

493 Self-Curing Inorganic Zinc Silicate Primer

Product Data

- A heavy-duty primer that protects with a single coat.
- Outstanding application characteristics over a wide range of atmospheric conditions.
- Can be applied by airless or conventional spray leaving a smooth film with negligible over spray even in hot weather.
- Excellent heavy-build film tolerance in corners and angles.
- High-metallic zinc content provides long-term corrosion protection that reduces maintenance costs.
- Abrasion resistance and minimum burn-back during welding reduce touch-up requirements.
- Applied over blasted or pickled surfaces.

Typical Uses

As a single coat, **Khemix 493** resists severe weathering and marine environments. As a primer with recommended topcoats, **Khemix 493** is resistant to industrial chemical exposure as well as marine exposure above the saltwater splash zone, structural steel and piping, tank exteriors, bridges, offshore platforms, marine hulls above water line, superstructures and decks.

Qualifications

SSPC – Paint 20

AASHTO – M300

AASHTO – Standard Specification for Highway Bridges

Table 10.32.3C Allowable Load for Slip Critical Connections

Class B

AISC – Specification for Structural Joints Using ASTM A325

or A490 Bolts RCSC Specification for Structural Joints

Table 3 Class B

Resistance

Khemix 493 without a topcoat has excellent resistance to weathering and ultraviolet exposure, water and neutral salts, refined petroleum products, alcohols and solvents, animal and vegetable oils (up to 2½% free fatty acid). In addition to the above, with suitable topcoats **Khemix 493** is recommended for fumes and splash of mild alkalies, dilute acids (fumes only), salt solutions of most types.

Khemix 493 is not recommended for immersion service or spillage of acid or alkaline solutions. For specific recommendations, consult your **Khemix** representative.

Physical Data

Finish

Flat

Color

Green

*Note: At temperatures over 350°F the **Khemix 493** green color will change to a reddish-brown.*

Components

2

Curing mechanism

Solvent release and reaction
with atmospheric moisture

Dry film thickness

2½ mils (65 microns)

Coats

1

Theoretical coverage

ft²/gal

m²/L





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1 mil (25 microns)	992	24.3
2½ mils (65 microns)	397	9.7
VOC	lb/gal	g/L
mixed	4.1	491
mixed/thinned (1 pt/gal)	5.0	599
Temperature resistance, dry	°F	°C
	750	399
Flash point	°F	°C
liquid	60	15
mixed	58	14

Application Data

Applied over	Prepared steel, galvanizing	
Surface preparation	Abrasive blast SSPC-SP6 or 10, Pickling SSPC-SP8	
Method	Airless or conventional spray	
Mixing ratio (by volume)	As packaged – 1- and 5-gal units	
Pot life (hours)	°F/°C	
	70/21	
	24	

Environmental conditions

Temperature	°F	°C
air	0 to 120	-18 to 49
surface	0 to 130	-18 to 54
Relative humidity	50-90%	

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation. At freezing temperatures, surface must be free of ice.

Drying time (ASTM D1640) 2½ mils and 50-90% RH

	°F/°C
	70/21
touch (minutes)	10
through (minutes)	18
topcoat with most topcoats (hours)	24

Topcoats

Khemix 493 may be top coated with epoxies, vinyls, acrylics, chlorinated rubbers or other topcoats when used in industrial or marine maintenance systems.

Application Data Summary

See Application Instructions for complete information on surface preparation, environmental conditions, application procedures and equipment. To obtain maximum performance apply as recommended. Adhere to all safety precautions during storage, handling, application and drying periods.



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Safety Precautions

Read each component's material safety data sheet before use. Mixed material has the hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

This product is for professional use only. Not for residential use.

Warranty

Alspec warrants its products to be free from defects in material and workmanship. **Alspec's** sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at **Alspec's** option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by Buyer to **Alspec** in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify **Alspec** of such non conformance as required herein shall bar Buyer from recovery under this Warranty.

Alspec makes no other warranties concerning the product. No other warranties, whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall Alspec be liable for consequential or incidental damages.

Any recommendation or suggestion relating to the use of the products made by **Alspec**, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

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Alspec's liability on any claim of any kind, including claims based upon **Alspec's** negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part there of which give rise to the claim. **In no event shall Alspec be liable for consequential or incidental damages.**



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Application Instructions

Refer to the specific **Khemix 493** Product Data Sheets for properties and uses.

Surface Preparation

Steel – New without pits or depressions – Dry abrasive blast, SSPC-SP6 or pickle.

Previously painted or pitted – Dry abrasive blast, SSPC-SP10.

Remove all traces of previous organic coatings as Khemix 493 will not adhere to organic coatings. Blast to achieve a 1- to 2-mil (25- to 50-microns) profile as determined with a Keane-Tator Surface Profile Comparator, Testex Tape or similar device. Rougher profiles are acceptable but require increased film thickness for equivalent protection.

Apply **Khemix 493** as soon as possible to avoid rusting or other recontamination. Do not leave blasted steel uncoated overnight. Spot reblast if needed.

Galvanizing – Remove oil, soap film or grease with neutral detergent or emulsion cleaner and blast lightly with fine abrasive to SSPC-SP7.

Environmental Conditions

Temperature	°F	°C
air	0 to 120	-18 to 49
surface	0 to 130	-18 to 54

Surface temperature must be at least 5°F (3°C) above dew point to prevent condensation. At freezing temperatures, surface must be free of ice.

Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment, such as Graco Bulldog Hydra-Spray or Speeflo Alaskan PZ and a fluid tip with a 0.021-inch (0.53 mm) orifice or larger

Conventional spray – Industrial equipment such as a DeVilbiss MBC gun with 2E or 704E cap/tip, or a Binks 18 gun with a 66SS x 67PB nozzle setup. A variable speed agitator in the pressure pot and an oil and moisture trap in the main air supply line are essential. Separate air and fluid pressure regulators are recommended.

Power mixer – Jiffy Mixer, powered by an air or explosion proof electric motor

Application Procedure

Khemix 493 is packaged in the correct proportions which must be mixed together before use.

1. Flush all equipment with thinner or to remove any moisture which that may be present. Moisture can cause hardening of coating in equipment.
2. Stir liquid with an explosion-proof power mixer.





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3. Discard desiccant bag from powder can and gradually stir powder into liquid. Continue stirring until powder is well dispersed, and uniformly blended to a workable consistency.
4. Strain material through 30 mesh screen to remove undispersed material and to prevent possible clogging of equipment.
5. Do not mix more coating than will be used within the following times:

Pot life (hours)	°F/°C			
	120/49	90/32	70/21	50/10
	4	12	24	72

Important – At the end of the pot life, “kick-out” or separation of liquid and solids occurs, together with gassing. Do not keep mixed material which will not be used before the end of the pot life in tightly closed containers as gassing can create enough pressure to cause containers to burst. Cover containers loosely.

6. Keep containers loosely covered until ready to use to prevent skinning or gelling due to moisture in air. Skins should be skimmed off the top and the material strained through cheesecloth or 30 mesh screen to remove any remaining pieces of skin. Discard gelled material.
7. Thin only for workability or when a rough film or “dry spray” is obtained due to fast solvent evaporation during hot weather or high wind. Use no more than 1 pint thinner per gallon mixed coating, as follows:

Surface temperature	Thinner
below 70°F	Cleaner
8. Adjust spray equipment to apply an even wet coat with minimum overspray.
9. Continue slow stirring during application to maintain uniformity of material. Avoid fast stirring as this may cause a rise in material temperature, shortening pot life.
10. Apply in even, parallel passes; overlap each pass 50 percent. Pay special attention to welds, cut-outs, sharp edges, rivets, bolts, etc., to insure proper thickness. Keep pressure pot at approximately the same elevation as spray gun for proper material delivery to gun.
11. Prevent contact with water until the freshly applied coating is dry to touch.

Drying time (ASTM D1640) 21/2 mils and 50-90% RH	°F/°C
	70/21
touch (minutes)	10
through (minutes)	18
topcoat with most topcoats(hours)	24

Exception: Time to topcoat directly with vinyl coating without a tie coat will vary and can be as long as one week for proper adhesion and/or absence of application blistering. Obtain specific recommendation from your **Khemix** representative.

12. When dry through, check film thickness with a nondestructive dry film thickness gauge. Recoat if greater thickness is required. Normal recommended thickness is 2½ mils. Allowable thickness range is 2 to 8 mils, assuming the surface profile is within the recommended range. Greater thicknesses may develop cracking.





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Note – Drying and topcoating times will be longer when film thickness is over 2½ mils, ventilation and air movement are restricted, temperatures are lower or relative humidities are lower. A water mist sprayed over the coating when the film is dry to touch will accelerate hardening at lower humidities.

13. Random pinholes, holidays and small damaged or bare areas can be touched up by brush when film is dry to touch. Larger areas should be resprayed.
14. In confined areas, ventilate with clean air during application and drying until all solvents are removed. Temperature and relative humidity of the ventilating air must be such that moisture will not condense on the surface until after dry to touch.
15. Clean equipment with thinner or cleaner immediately after use or at least at the end of each working day or shift. Clean spray guns more often during hot weather. When left in equipment, **Khemix 493** will harden and plug spray equipment.

Topcoating

Khemix 493 surface must be clean and dry before topcoating. Water soluble contaminants may be washed off with water. Remove grease and similar contaminants with an emulsion type cleaner or neutral detergent. Rinse with clean water and allow to dry. Solvent wiping is not satisfactory as contamination may only be spread and not removed. In some cases a mist coat/full coat technique may be required to prevent application bubbling.

Repair

Spot-blast rusted areas in accordance with surface preparation instructions before touching up with **Khemix 493**. See primer product literature for selection according to topcoat compatibility.

Safety Precautions

Read each component's material safety data sheet before use. Mixed product has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mists and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. **Alspec makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which **Alspec** is unaware and over which it has no control.**

If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.



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Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

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Warranty

Alspect warrants its products to be free from defects in material and workmanship. **Alspect's** sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at **Alspect's** option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by Buyer to **Alspect** in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify **Alspect** of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

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