



## ZEROK® 101

### DESCRIPTION

ZEROK 101 is a one component chemical resistant coatings for concrete, metal and wood substrates.

### TYPICAL USES

ZEROK 101 is suitable for use on concrete, metal and wood substrates for indoor and outdoor applications. ZEROK 101 is recommended for the exterior of pickling tanks, reaction vessels, scrubbers, rinse tanks, tank cars and plating tanks and in marine environments. It can be used to coat structural steel, industrial and laboratory equipment, building walls and exhaust systems.

### CHEMICAL RESISTANCE

ZEROK 101 is resistant to many organic and inorganic acids, alkalis, bleaches and salts. It withstands oxidizing acids, such as chromic acid, nitric acid up to 30%, and sulfuric acid up to 50%. Refer to the chemical resistance chart for specific information.

**Note:** ATLAS chemical resistance data is derived from testing in total immersion service.

### AVAILABLE COLORS

ZEROK 101 is available in light gray, dark gray, white and black. Custom colors are available upon request.

### PACKAGING AND COVERAGE

#### ZEROK 101 is available in:

1-gallon can or 5-gallon pail or 55-gallon drum  
Coverage: Approx. 225 sq. ft. (20.9 m<sup>2</sup>) per gallon @ 1.5 mils (0.04 mm.) dry film thickness

#### ZEROK 101 THINNER

1-gallon can (6 lb. 12 oz. [3.1 kg.])  
5-gallon pail (33 lb. 12 oz. [15.0 kg.])

### AMPVAR PRIMER

AMPVAR PRIMER is recommended for use on non-grit blasted, ferrous substrates, non-ferrous metals and when grit blasting concrete substrates is not practical.

#### 1-Gallon Unit (7 lb. 9 oz. [3.4 kg.]) Consisting of:

One - 1-gal. can of AMPVAR PRIMER Base (6 lb. [2.7 kg.])  
Two - bottles of Accelerator (12.5 oz. [354 g.]) ea.  
Coverage: Approx. 340 sq. ft. (31.6 m<sup>2</sup>) per unit @ 0.3 mils (0.008 mm.) to 0.5 mils (0.013 mm.) thickness

## PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
% Solids by weight, 3 hours @ 221°F (105°C)	ATM No. 14	28-38
Viscosity @ 77°F (25°C), Brookfield	ATM No. 40	200-500 cps.
Specific Gravity @ 77°F (25°C)	ASTM D1298	0.95-1.10
Temperature Resistance Continual		150°F (66°C)
Flash Point, Tag Closed Cup	ASTM D56	39°F (4°C)

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

One - 5-gal. pail of AMPVAR PRIMER Base (29 lb. 10 oz. [13.4 kg.])

One - bottle of Accelerator (7 lb. 14 oz. [3.6 kg.])

Coverage: Approx. 1,700 sq. ft. (158 m<sup>2</sup>) per unit @ 0.3 mils (0.008 mm.) to 0.5 mils (0.013 mm.) thickness

### SURFACE PREPARATION

ZEROK 101 can be applied to concrete, metal and wood substrates. The substrate must be structurally sound, clean, dry and free of all contaminants, such as sealers, curing compounds, coatings, oil, dirt, dust and water.

**Concrete:** Finished concrete must be free of ridges, protrusions, fins, mortar splatter and have a tight laitance-free steel trowel finish. Abrasive grit blasting or acid washing are recommended surface preparation methods. A finish similar to the profile of 100 to 120 grit sandpaper is suggested.

**Ferrous Metals:** Metal surfaces should be grit blasted to a NACE #1 white metal blast cleaned surface finish. When grit blasting is not practical, clean by wire brushing or with abrasive paper and apply one coat of AMPVAR PRIMER.

**Non-Ferrous Metals:** Roughen and clean surface with emery cloth, sandpaper or wire brush, wash with degreasing solvent and apply one coat of AMPVAR PRIMER.

**Wood:** The surfaces are to be dry and sap-stain free.

**Previously Coated Vinyl Substrate:** If existing finish is firmly bonded to the substrate, clean thoroughly and allow to dry before recoating. If finish is damaged or poorly adhered, remove back to substrate. Prepare substrate as required and recoat. For finishes other than vinyl, test for system compatibility.

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

**TEMPERATURE DURING APPLICATION**

Store ZEROK 101 and AMPVAR PRIMER 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, ZEROK 101 and AMPVAR PRIMER are between 60°F (16°C) and 85°F (29°C).

Minimum temperature for installation of ZEROK 101 is 45°F (7°C). At lower temperatures, product may not set properly. Substrate temperatures should be at least 5°F (3°C) higher than the dew point. Do not apply when relative humidity is greater than 75%.

**MIXING AND APPLICATION OF THE AMPVAR PRIMER**

Refer to the "Priming Requirements" chart. AMPVAR PRIMER is recommended for use on non-grit blasted, ferrous substrates, non-ferrous metals and when grit blasting concrete substrates is not practical.

Mixing of the components 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.

- Stir the contents of the AMPVAR PRIMER Base for approximately one minute prior to blending the components.
- Combine two bottles (12.5 oz. [354 g.]) of AMPVAR PRIMER Accelerator with 1-gallon can (6 lb. [2.7 kg.]) of AMPVAR PRIMER Base. A mix ratio of four parts AMPVAR PRIMER Base to one part AMPVAR PRIMER Accelerator, by volume, is used for less than full units. Use within eight hours.
- AMPVAR PRIMER can be applied by brush, spray or roller. Allow to dry before application of ZEROK 101. Refer to the "Typical Drying Times" chart. **NEVER APPLY MORE THAN ONE COAT OF AMPVAR PRIMER.**

**PRIMING REQUIREMENTS**

SUBSTRATE	PRIMER
Grit Blasted Steel	No Primer
Non-Grit Blasted Steel	1 Coat Ampvar Primer
Non-Ferrous Metal	1 Coat Ampvar Primer
Concrete	No Primer
Wood	No Primer

**MIXING OF THE ZEROK 101**

ZEROK 101 is a one component product. Mixing of ZEROK 101 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.

**APPLICATION OF THE ZEROK 101**

ZEROK 101 may be applied by brush, roller or spray. After the first coat is dry, apply a second coat. Refer to the "Typical Drying Times" chart. Repeat until sufficient coats have been applied. A minimum dry film thickness of 5 mils (0.13 mm.) is recommended. Depending upon wet film thickness applied, three to five coats will be required to achieve the 5 mil (0.13 mm.) dry film thickness. Additional coats and alternating colors reduce the risk of pinholes or holidays.

**BRUSH:** Apply as heavily as possible without running. Apply quickly and smoothly. Avoid brushing back and forth as with paint.

**ROLLER:** Use a short bristled mohair roller. Apply as heavily as possible without running.

**SPRAY:** Before spraying, add approximately 10% ZEROK 101 THINNER. More thinner will be required for temperatures above 85°F (29°C) and below 60°F (16°C). DeVilbiss Type P-MBC-510 or P-JGA-502 guns (or equivalent), equipped with a No. 765 air cap and an FX fluid tip, are recommended for spraying. Air pressures of 30 to 40 psi. in the pressure pot and 40 to 50 psi. at the gun are required.

**TYPICAL DRYING AND RECOAT TIMES**

Temperature	Ampvar Primer	Zerok 101
45°F (7°C)	6 hours	2 hours
60°F (16°C)	5 hours	50 minutes
70°F (21°C)	4 hours	30 minutes
80°F (27°C)	3 hours	20 minutes

**CLEANING OF TOOLS AND EQUIPMENT**

ZEROK 101 THINNER or 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. Ideal storage temperature is 75°F (24°C). Protect from freezing. In unopened original containers, the materials referred to in this Data Sheet have a shelf life of approximately one year.

**PRODUCT SPECIFICATION**

The system shall be ZEROK 101 as manufactured by Atlas Minerals & Chemicals, Inc.

**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 ZEROK® 101 (7-70PI)

	80°F		80°F		80°F	
	H	N	H	C	H	R
Acetaldehyde	N	N	R	C	Potassium Cyanide, Ferricyanide, Ferrocyanide	R
Acetic Acid, to 10%	C	N	R	R	Pyridine	R
Acetic Acid, Glacial	N	N	R	R	Rochelle Salt	N
Aluminum Chloride, Nitrate, Sulfate	R	R	R	C	Salicylic Acid	R
Ammonium Chloride, Hydroxide, Nitrate, Sulfate	R	R	C	N	Silver Nitrate	R
Amyl Acetate	N	N	C	C	Sodium Acetate, Bicarbonate, Carbonate	R
Amyl Alcohol	R	N	R	R	Sodium Chloride, Nitrate, Sulfate	R
Aniline	N	N	C	C	Sodium Cyanide, 10%	R
Aqua Regia	R	N	R	R	Sodium Hydroxide, to 25%	R
Barium Chloride, Nitrate, Sulfate	R	R	R	R	Sodium Hydroxide, 25% to 50%	R
Barium Hydroxide	R	R	R	R	Sodium Hypochlorite, to 6%	C
Barium Sulfide	R	R	R	R	Sodium Hypochlorite, 6% to 12%	R
Beer	R	R	N	N	Sodium Sulfide, Sulfite, Thiosulfate	C
Benzene	N	N	R	-	Soya Oil	R
Benzene Sulfonic Acid, 10%	R	C	R	R	Stearic Acid	C
Benzoic Acid	R	C	R	R	Sugar, Saturated Solution	C
Boric Acid	R	R	R	C	Sulfur Dioxide Gas, Dry or Wet	R
Bromine Water	R	C	R	R	Sulfur Trioxide Gas, Dry	R
Butter	C	N	R	C	Sulfur Trioxide Gas, Wet	R
Butyl Acetate	N	N	R	C	Sulfuric Acid, to 50%	C
Butyl Alcohol	R	C	R	R	Sulfuric Acid, 50% to 80%	R
Butyric Acid	N	N	N	N	Sulfuric Acid, above 93%	C
Cadmium Chloride, Nitrate, Sulfate	R	R	R	R	Sulfurous Acid	N
Calcium Bisulfite	R	R	N	N	Tannic Acid	R
Calcium Chloride, Hydroxide, Nitrate, Sulfate	R	R	R	C	Tartaric Acid	R
Carbon Disulfide, Tetrachloride	N	N	R	R	Tin Chloride	R
Chlorine Dioxide, Water Solution	R	C	R	R	Tin Sulfate	C
Chlorine, Dry	R	R	R	C	Toluene	R
Chlorine, Wet	R	N	C	C	Trichloroethylene	N
Chlorine Water	R	-	C	N	Trisodium Phosphate	N
Chloroacetic Acid, to 10%	C	N	R	R	Tung Oil	R
Chlorobenzene	N	N	R	R	Urea	C
Chloroform	N	N	R	C	Vegetable Oil	R
Chromic Acid, to 10%	R	R	C	N	Xylene	C
Chromic Acid, above 20%	R	C	N	N	Zinc Chloride, Nitrate, Sulfate	C
Cider	R	C	N	N		R
Citric Acid, to 10%	R	R	R	C		R
Corn Syrup	R	R	C	C		(6-03)
Copper Chloride, Nitrate, Sulfate	R	R	R	C		
Dichloroacetic Acid, 10%	N	N	R	C		
Dichlorobenzene	N	N	N	N		
Diethyl Ether	N	N	R	R		
Ethyl Acetate, Sulfate	N	N	R	R		
Ethyl Alcohol	R	C	R	R		
Ethylene Dichloride	N	N	R	C		
Ethylene Glycol	R	N	C	N		
Fluosilicic Acid	R	R	C	N		
Formaldehyde	R	N	R	R		
Formic Acid	C	N	R	R		
Gasoline	R	C	R	C		
Glycerine	R	R	R	R		
Gold Cyanide	R	R	R	R		
Hexane	R	C	R	C		
Hydrobromic Acid, to 20%	C	N	C	N		
Hydrochloric Acid, to 36%	C	C	C	C		
Hydrocyanic Acid	R	R	R	R		
Hydrofluoric Acid	C	C	C	C		
Hydrofluosilicic Acid	R	R	R	R		
Hydrogen Peroxide	R	R	R	R		
Hydrogen Sulfide Gas, Dry or Wet	R	R	R	R		
Iron Chloride, Nitrate, Sulfate	R	R	R	R		
Isopropyl Ether	N	N	N	N		
Kerosene	R	-	R	-		
Lactic Acid	R	R	R	R		
Lead Acetate, Nitrate	R	R	R	R		
Linseed Oil	R	C	R	C		
Magnesium Chloride, Hydroxide, Nitrate, Sulfate	R	R	R	R		
Maleic Acid	R	C	R	C		
Malt	R	C	R	C		
Mercuric Acetate	R	R	R	R		
Methyl Acetate, Sulfate	N	N	N	N		
Methyl Alcohol	R	R	R	R		
Methyl Ethyl Ketone	N	N	N	N		
Milk	R	C	R	C		
Mineral Oil	R	R	R	R		
Mineral Spirits	R	R	R	R		
Molasses	R	C	R	C		
Muriatic Acid	C	C	C	C		
Mustard	C	N	C	N		
Nickel Chloride, Nitrate, Sulfate	R	R	R	R		
Nitric Acid, to 5%	R	R	R	R		
Nitric Acid, 5% to 30%	R	C	R	C		
Nitric Acid, 40%	C	N	C	N		
Nitric Acid, above 50%	N	N	N	N		
Nitrobenzene	N	N	N	N		
Oleic Acid	R	C	R	C		
Olive Oil	C	C	C	C		
Oxalic Acid	R	C	R	C		
Perchloric Acid, to 30%	R	R	R	R		
Phenol, to 5%	N	N	N	N		
Phosphoric Acid	R	R	R	R		
Phosphorous Acid	R	R	R	R		
Phosphorous Trichloride	R	R	R	R		
Phthalic Acid	R	C	R	C		
Pickles	C	N	C	N		
Picric Acid, to 5%	C	N	C	N		
Potassium Bicarbonate, Carbonate	R	R	R	R		
Potassium Chloride, Hydroxide, Nitrate, Sulfate	R	R	R	R		

**KEY**  
 R - Recommended  
 C - Conditional  
 H - Up to temperature limitations of the coating. When the chemical boils below this point, resistance is shown to the boiling point.  
 N - Not Recommended  
 N - Conditional. May be serviceable if the contaminant is immediately removed or washed off the surface.

**Note - The information presented in the chemical resistance tables is based on judgments derived from laboratory testing in total immersion service.**

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.