cure time is attained.

## INSPECTION

Inspect lining for imperfections after basecoat and fabric. Repair defects and imperfections prior to application of the topcoat.

## RELEASE AGENT

ChemPruf 2101 and ChemPruf 2102 Membrane Systems are to be used as a membrane with chemical resistant masonry sheathing. Before applying the masonry sheathing, a release agent, such as silicone or paste wax, must be applied to the surface of the membrane system. Apply the release agent after the ChemPruf 2101 or ChemPruf 2102 has attained the minimum drying time. The use of a release agent allows the masonry sheathing to move independent of the lining system.

## PRODUCT SPECIFICATION

The membrane system, as manufactured by Atlas Minerals & Chemicals, Inc. shall be:

**ChemPruf 2101 Membrane System**, a furfuryl alcohol (furan) resin membrane system. The membrane system shall consist of a 30 mil elastomeric urethane asphalt base, carbon filled basecoat and topcoat, each trowel applied at a nominal thickness of 1/16" (1.6 mm.), with an intermediate layer of 10 oz./yd<sup>2</sup> (339 g./m<sup>2</sup>) fiberglass fabric reinforcement.

**ChemPruf 2102 Membrane System**, a furfuryl alcohol (furan) resin membrane system. The membrane system shall consist of a carbon filled basecoat and topcoat, each trowel applied at a nominal thickness of 1/16" (1.6 mm.), with an intermediate layer of 10 oz./yd<sup>2</sup> (339 g./m<sup>2</sup>) fiberglass fabric reinforcement.

## 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 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 and temperatures above 86°F (30°C). Protect from freezing. In unopened original containers, Atlastic CT-30 Primer, Atlastic CT-30 Component A and B, ChemPruf F Primer and Carbo-Alkor Mortar Resin and Powder have a shelf life of approximately one year. ChemPruf E Smoothing Liquid, ChemPruf 8.5 oz. Fabric Tape and ChemPruf 10 oz. Reinforcing Fabric can be stored indefinitely.

**MAINTENANCE**

Should the membrane be damaged in any way, it can be repaired by thoroughly cleaning and reapplying the ChemPruf 2101 or ChemPruf 2102 Membrane System.

**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 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.**



# Installation Instructions

Atlas Minerals & Chemicals, Inc.



I-4-2101 (3-02<sup>2</sup>)  
Supersedes I-4-2101 (2-02)

## CHEMPRUF<sup>®</sup> 2101 Membrane System

### DESCRIPTION

CHEMPRUF 2101 Membrane System consists of a 30 mil elastomeric base of Atlastic<sup>®</sup> CT-30 Membrane, a 1/16" (1.6 mm.) trowel applied basecoat of Carbo-Alkor<sup>®</sup> Mortar, an intermediate layer of fiberglass fabric reinforcement and a 1/16" (1.6 mm.) trowel applied topcoat of Carbo-Alkor Mortar. The CHEMPRUF 2101 is designed to be applied to carbon steel or concrete surfaces.

### ESTIMATED COVERAGE

#### ATLASTIC CT-30 PRIMER

1-Gallon ..... 250 ft<sup>2</sup> (23.2 m<sup>2</sup>)  
5-Gallon ..... 1,250 ft<sup>2</sup> (116.1 m<sup>2</sup>)

#### ATLASTIC CT-30 Horizontal Grade

1-Gallon Unit @ 30 mils (0.8 mm.) ..... 44 ft<sup>2</sup> (4.1 m<sup>2</sup>)  
5-Gallon Unit @ 30 mils (0.8 mm.) ... 236 ft<sup>2</sup> (21.9 m<sup>2</sup>)

#### ATLASTIC CT-30 Vertical Grade

1-Gallon Unit @ 30 mils (0.8 mm.) .... 46 ft<sup>2</sup> (4.3 m<sup>2</sup>)  
5-Gallon Unit @ 30 mils (0.8 mm.) 240 ft<sup>2</sup> (22.3 m<sup>2</sup>)

#### CARBO-ALKOR Mortar (Basecoat / Topcoat)

139 lb. 4 oz. Unit  
Total System @ 1/8" (3.2 mm.) ..... 125 ft<sup>2</sup> (11.6 m<sup>2</sup>)  
Basecoat @ 1/16" (1.6 mm.) ..... 250 ft<sup>2</sup> (23.2 m<sup>2</sup>)  
Topcoat @ 1/16" (1.6 mm.) ..... 250 ft<sup>2</sup> (23.2 m<sup>2</sup>)

#### CHEMPRUF 10 OZ. REINFORCING FABRIC

1.1 ft<sup>2</sup> (0.1 m<sup>2</sup>) per ft<sup>2</sup> (0.09 m<sup>2</sup>)

#### CHEMPRUF 8.5 OZ. FABRIC TAPE

150 ft. roll ..... 260 ft<sup>2</sup> (24.2 m<sup>2</sup>)

#### CHEMPRUF E SMOOTHING LIQUID

1-Gallon ..... 200 ft<sup>2</sup> (18.6 m<sup>2</sup>)  
5-Gallon ..... 1,000 ft<sup>2</sup> (92.9 m<sup>2</sup>)

**Note:** All references to application thickness and coverage per unit in this Installation Instructions are WFT (wet film thickness). Material estimating quantities may vary depending on project conditions and application techniques. Material quantities are theoretical and do not include a safety factor.

**NOTE:** ATLAS makes it a practice to continuously update and enhance our CCM (Corrosion Resistant Construction Materials) products. For the most recent version of any Data Sheet, please visit our Web site at [www.atlasmin.com](http://www.atlasmin.com).

### PACKAGING

#### ATLASTIC CT-30 PRIMER

1-gal. can (11 lb. [5.0 kg.])  
5-gal. pail (55 lb. [24.9 kg.])

#### ATLASTIC CT-30 Horizontal Grade

##### 1-Gallon Unit (7 lb. 8 oz. [3.4 kg.]) Consisting of:

One - 1-gal. can of Component A (6 lb. [2.7 kg.])  
One - 1-qt. can of Component B (1 lb. 8 oz. [680 g.])

##### 5-Gallon Unit (40 lb. [18.1 kg.]) Consisting of:

One - 5-gal. pail of Component A (32 lb. [14.5 kg.])  
One - 1-gal. can of Component B (8 lb. [3.6 kg.])

#### ATLASTIC CT-30 Vertical Grade

##### 1-Gallon Unit (7 lb. 3 oz. [3.3 kg.]) Consisting of:

One - 1-gal. can of Component A (6 lb. [2.7 kg.])  
One - 1-qt. can of Component B (1 lb. 3 oz. [539 g.])

##### 5-Gallon Unit (37 lb. 8 oz. [17.0 kg.]) Consisting of:

One - 5-gal. pail of Component A (31 lb. 8 oz. [14.3 kg.])  
One - 1-gal. can of Component B (6 lb. [2.7 kg.])

#### CARBO-ALKOR MORTAR (Basecoat / Topcoat)

##### 139 lb. 4 oz. (63.2 kg.) Unit Consisting of:

One - 5-gal. pail of Resin (48 lb. [21.8 kg.])  
Two - bags of Powder (45 lb. 10 oz. [20.7 kg.]) ea.

#### CHEMPRUF 10 OZ. REINFORCING FABRIC

10 oz./yd.<sup>2</sup> (339 g./m<sup>2</sup>) fabric (38" [97 cm.] wide roll)

#### CHEMPRUF 8.5 OZ. FABRIC TAPE

6" wide x 150' long roll

#### CHEMPRUF E SMOOTHING LIQUID

1-gal. can (6 lb. 8 oz. [2.9 kg.])  
5-gal. pail (32 lb. 8 oz. [14.7 kg.])

### AVAILABLE COLORS

Carbo-Alkor Mortar is available in black only.

### SURFACE PREPARATION

**Concrete:** The substrate must be structurally sound, clean, dry and free of all contaminants, such as sealers, curing compounds, coatings, oil, dirt, dust and water. Previously applied coatings or paint must be removed.

Finished concrete must be free of ridges, protrusions, fins, mortar splatter and have a tight laitance-free steel trowel finish. Abrasive grit blasting is recommended. Where impractical, chemical preparation by acid washing is acceptable. A finish similar to the profile of 100 to 120 grit sandpaper is suggested.

The prepared concrete substrate shall have a minimum tensile strength of 250 psi. (1.72 MPa). Concrete surface must be sufficiently cured and comply with moisture testing as prescribed by ACI Test Method 515 R-16 "Dryness of Surface".

**Carbon Steel:** Metal surfaces should be grit blasted to a SSPC-SP5 or NACE #1 white metal blast cleaned surface finish. Profile height must be 3 (0.076 mm.) to 4 mils (0.102 mm.).

For additional information, refer to Surface Preparation, Data Sheet PS-30.

#### TEMPERATURE / HUMIDITY DURING APPLICATION

Store all materials referred to in this Installation Instructions 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 ChemPruf 2101 Membrane System components are between 70°F (21°C) and 85°F (29°C).

Minimum temperature for installation is 60°F (16°C). At temperatures below 60°F (16°C), the product may not set or cure properly.

Do not apply when the relative humidity is greater than 75% or the substrate temperature is less than 5°F (3°C) above the dew point.

#### CONSTRUCTION DETAILS

For additional information on Construction Details, refer to the following ATLAS literature:

- Surface Preparation Data Sheet (PS-30)
- Horizontal / Vertical Transition Drawing (4-3004DG)
- Structural Crack Drawing (4-3006DG)
- Control Joint Drawing (4-3003DG)
- Lining System Termination Drawing (4-3000DG)
- Termination at Drain Drawing (4-3001DG)
- Pipe Outlets Drawing (4-3005DG)

Protect uncured primer, elastomeric base, basecoat and topcoat from moisture contamination until minimum cure time is attained.

Do not apply the CHEMPRUF 2101 Membrane System to substrates that flex.

#### INSTALLATION EQUIPMENT AND SUPPLIES\*

- KOL type mixer & Jiffy type mixer
- 5-gallon (18.9 liter) plastic or metal containers
- Cement finishing, margin & pointing trowels
- Short (3/16" to 1/4") & medium (3/8") nap paint rollers
- Paint brushes
- Rubber & cotton gloves
- Organic respirator, Safety goggles
- Electric grinder
- Scissors, measuring tape, chalk line, felt tip marker

\*The safety equipment listed above is the minimum required to install the ChemPruf 2101 Membrane System. The installer must provide any equipment necessary to comply with existing federal, state, local and customer safety regulations.

#### APPLICATION OF THE CHEMPRUF 2101 MEMBRANE SYSTEM

1. **Primer:** All substrates must be primed with Atlastic CT-30 Primer. Apply Atlastic CT-30 Primer with a brush or medium nap roller. Do not allow puddling. Work the Atlastic CT-30 Primer into the pores of concrete substrates.

The primed surface must be dry before applying Atlastic CT-30. If the primer is allowed to dry for longer than the maximum drying time, the surface must be sanded and the area reprimed before proceeding.

##### ATLATIC CT-30 PRIMER

Temperature	Minimum	Maximum
	Drying Time	Drying Time
65°F (18°C)	4 hours	30 hours
75°F (24°C)	2 hours	24 hours
85°F (29°C)	1-1/2 hours	20 hours

2. **Atlastic CT-30:** Apply Atlastic CT-30 Horizontal Grade with a 1/16" V-notched trowel or Atlastic CT-30 Vertical Grade with a flat cement finisher's trowel. Trowel apply a 30 mil (0.8 mm.) continuous coat of Atlastic CT-30. Allow to dry.

##### ATLATIC CT-30

Temperature	Working	Minimum	Maximum
	Time	Drying Time	Drying Time
65°F (18°C)	50 min.	24 hours	30 hours
75°F (24°C)	30 min.	16 hours	24 hours
85°F (29°C)	20 min.	12 hours	20 hours

At all times, protect completed Atlastic CT-30, Carbo-Alkor Mortar basecoat and topcoat from any form of alkali based or Portland cement based contamination. Alkaline based dust and debris will inhibit the cure of the Carbo-Alkor Mortar basecoat and topcoat. If Atlastic CT-30 or Carbo-Alkor Mortar basecoat is exposed to alkaline contamination, thoroughly vacuum and clean the surface before applying Carbo-Alkor Mortar.

3. **Layout:** Wipe the surface of the Atlastic CT-30 with ChemPruf E Smoothing Liquid.

The basecoat of Carbo-Alkor Mortar is installed as a series of 38" (1.0 m.) wide by 60" (1.5 m.) long square sections. Layout and snap chalk lines to form a grid pattern of 38" wide by 60" long sections leaving a 1" (2.5 cm.) wide space between each square section. Precut 60" long pieces of the ChemPruf 10 oz. Reinforcing Fabric from the 38" wide roll.

4a. **Basecoat 60" x 38" squares:** Trowel apply a basecoat of Carbo-Alkor Mortar to a 60" x 38" square section at a thickness of 1/16" (1.6 mm.) with a plaster's or concrete finishing trowel. Do not apply the basecoat to 1" space separating the square sections.

4b. **Fabric:** Immediately apply a 60" x 38" piece of the ChemPruf 10 oz. Reinforcing Fabric into the wet Carbo-Alkor Mortar basecoat. Roll the ChemPruf 10 oz. Reinforcing Fabric with a short or medium nap roller to imbed the fabric into the Carbo-Alkor Mortar basecoat. Roll the fabric from the center to the edges to smooth the surface and saturate the fabric. Continue rolling to remove the whiteness and produce a uniform black appearance to the fabric.

Continue the application of the Carbo-Alkor Mortar basecoat and Reinforcing Fabric to an adjacent square section. Do not apply the basecoat to 1" space separating the square sections.

Allow basecoat to harden sufficiently so that the fabric will not be disturbed before continuing with the next application step.

If the Carbo-Alkor Mortar basecoat is allowed to dry for longer than the maximum drying time, the surface must be sanded and cleaned before applying the Carbo-Alkor Mortar topcoat.

5a. **Basecoat 1" space between squares:** Trowel apply a 1/16" (1.6 mm.) thickness of Carbo-Alkor Mortar to the 1" (2.5 cm.) wide spaces between the squares and overlap the basecoat 3" (7.6 cm.) onto the adjacent surfaces.

5b. **Fabric Tape:** Immediately apply the 6" (15.2 cm.) wide ChemPruf 8.5 oz. Fabric Tape into the wet Carbo-Alkor Mortar basecoat. Roll the ChemPruf 8.5 oz. Fabric Tape with a short or medium nap roller to imbed the fabric into the Carbo-Alkor Mortar basecoat. Roll the fabric from the center to the edges to smooth the surface and saturate the fabric. Continue rolling to remove the whiteness and produce a uniform black appearance to the fabric.

Allow basecoat to harden sufficiently, as determined by the minimum drying time and temperature, before continuing with the next application step.

If the Carbo-Alkor Mortar basecoat is allowed to dry for longer than the maximum drying time, the surface must be sanded and cleaned before applying the Carbo-Alkor Mortar topcoat.

6. **Inspection:** Inspect lining for imperfections after basecoat and fabric have hardened. Repair defects and imperfections prior to application of the topcoat.

7. **Topcoat:** Trowel apply a 1/16" (1.6 mm.) topcoat of Carbo-Alkor Mortar over the entire surface with a plaster's or concrete finishing trowel. Smooth

trowel marks with a short nap roller lightly wetted with ChemPruf E Smoothing Liquid. Before rolling, shake the wet roller to remove excess ChemPruf E Smoothing Liquid. Use only enough smoothing liquid to prevent picking up of the topcoat. Excess smoothing liquid may cause the lining to remain soft.

Allow the Carbo-Alkor Mortar topcoat to harden sufficiently so that the surface will not be disturbed before continuing with the application of the release agent and masonry sheathing.

#### CARBO-ALKOR MORTAR (Basecoat / Topcoat)

Temperature	Working Time	Minimum Drying Time	Maximum Drying Time
65°F (18°C)	45 min.	24 hours	3 days
75°F (24°C)	40 min.	16 hours	2-1/2 days
85°F (29°C)	30 min.	12 hours	2 days

#### RELEASE AGENT

ChemPruf 2101 Membrane System is to be used as a membrane with chemical resistant masonry sheathing. Before applying a masonry sheathing, a release agent, such as silicone or paste wax, must be applied to the surface of the lining system. Apply the release agent after the Carbo-Alkor Mortar topcoat has attained the minimum drying time. The use of a release agent allows the masonry sheathing to move independent of the lining system.

#### MIXING OF THE ATLASTIC CT-30 PRIMER

Atlastic CT-30 Primer is a one component primer. Mixing should be done with a hand drill equipped with a "Jiffy" type mixer at a mixing speed between 300 and 500 RPM. During mixing, move the mixing blade in circular and up and down motions scraping all sides and the bottom of the mixing container. Check for any separation.

#### MIXING OF THE ATLASTIC CT-30

Mixing of the components should be done with a hand drill equipped with a "Jiffy" type mixer with a mixing speed between 300 and 500 RPM.

**Note:** A double mixing procedure is required to ensure complete blending of the components.

#### 1-Gallon Units: Horizontal & Vertical Grades

- Individually stir the contents of both the Component A and Component B cans for approximately one minute prior to blending the components.
- Pour the entire contents of the Component B can into the Component A can. Scrape along the sides and bottom of the can to remove all of the contents.
- Mix the combined components for approximately two minutes. While mixing, scrape along the sides and bottom of the can to ensure complete mixing of the two components.

- d. Transfer the mixture into a clean plastic or metal pail. Scrape the sides and bottom of the Component A can to remove all of the contents.
- e. Continue mixing the Atlastic CT-30 components for an additional two minutes.

#### 5-Gallon Units: Horizontal & Vertical Grades

- a. Individually stir the contents of both the Component A pail and Component B can for approximately one minute prior to blending the components.
- b. Evenly divide the contents of the 5-gallon pail of Component A into two equal parts by volume using two clean, dry 5-gallon pails. Scrape along the sides and bottom of the pail to remove all of the contents.
- c. Evenly divide the contents of the 1-gallon can of Component B into two equal parts by volume using two clean, dry 1-gallon cans. Scrape along the sides and bottom of the can to remove all of the contents.
- d. Pour the entire contents of one of the Component B cans into one of the Component A pails.
- e. Mix the combined components for approximately two minutes. While mixing, scrape along the sides and bottom of the pail to ensure complete mixing of the two components.
- f. Transfer the mixture into another clean plastic or metal pail. Scrape the sides and bottom of the pail to remove all of the contents.
- g. Continue mixing the Atlastic CT-30 components for an additional two minutes.

#### MIXING OF THE

##### CARBO-ALKOR MORTAR (Basecoat / Topcoat)

Stir the contents of the resin container prior to blending. Mixing of the components should be with a KOL type mixer with a 5-gallon capacity. The mixing speed should be between 60 and 75 RPM.

The following mixing instructions are for a batch size of 16 lb. (7.3 kg.) using a mix ratio of 100 parts resin to 167 parts powder, by weight. Estimated coverage of the batch size is 31 ft<sup>2</sup> (2.9 m<sup>2</sup>) @ 1/16" (1.6 mm.) and will cover two 38" x 60" ChemPruf 10 oz. Reinforcing Fabric sections. Proportionally increase or decrease component quantities to attain larger or smaller batch sizes.

- a. Place 6 lb. (2.7 kg.) or 78 fluid ounces (2.3 liters) of Carbo-Alkor Mortar Resin in a mixing container.
- b. Add approximately 10 lb. (4.5 kg.) or 170 fluid ounces (5.0 liters) of Carbo-Alkor Mortar Powder.
- c. Mix the components for approximately two minutes or until all the powder is thoroughly dispersed.

The amount of the powder may be varied slightly to obtain the desired consistency. Decreasing the powder component will decrease the estimated unit coverage. The amount of powder must be within 5%, by weight, of the suggested amount.

#### MIX RATIO OF THE CARBO-ALKOR MORTAR (Basecoat / Topcoat)

	by Weight	by Volume
Carbo-Alkor Mortar Resin	100	100
Carbo-Alkor Mortar Powder	167	217

#### 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 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 and temperatures above 86°F (30°C). Protect from freezing. In unopened original containers, Atlastic CT-30 Primer, Atlastic CT-30 Component A and B, ChemPruf F Primer and Carbo-Alkor Mortar Resin and Powder have a shelf life of approximately one year. ChemPruf E Smoothing Liquid, ChemPruf 8.5 oz. Fabric Tape and ChemPruf 10 oz. Reinforcing Fabric can be stored indefinitely.

#### MAINTENANCE

Should the lining be damaged in any way, it can be repaired by thoroughly cleaning and reapplying the ChemPruf 2101 Membrane System. Mix and apply in accordance with the instructions provided in this Installation Instructions sheet.

1. Determine all areas that have been damaged.
2. Grind or sand to expose the substrate 1" (25.4 mm.) to 2" (50.8 mm.) beyond the damaged area.
3. Grind or sand the surface of the ChemPruf 2101 Membrane System. Taper the ChemPruf membrane to expose 2" (50.8 mm.) to 4" (101.6 mm.) of each layer of the ChemPruf 2101 Membrane System.
4. Clean and remove all debris from Step (2.) and Step (3.).
5. Apply Atlastic CT-30 Primer and Atlastic CT-30 to the substrate and exposed tapered edges of the Atlastic CT-30.
6. Apply the Carbo-Alkor Mortar basecoat and ChemPruf 10 oz. Reinforcing Fabric. Allow to harden.
7. Apply the Carbo-Alkor Mortar topcoat.

Furathane Mortar is a substitute for Carbo-Alkor Mortar. Mix and apply according to Carbo-Alkor Mortar instructions in this data sheet.

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**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.**





Atlas Minerals & Chemicals, Inc.



# Installation Instructions

I-4-2102 (3-02<sup>2</sup>)  
Supersedes I-4-2102 (2-02)

## CHEMPRUF® 2102 Membrane System

### DESCRIPTION

CHEMPRUF 2102 Membrane System consists of a 1/16" (1.6 mm.) trowel applied basecoat of Carbo-Alkor® Mortar, an intermediate layer of fiberglass fabric reinforcement and a 1/16" (1.6 mm.) trowel applied topcoat of Carbo-Alkor Mortar.

The CHEMPRUF 2102 is designed to be applied to concrete surfaces. For carbon steel surfaces refer to CHEMPRUF 2101 Membrane System Data Sheet (I-4-2101PI).

### ESTIMATED COVERAGE

#### CHEMPRUF F PRIMER

1-Gallon Can..... 180 ft<sup>2</sup> (16.7 m<sup>2</sup>)

#### CARBO-ALKOR Mortar (Basecoat / Topcoat)

139 lb. 4 oz. Unit

Total System @ 1/8" (3.2 mm.) ..... 125 ft<sup>2</sup> (11.6 m<sup>2</sup>)

Basecoat @ 1/16" (1.6 mm.) ..... 250 ft<sup>2</sup> (23.2 m<sup>2</sup>)

Topcoat @ 1/16" (1.6 mm.) ..... 250 ft<sup>2</sup> (23.2 m<sup>2</sup>)

#### CHEMPRUF 10 OZ. REINFORCING FABRIC

1.1 ft<sup>2</sup> (0.1 m<sup>2</sup>) per ft<sup>2</sup> (0.09 m<sup>2</sup>)

#### CHEMPRUF 8.5 OZ. FABRIC TAPE

150 ft. roll ..... 260 ft<sup>2</sup> (24.2 m<sup>2</sup>)

#### CHEMPRUF E SMOOTHING LIQUID

1-Gallon ..... 200 ft<sup>2</sup> (18.6 m<sup>2</sup>)

5-Gallon ..... 1,000 ft<sup>2</sup> (92.9 m<sup>2</sup>)

**Note:** All references to application thickness and coverage per unit in this Installation Instructions are WFT (wet film thickness). Material estimating quantities may vary depending on project conditions and application techniques. Material quantities are theoretical and do not include a safety factor.

### PACKAGING

#### CHEMPRUF F PRIMER

1-gal. can (7 lb. [3.2 kg.]

#### CARBO-ALKOR MORTAR (Basecoat / Topcoat)

**139 lb. 4 oz. (63.2 kg.) Unit Consisting of:**

One - 5-gal. pail of Resin (48 lb. [21.8 kg.]

Two - bags of Powder (45 lb. 10 oz. [20.7 kg.]) ea.

#### CHEMPRUF 10 OZ. REINFORCING FABRIC

10 oz./yd.<sup>2</sup> (339 g./m<sup>2</sup>) fabric (38" [97 cm.] wide roll)

#### CHEMPRUF 8.5 OZ. FABRIC TAPE

6" wide x 150' long roll

#### CHEMPRUF E SMOOTHING LIQUID

1-gal. can (6 lb. 8 oz. [2.9 kg.]

5-gal. pail (32 lb. 8 oz. [14.7 kg.]

### AVAILABLE COLORS

**Carbo-Alkor Mortar** is available in black only.

### SURFACE PREPARATION

**Concrete:** The substrate must be structurally sound, clean, dry and free of all contaminants, such as sealers, curing compounds, coatings, oil, dirt, dust and water. Previously applied coatings or paint must be removed.

Finished concrete must be free of ridges, protrusions, fins, mortar splatter and have a tight laitance-free steel trowel finish. Abrasive grit blasting is recommended. Where impractical, chemical preparation by acid washing is acceptable. A finish similar to the profile of 100 to 120 grit sandpaper is suggested.

The prepared concrete substrate shall have a minimum tensile strength of 250 psi. (1.72 MPa). Concrete surface must be sufficiently cured and comply with moisture testing as prescribed by ACI Test Method 515 R-16 "Dryness of Surface".

For additional information, refer to Surface Preparation, Data Sheet PS-30.

### TEMPERATURE / HUMIDITY DURING APPLICATION

Store all materials referred to in this Installation Instructions 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 ChemPruf 2102 Membrane System components are between 70°F (21°C) and 85°F (29°C).

Minimum temperature for installation is 60°F (16°C). At temperatures below 60°F (16°C), the product may not set or cure properly.

Do not apply when the relative humidity is greater than 75% or the substrate temperature is less than 5°F (3°C) above the dew point.

**NOTE:** ATLAS makes it a practice to continuously update and enhance our CCM (Corrosion Resistant Construction Materials) products. For the most recent version of any Data Sheet, please visit our Web site at [www.atlasmin.com](http://www.atlasmin.com).

## CONSTRUCTION DETAILS

For additional information on Construction Details, refer to the following ATLAS literature:

- Surface Preparation Data Sheet (PS-30)
- Horizontal / Vertical Transition Drawing (4-3004DG)
- Structural Crack Drawing (4-3006DG)
- Control Joint Drawing (4-3003DG)
- Lining System Termination Drawing (4-3000DG)
- Termination at Drain Drawing (4-3001DG)
- Pipe Outlets Drawing (4-3005DG)

Protect uncured primer, basecoat and topcoat from moisture contamination until minimum cure time is attained.

Do not apply the CHEMPRUF 2102 Membrane System to substrates that flex.

## INSTALLATION EQUIPMENT AND SUPPLIES\*

- KOL type mixer & Jiffy type mixer
- 5-gallon (18.9 liter) plastic or metal containers
- Cement finishing, margin & pointing trowels
- Short (3/16" to 1/4") & medium (3/8") nap paint rollers
- Paint brushes
- Rubber & cotton gloves
- Organic respirator, Safety goggles
- Electric grinder
- Scissors, measuring tape, chalk line, felt tip marker

\*The safety equipment listed above is the minimum required to install the ChemPruf 2102 Membrane System. The installer must provide any equipment necessary to comply with existing federal, state, local and customer safety regulations.

## APPLICATION OF THE CHEMPRUF 2102 MEMBRANE SYSTEM

At all times, protect the ChemPruf F Primer and Carbo-Alkor Mortar basecoat and topcoat from any form of alkali based or Portland cement based contamination. Alkaline based dust and debris will inhibit the cure of the Carbo-Alkor Mortar basecoat and topcoat. If the primed surface is exposed to alkaline contamination, thoroughly vacuum the surface and reprime. If the Carbo-Alkor Mortar basecoat is exposed to alkaline contamination, thoroughly vacuum and clean the surface before applying the Carbo-Alkor Mortar topcoat.

1. **Primer:** All substrates must be primed with ChemPruf F Primer. Apply ChemPruf F Primer with a brush or medium nap roller. Do not allow puddling. Work the ChemPruf F Primer into the pores of concrete substrates. Reprime areas in which the primer has absorbed into the substrate as evident by a dull finish. The primed surface must be dry before applying Carbo-Alkor Mortar basecoat. If the primer is allowed to dry for longer than the maximum drying time, the surface must be reprimed before proceeding.

## CHEMPRUF F PRIMER

Temperature	Minimum	Maximum
	Drying Time	Drying Time
65°F (18°C)	3 hours	3 days
75°F (24°C)	2 hours	2-1/2 days
85°F (29°C)	1 hour	2 days

2. **Layout:** The basecoat of Carbo-Alkor Mortar is installed as a series of 38" (1.0 m.) wide by 60" (1.5 m.) long square sections. Layout and snap chalk lines to form a grid pattern of 38" wide by 60" long sections leaving a 1" (2.5 cm.) wide space between each square section. Precut 60" long pieces of the ChemPruf 10 oz. Reinforcing Fabric from the 38" wide roll.
  - 3a. **Basecoat 60" x 38" squares:** Trowel apply a basecoat of Carbo-Alkor Mortar to a 60" x 38" square section at a thickness of 1/16" (1.6 mm.) with a plaster's or concrete finishing trowel. Do not apply the basecoat to 1" space separating the square sections.
  - 3b. **Fabric:** Immediately apply a 60" x 38" piece of the ChemPruf 10 oz. Reinforcing Fabric into the wet Carbo-Alkor Mortar basecoat. Roll the ChemPruf 10 oz. Reinforcing Fabric with a short or medium nap roller to imbed the fabric into the Carbo-Alkor Mortar basecoat. Roll the fabric from the center to the edges to smooth the surface and saturate the fabric. Continue rolling to remove the whiteness and produce a uniform black appearance to the fabric. Continue the application of the Carbo-Alkor Mortar basecoat and Reinforcing Fabric to an adjacent square section. Do not apply the basecoat to 1" space separating the square sections. Allow the basecoat square sections to harden sufficiently so that the fabric will not be disturbed before continuing with the next application step. If the Carbo-Alkor Mortar basecoat is allowed to dry for longer than the maximum drying time, the surface must be sanded and cleaned before applying the Carbo-Alkor Mortar topcoat.
- 4a. **Basecoat 1" space between squares:** Trowel apply a 1/16" (1.6 mm.) thickness of Carbo-Alkor Mortar to the 1" (2.5 cm.) wide spaces between the squares and overlap the basecoat 3" (7.6 cm.) onto the adjacent surfaces.
- 4b. **Fabric Tape:** Immediately apply the 6" (15.2 cm.) wide ChemPruf 8.5 oz. Fabric Tape into the wet Carbo-Alkor Mortar basecoat. Roll the ChemPruf 8.5 oz. Fabric Tape with a short or medium nap roller to imbed the fabric into the Carbo-Alkor Mortar basecoat. Continue rolling to remove the whiteness and produce a uniform black appearance to the fabric. Allow basecoat to harden sufficiently, as determined by the minimum drying time and temperature, before continuing with the next application step.

If the Carbo-Alkor Mortar basecoat is allowed to dry for longer than the maximum drying time, the surface must be sanded and cleaned before applying the Carbo-Alkor Mortar topcoat.

5. **Inspection:** Inspect lining for imperfections after basecoat and fabric have hardened. Repair defects and imperfections prior to application of the topcoat.
6. **Topcoat:** Trowel apply a 1/16" (1.6 mm.) topcoat of Carbo-Alkor Mortar over the entire surface with a plaster's or concrete finishing trowel. Smooth trowel marks with a short nap roller lightly wetted with ChemPruf E Smoothing Liquid. Before rolling, shake the wet roller to remove excess ChemPruf E Smoothing Liquid. Use only enough smoothing liquid to prevent picking up of the topcoat. Excess smoothing liquid may cause the lining to remain soft. Allow the Carbo-Alkor Mortar topcoat to harden sufficiently so that the surface will not be disturbed before continuing with the application of the release agent and masonry sheathing.

#### CARBO-ALKOR MORTAR (Basecoat / Topcoat)

Temperature	Working Time	Minimum Drying Time	Maximum Drying Time
65°F (18°C)	45 min.	24 hours	3 days
75°F (24°C)	40 min.	16 hours	2-1/2 days
85°F (29°C)	30 min.	12 hours	2 days

#### RELEASE AGENT

ChemPruf 2102 Membrane System is to be used as a membrane with chemical resistant masonry sheathing. Before applying a masonry sheathing, a release agent, such as silicone or paste wax, must be applied to the surface of the lining system. Apply the release agent after the Carbo-Alkor Mortar topcoat has attained the minimum drying time. The use of a release agent allows the masonry sheathing to move independent of the lining system.

#### MIXING OF THE CHEMPRUF F PRIMER

ChemPruf F Primer is a one component primer. Stir the contents of the container by hand. Stir in circular and up and down motions scraping all sides and the bottom of the mixing container. Check for any separation.

#### MIXING OF THE CARBO-ALKOR MORTAR (Basecoat / Topcoat)

Stir the contents of the resin container prior to blending. Mixing of the components should be with a KOL type mixer with a 5-gallon capacity. The mixing speed should be between 60 and 75 RPM.

The following mixing instructions are for a batch size of 16 lb. (7.3 kg.) using a mix ratio of 100 parts resin to 167 parts powder, by weight. Estimated coverage of the batch size is 31 ft<sup>2</sup> (2.9 m<sup>2</sup>) @ 1/16" (1.6 mm.)

and will cover two 38" x 60" ChemPruf 10 oz. Reinforcing Fabric sections. Proportionally increase or decrease component quantities to attain larger or smaller batch sizes.

- a. Place 6 lb. (2.7 kg.) or 78 fluid ounces (2.3 liters) of Carbo-Alkor Mortar Resin in a mixing container.
- b. Add approximately 10 lb. (4.5 kg.) or 170 fluid ounces (5.0 liters) of Carbo-Alkor Mortar Powder.
- c. Mix the components for approximately two minutes or until all the powder is thoroughly dispersed.

The amount of the powder may be varied slightly to obtain the desired consistency. Decreasing the powder component will decrease the estimated unit coverage. The amount of powder must be within 5%, by weight, of the suggested amount.

#### MIX RATIO OF THE CARBO-ALKOR MORTAR (Basecoat / Topcoat)

	by Weight	by Volume
Carbo-Alkor Mortar Resin	100	100
Carbo-Alkor Mortar Powder	167	217

#### 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 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 and temperatures above 86°F (30°C). Protect from freezing. In unopened original containers, ChemPruf F Primer and Carbo-Alkor Mortar Resin and Powder have a shelf life of approximately one year. ChemPruf E Smoothing Liquid, ChemPruf 8.5 oz. Fabric Tape and ChemPruf 10 oz. Reinforcing Fabric can be stored indefinitely.

#### MAINTENANCE

Should the lining be damaged in any way, it can be repaired by thoroughly cleaning and reapplying the ChemPruf 2102 Membrane System. Mix and apply in accordance with the instructions provided in this Installation Instructions sheet.

1. Determine all areas that have been damaged.
2. Grind or sand to expose the substrate 1" (25.4 mm.) to 2" (50.8 mm.) beyond the damaged area.
3. Grind or sand the surface of the ChemPruf 2102 Membrane System. Taper the ChemPruf membrane to expose 2" (50.8 mm.) to 4" (101.6 mm.) of each layer of the ChemPruf 2102 Membrane System.

4. Clean and remove all debris from Step (2.) and Step (3.).
5. Apply ChemPruf F Primer to the substrate and exposed tapered edges of the ChemPruf 2102 Membrane System.
6. Apply the Carbo-Alkor Mortar basecoat and ChemPruf 10 oz. Reinforcing Fabric. Allow to harden.
7. Apply the Carbo-Alkor Mortar topcoat.

Furathane Mortar is a substitute for Carbo-Alkor Mortar. Mix and apply according to Carbo-Alkor Mortar instructions in this data sheet.

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