THE MAINTENANCE SOLUTOR
http://www.alspec.com

491 Epoxy Novolac Tank Lining

Product Data

- High performance tank lining.
- Board spectrum of chemical resistance.
- Withstands continuous immersion in deionized water up to 200º F (93º C).
- Withstands continuous immersion in hot concentrated brine up to 160º F (71º C).
- Withstands continuous immersion in hot sour crude up to 300º F (149º C).
- Temperature resistance to 450º F on insulated or uninsulated surfaces when mixed with Khemix 880 glass flake additive.

Typical Uses

Khemix 491 provides excellent protection to prepared steel and concrete exposed to chemical immersion, splash, spillage and fumes. Khemix 491 is used as a high performance tanklining for roadtankers and storage tanks in the chemical and petrochemical industries.
Khemix 491 has excellent resistance to continuous and alternating service for a wide range of chemicals, solvents, caustic, crude and fuel oils, as well as, neutral, alkaline and nonoxidizing salt solutions in water. It may be cleaned between cargoes with hot cleaning, up to a butterworth temperature of 180°F (82°C).

Application

Adhere to all instructions, precautions, conditions, and limitations to obtain maximum performance. For conditions outside the requirements or limitations described contact your ALSPEC representative.

Chemical Resistance Guide

For a comprehensive listing o chemical resistance see the latest Khemix 491 Chemical Resistance List or contact your ALSPEC Representative.

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. All surfaces must be clean, dry and free of all contamination, including salt deposits before applying coating.
Steel - New without pits or depressions – blast SSPC - SP10/NACE No. 2.
Rusted or pitted - blast SSPC - SP5/NACE No. 1.
Blast to achieve a dense, angular 1.5-mil (37.6-micron) minimum profile as determined with a Keane-Tator Surface Profile Comparator, Testex Tape or similar device. Remove abrasive residue or dust from surface.
Apply Khemix 491 as soon as possible to prevent re-rusting. Keep moisture, oil, grease or other organic matter off surface before coating. Spot blast to remove any contamination. Solvent wiping is not adequate.
Concrete - Clean concrete and masonry surfaces; abrasive blast (ASTM D4259) or acid etch (ASTM D4260). Fill small holes or voids with Nu-Klad® 114A before applying Khemix 491.

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Physical Data

Finish	Low gloss			
Color	Light buff, white			
Components	2			
Curing mechanism	Solvent release and chemical reaction between components			
Volume solid (calculated)	54% ± 3%			
Dry film thickness per coat	5 - 6 mils (125 - 150 microns)			
Coats	2 or 3			
Theoretical coverage	ft^2/gal		m^2/L	
1 mil (25 microns)	867		21.2	
VOC (calculated)	lb/gal		g/L	
mixed	3.42		410	
mixed/thinned (2 oz./gal.)	3.50		420	
Temperature resistance	Wet		Dry*	
Flash point	°F	°C	°F	°C
continuous	200	93	400	204
with 880 (½ gal can 880/gal)				
continuous	-	-	425	218
intermittent	-	-	450	232

** At temperatures above 200° F, total dry film thickness must not exceed 10 mils in two coat. (One coat when used with 880). Darkening and discoloration of the coating will occur, however film integrity remain unaffected.*

Flash point	°F	°C
Resin	87	31
Cure	200	93

Application Data Summary

Applied over	Prepared steel or concrete	
Surface preparation		
Steel	SSPC - SP5 or 10	
Concrete	ASTM D4259 or 4260	
Method	Airless or conventional spray	
Mixing ratio (by volume)	7.3 parts resin to 1 part cure	
Induction time	Allow 15 minutes before application	
Pot life (hours)	°F/°C	
	70/21	
	6	
Environmental conditions		
Temperature	°F	°C
Air	50 to 100	10 to 43
Surface	50 to 120	10 to 49

Surface temperature must be at least 5°F (3°C) above dew point to prevent condensation.

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Dry time (hours)	75°F/24°C
Touch	1
Recoat, min	16
Recoat, max (days)	90
For immersion (days)	7
Thinner	Khemix 65 or 923
Equipment cleaner	Thinner or Khemix 012

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 larger, with a 0.017- to 0.023-inch orifice.

Conventional spray - Industrial equipment, such as DeVilbiss MBC or JGA spray gun, and a pressure material pot. A moisture and oil trap in the main air supply and separate regulators for air and fluid pressure are required.

Power mixer - Jiffy mixer powered by an air or explosion-proof electric motor.

Application Procedure

1. Flush all equipment with thinner or Khemix 012 cleaner before use.
2. Stir resin component thoroughly, then add cure to resin and mix until uniform. Khemix 491 is packaged in the proper mixing proportions of resin and cure. Do not mix more material than will be used within pot life time. Induction time is 15 minutes at 70°F(21°C).
3. If necessary for workability, use up to 2 fluid ounces of thinner per gallon of Khemix 491 for airless or conventional equipment.
4. When applying by conventional spray, use adequate air pressure and volume to ensure proper atomization.
5. Apply a wet coat in even parallel passes; overlap 50 percent to avoid holidays, bare areas and pinholes and to achieve a dry film thickness of 5 - 6 mils (125 - 150 microns).
6. Check dry film thickness using nondestructive dry film thickness gauge such as Mikrotest or Elcometer. If less than the specified thickness, apply additional material. Total dry film thickness must not exceed 14 mils (350 microns) in 2 coats, and must not be less than 8 mils (200 microns).
7. When a pinhole-free coating is required, check continuity of dry but uncured coating with a nondestructive holiday detector such as Tinker-Rasor Model M-l. Apply additional coats to areas requiring touch-up.
8. After use, clean equipment immediately with thinner or Khemix 012.

Shipping Data

Packaging units	1 gal	5 gal
Resin	0.88 gal in 1-gal can	4.4 gal in 5-gal pail
Cure	0.12 gal in 1-pt can	0.6 gal in 1-gal can
Shipping weight (approx)	lb	kg
1-gal unit		
Resin	12.5	6.7
Cure	1.6	0.7

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5-gal unit		
Resin	62.5	28.4
Cure	6.4	2.9

Shelf life when stored indoors at 40 to 100°F (4 to 38°C) cure and resin 1 year from shipment date Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities. See application instructions for complete information and safety precautions.
The mixed product is nonphotochemically reactive as defined by South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material 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 solvent 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 and space, of which ALSPEC is unaware and over which it has no control.

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

Note: *Consult Code of Federal Regulations Title 29, Labor, parts 1910 and1915 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.*

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

Limitation of Liability

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 thereof which give rise to the claim. **In no event shall ALSPEC be liable for consequential or incidental damages.**

Warranty

KHEMIX 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 nonconformance as required herein shall bar Buyer from recovery under this Warranty.

Ameron 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.