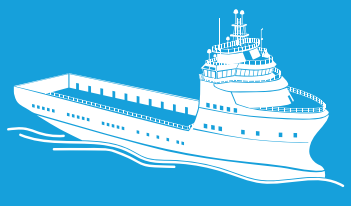
carboline®
Coatings - Linings - Fireproofing

Marine

System Guide

Coatings and Linings



Weathering Exposures

Weathering and Salt Environment (Minimum SSPC-SP6)

PRIMER	DESCRIPTION	MID-COAT	DESCRIPTION	TOPCOAT	DESCRIPTION
Superstructure and Deck Structures **Applications – Wheelhouse steel, cranes, equipment, piping and handrails and other equipment operating up to 250°F (121°C)**					
Carbozinc 11 **-or-** **Carbozinc 808** **-or-** **Carbozinc 859**	Inorganic zinc primer for maximum corrosion protection -or- Organic zinc for quick topcoating -or- High zinc load organic zinc for quick topcoating	**Carboguard 890** **-or-** **Carboguard 635**	Versatile, chemical resistant epoxy -or- Moisture tolerant, low temp cure epoxy	**Carbothane 134 Series** **-or-** **Carbothane 133 Series**	High gloss weatherable acrylic urethane -or- Satin finish; high build urethane hybrid

Weathering and Salt Environment (Minimum SSPC-SP3)

PERFOR-MANCE	PRIMER	DESCRIPTION	MID-COAT	DESCRIPTION	TOPCOAT	DESCRIPTION
Superstructure and Deck Structures **Applications – Wheelhouse steel, cranes, equipment, piping and handrails and other equipment operating up to 250°F (121°C)**						
Excellent	**Carbomastic 15 Series** **-or-** **Carbomastic 615**	Aluminum surface tolerant epoxy -or- Inert-flake filled, moisture tolerant, low temp cure epoxy	**Carboguard 890** **-or-** **Carboguard 635**	Versatile, chemical resistant epoxy -or- Moisture tolerant, low temp cure epoxy	**Carbothane 134 Series** **-or-** **Carbothane 133 Series**	High gloss weatherable acrylic urethane -or- Satin finish; high build urethane hybrid
Good	**Carbocoat 150 UP** **-or-** **Carbocoat 8215**	Universal phenolic alkyd primer -or- High build, surface tolerant, direct to metal alkyd			**Carbocoat 45** **-or-** **Carbocoat 8215**	High gloss alkyd enamel -or- High build, surface tolerant, direct to metal alkyd

Weathering Exposures

Weathering and Salt Environment – Systems over Existing Coatings*

PERFOR-MANCE	OVERCOAT SEALER	DESCRIPTION	SPOT PRIMER	DESCRIPTION	TOPCOAT	DESCRIPTION
Superstructure and Deck Structures **Applications - Wheelhouse steel, cranes, equipment, piping and handrails and other equipment operating up to 250°F (121°C)**						
Excellent	**Rustbond Series**	Penetrating epoxy sealer	**Carboguard 890 -or- Carboguard 635**	Versatile, chemical resistant epoxy -or- Moisture tolerant, low temp cure epoxy	**Carbothane 134 Series -or- Carbothane 133 Series**	High gloss weatherable acrylic urethane -or- Satin finish; high build urethane hybrid
Good	**Carbocoat 150 UP -or- Carbocoat 8215**	Universal phenolic alkyd primer -or- High build, surface tolerant, direct to metal alkyd			**Carbocoat 45 -or- Carbocoat 8215**	High gloss alkyd enamel -or- High build, surface tolerant, direct to metal alkyd

*Recommended surface preparation is SP1 followed by SP2/3. Always determine suitability for overcoating prior to application (see Notes section).

Underwater Hull

Fresh or Salt Water Immersion

PREP	TWO COATS ANTI-CORROSIVE COATING	DESCRIPTION	2-3 COATS ANTIFOULANT COATING	DESCRIPTION
Underwater Hull **Applications – Underwater hull exposed to fresh or salt water exposures.**				
SP 10	**Carboguard 890** **-or-** **Carboguard 235** **-or-** **Carboguard 635**	Versatile, chemical resistant epoxy -or- Moisture tolerant, low temp cure epoxy -or- Moisture tolerant, low temp cure, fast recoat epoxy	**C-Flex 45**	High performance, tin-free, self-polishing antifoulant

Hull Above the Waterline (Freeboard)

Weathering/Salt Spray Exposure

PREP	PRIMER	DESCRIPTION	MID-COAT	DESCRIPTION	TOPCOAT	DESCRIPTION
Hull Above the Waterline **Applications – Exterior hull above the waterline (freeboard).**						
SP 6	**Carbozinc 11** **-or-** **Carbozinc 808** **-or-** **Carbozinc 859**	Inorganic zinc primer for maximum corrosion protection -or- Organic zinc for quick topcoating -or- High zinc load organic zinc for quick topcoating	**Carboguard 890** **-or-** **Carboguard 235** **-or-** **Carboguard 635**	Versatile, chemical resistant epoxy -or- Moisture tolerant, low temp cure epoxy -or- Moisture tolerant, low temp cure, fast recoat epoxy	**Carbothane 134 Series** **-or-** **Carbothane 133 Series**	High gloss weatherable acrylic urethane -or- Satin finish; high build urethane hybrid

Decks and Walkways

PREP	1ST COAT	DESCRIPTION	2ND COAT	DESCRIPTION	OPTIONAL THIRD COAT	DESCRIPTION
Walkways (Non-Slip Areas) – Steel **Applications – For applications where non-slip walking surfaces are required.**						
SP 3	**Carbocoat 8215**	Economical fast-dry alkyd enamel	**Carbocoat 8215 Non-Skid**	Economical fast-dry non-skid alkyd enamel		
SP 10	**Carbozinc 808** **-or-** **Carboguard 890**	Organic zinc for additional corrosion resistance -or- Chemical resistant epoxy primer	**Carboguard 1209** **-or-** **Carboguard 869 Non-Skid**	Heavy-duty, glass-flake, non-skid epoxy -or- Medium-duty, non-skid epoxy	**Carbothane 134 Series**	High gloss weatherable acrylic urethane

High Heat Applications

Non-Insulated

PREP	PRIMER	DESCRIPTION	TOPCOAT	DESCRIPTION	OPTIONAL THIRD COAT	DESCRIPTION
Uninsulated Piping and Equipment – Steel operating to 450°F (232°C) **Applications – Piping, heaters, furnaces, boilers, stacks, vessels, heat exchangers, mufflers, valves and pumps and equipment operating at 250-450°F (121-232°C).**						
SP 10	**Carbozinc 11 Series**	Inorganic zinc primer for maximum corrosion protection	**Thermaline 4000 -or- Thermaline 4900**	Inorganic silicate; no heat cure requirement -or- Silicone acrylic	**Thermaline 4000 -or- Thermaline 4900**	Inorganic silicate; no heat cure requirement -or- Silicone acrylic
Uninsulated Piping and Equipment – Steel operating up to 800-1000°F (427-538°C) **Applications – Piping, heaters, furnaces, boilers, stacks, vessels, heat exchangers, mufflers, valves and pumps and equipment operating at 800-1000°F (427-538°C).**						
SP 10	**Carbozinc 11 Series***	Inorganic zinc primer for maximum corrosion protection	**Thermaline 4000 -or- Thermaline 4700**	Inorganic silicate; no heat cure requirement -or- Silicone	**Thermaline 4000 -or- Thermaline 4700**	Inorganic silicate; no heat cure requirement -or- Silicone

*Thermaline 2977 VOC can be used up to 800°F (427°C) over an SP3 surface preparation.

Insulated

PREP	PRIMER	DESCRIPTION	TOPCOAT	DESCRIPTION	OPTIONAL THIRD COAT	DESCRIPTION
Insulated Piping and Equipment – Steel operating up to 300°F (148°C) **Applications – Insulated piping and equipment operating at elevated temperatures.**						
SP 3	**Carbomastic 15 Series**	Aluminum surface tolerant epoxy	**Carbomastic 15 Series**	Aluminum surface tolerant epoxy		
Insulated Piping and Equipment – Steel operating up to 425°F (218°C) **Applications – Insulated piping and equipment operating at elevated temperatures.**						
SP 10	**Thermaline 450**	Glass-flake epoxy novolac				
Insulated Piping and Equipment – Steel operating up to 1000°F (538°C) **Applications – Insulated piping and equipment operating at elevated temperatures.**						
SP 10	**Carbozinc 11**	Inorganic zinc-rich primer	**Thermaline 4700**	Silicone	**Thermaline 4700**	Silicone

Tanks

SERVICE CONDITIONS	GENERIC TYPE	PRODUCT	# OF COATS	mils (µm) TOTAL
Ballast Tanks and Double Bottoms	Epoxy Polyamide	**Carbomastic 18 BT**	2	12-14 (300-350)
	Epoxy Phenalkamine	**Carboguard 635**	2	12-14 (300-350)
	Epoxy Polyamide	**Carboguard 890**	2	12-14 (300-350)
	Epoxy Phenalkamine	**Carboguard 235**	2	12-14 (300-350)
	Solvent-Free Epoxy	**Phenoline Tank Shield**	1-2	12-20 (300-500)
Chemical Storage Tanks	Cycloaliphatic Amine Epoxy	**Phenoline 385**	2	12-14 (300-350)
	Epoxy Novolac	**Phenoline 353**	2	12-14 (300-350)
	Epoxy Amine	**Plasite 9060 or 9060 LT**	2	12-14 (300-350)
	Solvent-Free Epoxy Amine	**Plasite 4500 S**	1	25-35 (625-875)
Potable Water Tanks	Epoxy Polyamide	**Carboguard 61**	2	12-14 (300-350)
	Epoxy Phenalkamine	**Carboguard 635**	2	8-12 (200-300)
	Epoxy Phenalkamine	**Carboguard 692**	2	12-14 (300-350)
	Solvent-Free Epoxy	**Phenoline Tank Shield**	1	15-20 (375-500)
Dry Void Tanks	Epoxy Polyamide	**Carboguard 890**	2	12-14 (300-350)
	Epoxy Phenalkamine	**Carboguard 635**	2	12-14 (300-350)
	Epoxy Polyamide	**Carboguard 60**	2	12-14 (300-350)
Fuel Oil, Gasoline Storage	Cycloaliphatic Amine Epoxy	**Phenoline 385**	2	12-14 (300-350)
	Solvent-Free Epoxy	**Phenoline Tank Shield**	1	15-20 (375-500)

NOTES:

1. This system guide often refers to a "series" of products (e.g. Carbozinc 11 Series) where you may select the specific product for your application within this equivalent family. This "series" typically includes product versions that meet regional VOC regulations (e.g. Carbozinc 11 VOC) as well as product versions that offer faster cure (e.g. Carbozinc 11 FC). You can be assured that all the products within a "series" offer the same performance characteristics. Please consult your Carboline Sales Representative for specific recommendations.
2. Please consult your Carboline Sales Representative for specific recommendations to meet regional environmental regulations. Carboline offers many products with reduced VOC and HAPs.

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