# MarinelINE®

The industry leading cargo tank coating for chemical & product tankers, with superior chemical resistance.





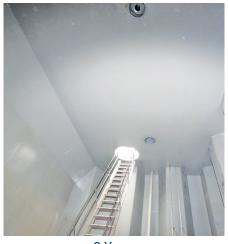
### The MarineLINE® Cargo Tank Coating System

## **Key Coatings Benefits**

- Withstands all IMO approved chemical cargoes
- For chemical and product carriers
- Strong return on Investment (ROI)
- Virtually non-permeable for assurance of product purity
- Faster, easier cleaning
- Maximum versatility to carry acids, alkalis, solvents, CPPs, PFADs, Bio-Fuels, and Methanol
- Excellent flex stressing
- GRAS Generally recognized as safe for food grade cargoes.
- FDA compliant
- Superior chemical resistance to stainless steel, phenolic epoxies and zinc silicate coatings
- Superior bond strength and adhesion
- Resistance to wear, abrasion and impact
- Very low VOC 103 grams/L (1.09 lbs./gal)
- Thermal shock resistance -40°C to +150°C (-40°F to +302°F).
- ABS ISO 9001:2015 Certification



MarineLINE® offers long service life potential. See these photos of tanks at various inspection intervals.





3 Years







5 Years

6 Years

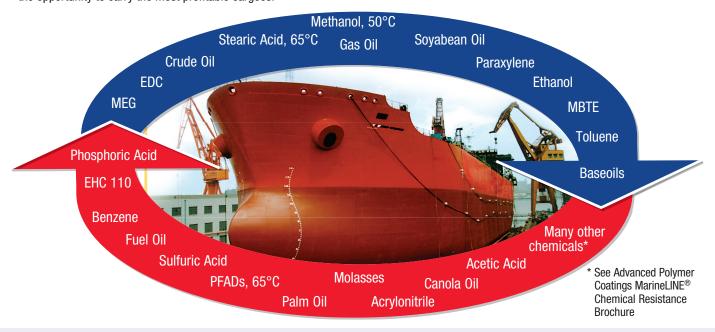


11 Years

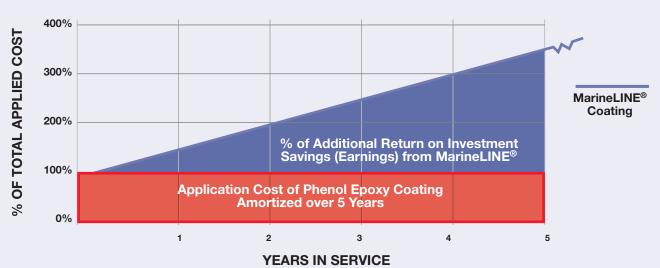
### **MarineLINE® Operational Benefits**

#### **Greater Versatility When Switching Cargoes**

These charts show how easily you can switch cargoes to take advantage of the greatest amount of sequencing possibilities and the opportunity to carry the most profitable cargoes.



#### **Compare Cargo Tank Coating Additional Return On Investment (ROI)**



This 5-year comparison of MarineLINE® versus Phenol Epoxy coatings shows the tremendous difference in Additional Return On Investment. Chart calculations are based on data accumulated from a number of tanker shipowners. 25,000 DWT Tanker, Nine (9) voyages per year @ \$20,000 USD per day

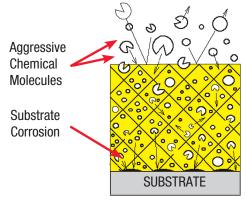
- 1) Three (3) less cleaning days per voyage than Phenol Epoxy (27 more sailing days)
- 2) 50% less cleaning chemicals used
- 3) 50% less slops
- 4) MarineLINE® cargo tank coating is fully cured when leaving the shipyard, so additional income is earned as MarineLINE® can immediately carry all cargoes on the MarineLINE® resistance list.

## **Patented Polymer Technology Delivers Results**

### **Compare the Superior Performance Capability of MarineLINE®**

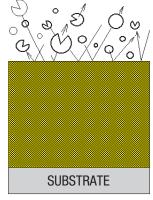
• Higher chemical resistance • Higher temperature resistance • Resistance to permeation (absorption)

### Problems with Phenolic Epoxy and Modified Epoxy Open Screen Structures



Aggressive chemical molecules penetrate into and through the polymer groups attacking both the inner polymer structure and the substrate.

#### MarineLINE® 784 Closed Screen Structure



Aggressive chemical molecules cannot penetrate the high density surface. Inner polymer structure and substrate protected from chemical attack.

#### **Compare the Range of Chemicals Carried**

MarineLINE® covers the widest range of chemicals carried by a marine cargo tank coating. See the full Chemical Resistance list at http://www.adv-polymer.com Corrosion resistance data from published literature.

A = Good at ambient temperatures (35°C/95°F) L = Limited Service N = Not recommended

#### This is Only A Reference Guide.

This is an abbreviated listing of MarineLINE® capabilities. See the MarineLINE® Chemical Resistance Guide for full capabilities. The end user is responsible for determining if MarineLINE® is the appropriate coating for the specific application involved.

	Marinet	Phenolic 5	Stainles	Modified E	Nogs	Marinet	Phenotic i	Stainles	Modified F	Nods	Marinel M.	Phenolic F	Stainless	Modified E.	Nagy	Marinel	Phenolic E	Stainlese G.	Modified Epoxy
Acetic Acid, Glacial	Α	-	L	N	CPP - Clean Petroleum Products	Α	-	-		Hexane / Heptane	Α	Α	Α	Α	Palm Kernel (crude and refined)	Α	L	Α	L
Acetone	Α	L	Α	Α	Crude Oil	Α	L	-	-	Hydrocracker Bottoms	Α	-	-	-	Palm Oil (crude and refined)	Α	L	Α	L
Acetonitrile	Α	L	-	L	Crude Oil (NHC)	Α	-	-	-	Hygold 60	Α	-	-	Α	Palm Olein / RBD Olein	Α	L	Α	L
Alcoholic or Acidic Beverages	Α	L	Α	Α	Crude Palm Oil	Α	L	-	L	IPA (isopropyl alcohol)	Α	L	Α	L	Paraffin Wax / Slack Wax	Α	Α	Α	Α
(Wine/Citric Juices)			_		CSS (Caustic Soda Solutions)	Α	L	-	L	Isoprene monomer	A	-	-	Α	Paraxylene	Α	Α	L	Α
Acrylonitrile, 35°C	A	L	A	N	Cumene	Α	Α	-	Α	Jet Fuel / AVGAS	Α	Α	Α	Α	Pentane	Α	Α	L	Α
Alkanes / Alkylates	A	L	L	A	Cyclohexane	Α	Α	Α	Α	Lard (animal fats)	Α	L	Α	L	PFAD (palm fatty acid distillate)	Α	L	Α	L
Aniline / Aniline oil	A	L	A	L	Decyl Alcohol	Α	Α	Α	Α	Lignosulfonates	Α	L	-	L	Propylene Glycol (all grades)	Α	Α	Α	Α
Baseoils / Baseoil 70N	A	L	A	L	DEG (diethylene glycol)	Α	Α	Α	Α	Linseed Oil (crude and refined)	Α	L	Α	L	Phenol	Α	L	Α	N
Benzene	A	A	A	L	Diesel Oil	Α	L	Α	Α	LS Diesel Oil (Low Sulfur and Ultra	Α	-	Α	-	Phosphoric Acid	Α	-	N	N
Biodiesels / Biofuels	A	L	A	L	Diphenyldiisocyanate	Α	Α	-	Α	low sulfur)			<u> </u>		Propane	Α	Α	Α	-
Bunker Oils	A	L	A	L	EDC (ethylene dichloride or	Α	L	Α	Α	Lube Oil	A	L	A	A	Propanol	Α	L	Α	Α
Butane	A	A	A	A	dichloroethane)			<u> </u>		Marine Diesel	A	A	A	A	Pygas (C9)	Α	-	Α	Α
Butanols	A	A	Α	A	EHC 110	A	-	-	L	MEG (monoethylene glycol or ethylene glycol)	A	Α	A	A	Salt Water / Fresh Water	Α	L	L	-
Calcium Lignosulfonate	A	L	-	-	ETBE (ethyltertbutylether)	A	A	-	A	MEK (methyl ethyl ketone)	A		A	A	Soyabean Oil / Soybean Oil	Α	L	Α	L
Calcium Nitrate	A	L	L	A	Ethane	A	A	A	-	Methanol	A	L	A		Styrene / Styrene Monomer	Α	L	Α	Α
Canola Oil	A	L	-	L	Ethanol	A	L	A	A	Molasses	A		A		Sulphuric Acid / Sulfuric Acid	Α	-	N	N
Cashew Nut Oil	A	L	-	L	Ethylene Glycol	A	A	A	A	MTBE (methyltertbutylether)	A	A	A		Sunflower Seed Oil (crude and	Α	L	Α	L
Castor Oil	A	L	A	L	FAME (Fatty Acid Methyl Esters)	A	L	A	L	M-Xylene	A	A	H		refined)	<u> </u>			
Caustic Potash Solutions	A	-	L	L	Fatty Acid / RCNO	A	L	A	L	Naphtha / Light Solvent Naphtha	A	1	A		Tallow / Tall Oil / Tallow Grease	A	L	Α	
Caustic Potash, Acid Oil	A	L	L	<u> </u>	Fatty Alcohols	A	L	A	L	Noxious Liquid (NF3, NF5,	A		A	A	Toluene	A	A	Α	A
Caustic Soda	A	L	L	L	Fish Oil	A	L	-	L	etc.) NOS	A	-	•	А	Urea / Urea Ammonium Nitrate	A	A	Α	L
Coconut Oil (crude and refined)	Α	L	Α	L	Fuel Oil	Α	L	A	A	Oils (Fuel Oils/high density / hi	Α	L	A	A	VAM (Vinyl Acetate Monomer)	Α	L	L	L
COR150 Annex 1 / 150SN/400SN	A	-	-	A	Gas Oil	A	Α	-	A	molecular weight)					Veg oils / Vegetable oils	A	L	Α	A
Corn Oil (crude and refined)	Α	L	A	L	Gasoline	A	L	A	A	Olive Oil (virgin, refined, and	Α	L	А	L	Xylenes / including paraxylene	A	Α	L	A
Cottonseed Oil (crude and refined)	Α	L	Α	L	Groundnut Oil (crude and refined)	Α	L	-	L	blends)									



### Why MarineLINE® Is Better

#### **APC Uses Professional Coating Inspection & Heat Curing**

To ensure the performance of MarineLINE®, it is imperative that APC provides inspection services throughout the entire application process. APC focuses on the importance of good surface preparation, correct application and proper heat cure, in a 6-Step approach. MarineLINE® has set the benchmark regarding heat curing, and spark testing the entire tank surface.

#### Step 1 **Pre-Blast**



- Weld & Grind Inspection
- Staging Dehumidification
- Ventilation
   Rain Protection
- Surface Contamination Testing
- Surface Protection

#### Step 2 **Blasting**



- Surface Profile
- Surface Cleanliness
- Environmental Conditions
- Cleaning
- Visual Blast Inspection
- Rejection of Blast Quality

#### Step 3 Spray **Application**



- Environmental Conditions
- . Mixing Thinners
- Base Coat (shown here)
- Stripe Coat
- Top Coat

#### Step 4 Inspection

- Dry Film Thickness Test
- Spark Test



#### Step 5 **Heat Cure**



- Set-up
- Charting
- Curing



### Step 6 **Final**



- · Hardness Test Solvent Wipe Test
- Completion Certificate



### **APC Offers Warranty Through Helvetia Insurance**

# helvetia 🔼



APC has joined forces with Helvetia Group, the Swiss-based insurer, to offer a specialized insurance program to warranty the application and performance of MarineLINE® cargo tank coatings.

This insurance program covers shipowners and operators on the MarineLINE® tank coating for a specified warranty period up to 5 years. With the Helvetia program, APC offers customers a true 'turn-key' solution for their cargo tank coating.





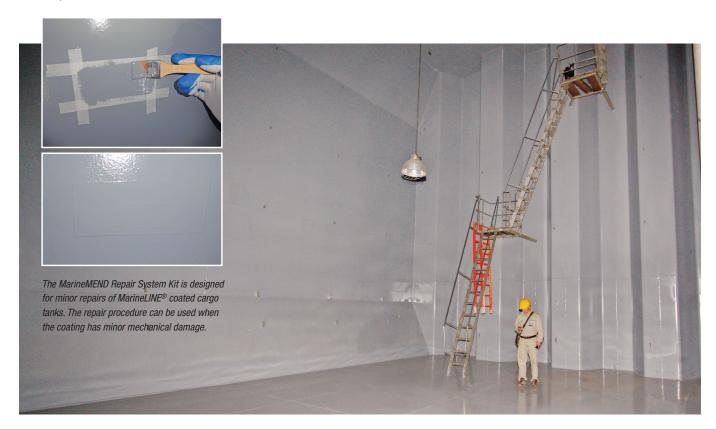
### **Presenting PerforMAX**

#### **Advanced Cargo Tank Lining Services**

APC now offers a full range of high-quality professional services and programs to optimize the performance of MarineLINE® coating, and to extend its service life. This provides long lasting asset protection and costs savings. Services can include:

- Performance monitoring/optimization
- Maintenance and repair program for vessels
- Crew training
- OBI reports

- Third party warranty
- Hand-off completion documents
- Additional services including cargo tank cleaning consultation and others





The information contained in this brochure is intended to show the broad range of applications where Advanced Polymer Coatings' products have been used. This brochure is not an offer to sell any product. The information provided is not a warranty that Advanced Polymer Coatings' products are suitable for any specific service condition. All products sold by Advanced Polymer Coatings come with a warranty that the product supplied is suitable for the service condition disclosed by the customer prior to sale when properly applied. Advanced Polymer Coatings will not warrant the quality of the application work performed by others and shall have no liability for in service product failure resulting from improper application. Advanced Polymer Coatings offers a range of products for different service conditions. In the event a product supplied by Advanced Polymer Coatings is shown to be inadequate for the customer's conditions of service, Advanced Polymer Coatings shall, in its discretion, provide an alternative product or refund

#### **Advanced Polymer Coatings**

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Sheets and Application Guidelines available at www.adv-polymer.com.

www.adv-polymer.com

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