

# ChemLINE<sup>®</sup> 784/32

*A coating with superior chemical resistance and high temperature resistance.*



## Description

ChemLine<sup>®</sup> 784/32 is a high functionality, two component thermoset polymer coating. When cured, the ChemLine<sup>®</sup> 784/32 high cross-link density is unlike other coatings. ChemLine<sup>®</sup> 784/32 delivers significantly improved product performance and anti-corrosion resistance. ChemLine<sup>®</sup> 784/32 coating is formulated with a unique polymer designed and engineered with high functionality. This bridged aromatic backbone structure, when polymerized, forms up to 784 crosslinks. ChemLine<sup>®</sup> 784/32 cross-links predominately through an ether (carbon-oxygen-carbon) linkage. This eliminates high concentrations of hydroxyl groups (found in epoxies) and precludes formation of ester groups (found in vinylesters) which are subject to hydrolysis and acid attack. ChemLine<sup>®</sup> 784/32 can be ambient cured or low temperature forced air cured depending on substrate and service conditions.\*

### ChemLine<sup>®</sup> 784/32's Higher Cross-Link Density Means:

- ▶ Higher chemical resistance
- ▶ Higher toughness
- ▶ Higher heat resistance
- ▶ Higher resistance to abrasion

### Provides Superior Chemical Resistance to:

- ▶ 98% Sulfuric Acid
- ▶ Methanol
- ▶ 37% Hydrochloric Acid
- ▶ Methylene Chloride
- ▶ 50% Sodium Hydroxide
- ▶ Acetic Acid
- ▶ Most acids, alkalis, and solvents

## Industry Applications

- ▶ **Chemical Processing** - Tanks, vessels, hazardous waste, secondary containment, chemical plant floors, etc.
- ▶ **Paper & Pulp** - Digesters, black liquor tanks, bleaching, etc.
- ▶ **Mining** - Acid tanks, scrubbers, etc.
- ▶ **High Technology** - Clean rooms, floors, etc.
- ▶ **Power Generation** - FGD systems, ducts and stacks, etc.
- ▶ **Steel** - Pickling tanks, acid storage, acid waste neutralization,
- ▶ **Waste Water** - Tanks, clarifiers, flocculation basins, neutralization chambers, concrete containment, etc.

## Product Highlights

- ▶ Superior corrosion resistance, exceptional toughness
- ▶ Superior bonding qualities
- ▶ Applied to pitted and/or corroded steel
- ▶ Maximum versatility; product cycling
- ▶ Ambient or low temperature forced air cure
- ▶ Very low VOC - 99 grams/L (0.80 lbs. per gallon)
- ▶ Virtually non-permeable, steam cleanable, & field repairable
- ▶ Resists hydroblasting
- ▶ Excellent UV resistance
- ▶ Complies with all FDA regulations
- ▶ ChemLine<sup>®</sup> is generally recognized as safe (GRAS) for food grade cargoes.
- ▶ High impact resistance
- ▶ Dry heat resistance to 400° F (204° C)

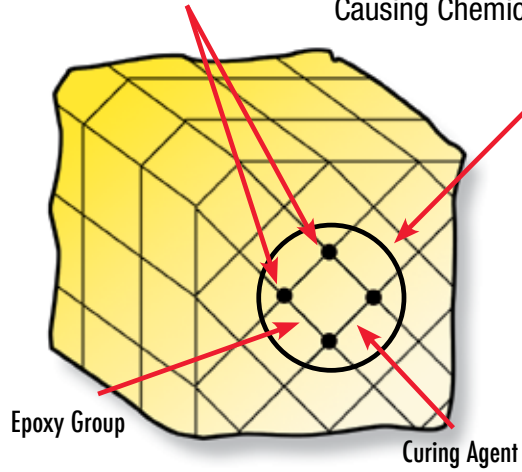
## Typical Properties

- ▶ Stock Colors \_\_\_\_\_ Gray, Red
- ▶ V.O.C. Level/Gal. \_\_\_\_\_ 99 grams/L (0.80 lbs./gal.)
- ▶ Lead Content \_\_\_\_\_ Zero
- ▶ Chromate Content \_\_\_\_\_ Zero
- ▶ Pot Life \_\_\_\_\_ 30 minutes @ 75°F (24°C)
- ▶ Viscosity Reduction \_\_\_\_\_ Reduce with Toluene or Xylene
- ▶ Solids by Volume \_\_\_\_\_ 89.6%
- ▶ Recommended Film Thickness (dry) mils average  
\_\_\_\_\_ Steel: 12 mils (300 microns)  
\_\_\_\_\_ Concrete: 20 mils (500 microns)
- ▶ Shelf Life \_\_\_\_\_ 12 months

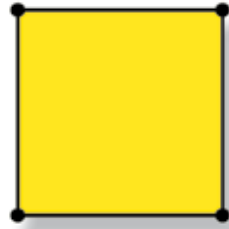
*\*For product recommendations and technical, application and heat curing information contact Advanced Polymer Coatings' customer service. Contact +01 440-937-6218.*

# ▶ The Technology; Epoxies, Vinylesters and ChemLine® 784/32 Form 3 Dimensional Screen-Like Structures when Cured

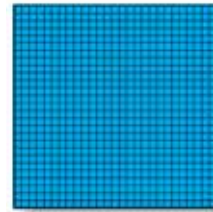
The Greater the Distance Between the Crosslinks, the Greater the Permeation Causing Chemical Attack and Absorption



The Following Diagrams Represent the Same Coating Cutaway (pictured left)



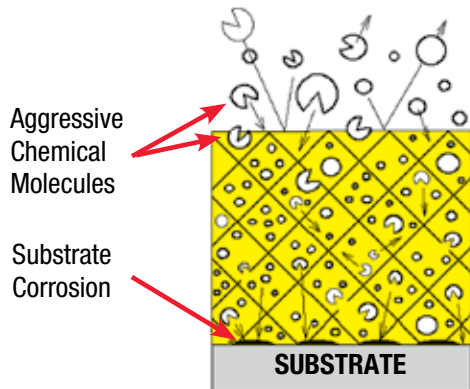
Epoxy  
2 Functionality  
Forms 4 Cross-links



**ChemLine® 784**  
High Functionality  
Forms up to 784 Cross-links,  
the Highest Cross-link Density

## Problems with Epoxies and Vinylesters

### Vinylester's and Epoxy's Open Screen Structure



AGGRESSIVE CHEMICAL MOLECULES PENETRATE INTO AND THROUGH THE POLYMER GROUPS ATTACKING BOTH THE INNER POLYMER STRUCTURE AND THE SUBSTRATE.

### ChemLine 784's Closed Screen Structure



AGGRESSIVE CHEMICAL MOLECULES CANNOT PENETRATE THE HIGH DENSITY SURFACE. INNER POLYMER STRUCTURE AND SUBSTRATE PROTECTED FROM CHEMICAL ATTACK.

# ChemLINE® 784/32

- ▶ High functionality forming up to 784 crosslinks
- ▶ Majority of crosslinks are through Ether (C-O-C) bonds. Ether bonds are one of the strongest bonds in chemistry. Ether bonds give flexibility with chemical resistance.

# Superior Corrosion Resistance Performance

**This is Only A Reference Guide.** This is an abbreviated listing of the more than 5,000 chemicals that have been tested. This information is intended to serve as a reference guide only. The end user is responsible for determining if ChemLine® is the appropriate coating for the specific application involved. Contact your ChemLine® Representative or the ChemLine® Customer Service Hotline +01 440-937-6218 for detailed specifications prior to any final coatings recommendation or application.

	ChemLine®	Phenolic Epoxy	Vinylester	Stainless Steel		ChemLine®	Phenolic Epoxy	Vinylester	Stainless Steel		ChemLine®	Phenolic Epoxy	Vinylester	Stainless Steel
Acetaldehyde	A	L	N	A	Flaked Stearic Acid	A	N	A	A	Norval Amine	A	N	N	A
Acetic Acid	A	N	N	A	Fluoraboric Acid*	A	N	—	N	Octanoic Acid	A	A	—	A
Acrolein Acid	A	N	—	A	Formaldehyde	A	A	A	A	Orthonitro Benzene	A	N	N	N
Acrylic Acid	A	N	N	A	Formamide	A	N	—	A	Oleum	A	N	N	A
Acrylonitrile, (35°C)	A	N	N	A	Formic Acid 10%	A	N	A	A	Olive Oil Fatty Acid	A	A	A	A
Ammonium Persulfate	A	A	A	L	Green Liquor	A	N	A	L	Palm Oil Fatty Acid	A	A	A	A
Azabenzene	A	N	N	A	Glycerol	A	N	N	A	Perchloroethylene	A	N	N	A
Benzene	A	A	N	A	Grape Juice	A	A	A	A	Perchloric Acid	A	N	N	N
Benzene Carboxylic Acid	A	A	N	A	Grapefruit Juice	A	A	A	A	Phenol	A	N	N	A
Benzoyl Chloride	A	N	N	N	Grease Oil	A	A	A	A	Phosphoric Acid	A	N	A	N
B-Methacrylic Acid	A	N	N	A	Heptanoic Acid	A	A	—	A	Phthalic Anhydride	A	N	A	A
Bichromate of Soda	A	N	A	A	Herring Oil	A	A	A	A	Piperzine	A	N	—	A
Bromine	A	N	N	A	Hexahydroaniline	A	N	—	A	Polyethylene Polyamines	A	N	—	A
Butanoic Acid	A	N	—	A	HMDA	A	N	—	A	Potassium Hydroxide	A	A	L	L
Butyric Aldehyde	A	N	A	A	Hydrazine	A	N	N	A	Potassium Permanganate	A	A	A	L
Calcium Hydroxide	A	A	A	A	Hydrobromic Acid	A	N	A	N	Propionic Acid	A	N	N	A
Calcium Hypochlorite	A	A	A	L	Hydrochloric Acid	A	N	A	N	Pyridine	A	N	N	A
Caustic Potash	A	N	N	A	10% Hydrofluoric Acid*	A	N	A	N	Rubber Extender Oils	A	A	A	A
Carbolic Acid	A	N	N	A	5-20% Hydrogen Chloride	A	N	—	N	Rum	A	A	A	A
Chlorine Water	A	N	A	N	10%-30% Hydrogen Sulfate	A	N	A	A	Sodium Carbonate	A	N	A	N
Chlorosulfonic Acid	A	N	N	N	Isobutanol	A	N	A	A	Sodium Dichromate	A	N	A	A
Chlorinated Acetone	A	N	N	L	Isobutyric Acid	A	N	—	A	Sodium Hydroxide	A	A	A	L
Chloroacetic Acid	A	N	N	L	Isopropyl Amine	A	N	A	A	Sodium Sulfide	A	A	N	N
Chromic Acid, 20%	A	N	A	N	Javelle Water	A	N	A	N	Stannic Chloride	A	A	A	N
Coal Tar Oil	A	N	A	A	Juices, Fruit	A	A	A	A	Stearic Acid	A	A	A	A
Coconut Fatty Acid	A	A	A	A	Lactic Acid	A	A	A	A	Spent Sulfuric Acid	A	N	N	A
Colamine	A	N	N	A	Lactonitrile	A	N	—	A	Sulfur	A	N	N	A
Cresol	A	N	—	A	Latex	A	A	A	A	Sulfuric Acid 1-70%	A	A	A	N
Dichloromethane	A	N	N	A	Liquified Ammonia	A	N	N	A	Sulfuric Acid 70-99%	A	N	N	L
Detergents	A	A	A	A	Liquid Pitch Oil	A	N	A	A	Sulphurous Acid	A	N	N	A
Diethyl Formamide	A	N	N	A	M-Phosphoric Acid**	A	N	A	L	Tall Oil	A	A	A	A
Diethylamine	A	N	N	A	Maleic Anhydride	A	N	A	A	Tallow Acid	A	A	N	A
Diethylene Chloride	A	N	N	L	MCA	A	N	—	A	Tar Acid	A	N	A	A
Diethyl Ether	A	N	N	A	Methacrylonitrile, (35°C)	A	N	N	A	Tetra Chloroacetic Acid	A	N	N	N
Dimethylamide Acetate	A	N	—	A	Methanamide	A	N	—	A	Tetra Hydrofurfuryl Alcohol	A	N	N	A
Disulphuric Acid	A	N	—	A	Methanol	A	N	N	A	Toluene Diamine	A	N	N	A
EDTA	A	N	A	A	MEK	A	L	N	A	Toluol	A	L	L	A
Ethanolamine	A	N	N	A	Methylene Chloride	A	N	N	N	Valeraldehyde	A	N	—	A
Ethonic Acid Anhydride	A	N	—	A	Monochloro Benzene	A	N	N	N	Vinegar	A	N	A	A
Ethyl Acrylate	A	A	N	A	Naphtalene	A	N	A	A	Vitriol Oil 65%	A	N	A	A
Fatty Acids	A	A	A	A	Nitric Acid 1-20%	A	N	A	A	Water, Acid	A	N	N	A
Fatty Acid, Palm	A	A	A	A	Nitro Benzene	A	A	N	A	Xylenol	A	N	N	A
Ferric Chloride	A	N	A	N	Nitrogen Fertilizers	A	A	—	A					

A = Good at ambient temperatures L = Limited Service N = Not recommended  
 \* ChemLine® 2400 Series \*\* ChemLine® 784 Series

Corrosion resistance data for Phenolic Epoxy, Vinylester and Stainless Steel from published literature.

# ChemLINE® 784/32

## A History of Performance

For more than a decade ChemLine® coatings have withstood the tremendous stresses and extremes of chemical attack and abrasive wear. ChemLine® has been proven worldwide under the most arduous operating conditions, from resisting the most aggressive chemicals to handling hot pipelines in sub-freezing temperatures, with a history of success. Based on this experience, the development of

ChemLine® 784/32 represents a quantum leap in chemical resistant polymer coatings.

## Add to Your Profits — Specify ChemLine® 784/32

For the full story on ChemLine®, contact APC or click onto our web site at [www.adv-polymer.com](http://www.adv-polymer.com) for the most versatile, technologically advanced and cost effective protection available.



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