



## Carboline General System Guide for Coating Applications

Exposure Level	Surface Preparation (SSPC)	1 <sup>st</sup> Coat	Mils (Microns)	2 <sup>nd</sup> Coat	Mils (Microns)	3 <sup>rd</sup> Coat	Mils (Microns)
<b>Structural Steel, Piping, and Equipment Exterior Applications</b>				<b>Applications</b> Structural steel, inlet air ducts, pipe racks, piping, valves, ladders, handrails, pumps, motors, storage tank exteriors, compressors, up to 250 F.			

### ***New Construction***

Light to Moderate	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)	Carbocrylic 3359DTM <i>Water borne Acrylic</i>	3-5 (75-125)		
Moderate	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)	Carbothane 133HB <i>Urethane</i>	3-5 (75-125)		
Severe	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)	Carboguard 893 or 893 SG <i>Epoxy</i>	4-6 (100-150)	Carbothane 133 HB or 134 HG <i>Polyurethane</i>	3-5 or 2-3 (75-125 or 50-75)
Light to moderate	SP 6	Carboguard 893 SG <i>Epoxy</i>	4-6 (100-150)	Carbothane 133HB <i>Polyurethane</i>	3-5 (75-125)		
Moderate to severe	SP 6	Carbozinc 859 <i>Organic Zinc</i>	3-5 (75-125)	Carbothane 133HB <i>Polyurethane</i>	3-5 (75-125)		
Severe	SP 6	Carbozinc 859 <i>Organic Zinc</i>	3-5 (75-125)	Carboguard 893 or 893 SG <i>Epoxy</i>	4-6 (100-150)	Carbothane 133 HB or 134 HG <i>Polyurethane</i>	3-5 or 2-3 (75-125 or 50-75)

### ***Maintenance***

Moderate	SP 3	Carbomastic 15 or 90 <i>Surface Tolerant Epoxy</i>	5-7 (125-175)	Carbothane 133HB <i>Polyurethane</i>	3-5 (75-125)		
Severe	SP 3	Carbomastic 15 or 90 <i>Surface Tolerant Epoxy</i>	4-6 (100-150)	Carboguard 890 <i>Epoxy</i>	4-6 (100-150)	Carbothane 133 HB or 134 HG <i>Polyurethane</i>	3-5 or 2-3 (75-125 or 50-75)
Overcoat Projects	SP 3	Rustbond Penetrating Sealer <i>Epoxy</i>	1-2 (25-50)	Carbomastic 15 (spot prime) <i>Surface Tolerant Epoxy</i>	4-6 (100-150)	Carbothane 133 HB or 134 HG <i>Polyurethane</i>	3-5 or 2-3 (75-125 or 50-75)

### **Structural Steel, Piping, and Equipment Interior Applications**

**Applications** Structural steel, piping, pumps, motors, electrical equipment

Light to moderate	SP 6	Carbocoat 115 <i>Alkyd</i>	2-3 (50-75)	Carbocoat 139 <i>Urethane Alkyd</i>	2-3 (50-75)		
Light to moderate	SP3	Carbocrylic 3359DTM <i>Water-borne acrylic</i>	3-5 (75-125)	Carbocrylic 3359DTM <i>Water-borne acrylic</i>	3-5 (75-125)		
Light to moderate	SP3	Carbocoat 150 UP <i>Alkyd-universal primer</i>	2-3 (50-75)	Carbocoat 139 <i>Urethane Alkyd</i>	2-3 (50-75)		
Moderate	SP 6	Carboguard 890 <i>Epoxy</i>	4-6 (100-150)				
Moderate to severe	SP 6	Carboguard 893 or 893 SG <i>Epoxy</i>	4-6 (100-150)	Carboguard 890 <i>Epoxy</i>	4-6 (100-150)		



Exposure Level	Surface Preparation (SSPC)	1 <sup>st</sup> Coat	Mils (Microns)	2 <sup>nd</sup> Coat	Mils (Microns)	3 <sup>rd</sup> Coat	Mils (Microns)
<b>High Temperature Applications 250-450°F</b>			<b>Applications</b> Hot piping, boiler and furnace skins				
Moderate to Severe	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)				
Moderate to Severe	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)	Thermaline 4900R <i>Modified Silicone</i>	1-1.5 (25-37.5)		
Moderate to Severe	SP 3	Thermaline 2977 <i>Zinc filled silicone</i>	2-2.5 (50-62.5)	Thermaline 4900R <i>Modified Silicone</i>	1-1.5 (25-37.5)		
<b>Insulated Piping and Equipment to 425°F/218°C – Steel</b>			<b>Applications</b> <i>Insulated piping and equipment operating up to 425 °F (218 °C)</i>				
Moderate to Severe	SP 10	Thermaline 450 <i>Novolac Epoxy</i>	8-12 (200-300)				
<b>High Temperature Applications 450-1200°F</b>			<b>Applications</b> <i>Stacks, piping, and other high heat surfaces up to 1200°F</i>				
Moderate to Severe	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)				
Moderate to Severe	SP 10	Carbozinc 11 Series <i>Inorganic Zinc</i>	2-3 (50-75)	Thermaline 4700	1-1.5 (25-37.5)		
Moderate to Severe	SP3	Thermaline 2977 <i>Zinc filled silicone</i>	2-2.5 (50-62.5)	Thermaline 4700	1-1.5 (25-37.5)		
<b>Drywall</b>			<b>Applications</b> Office areas, locker rooms, atriums, hallways, storage areas, etc.				
Light	Clean	Sanitile 120 <i>Sealer / bonding primer</i>	1-2 (25-50)	Sanitile 155 <i>Waterborne acrylic</i>	2-3 (50-75)		
Light to Moderate	Clean	Sanitile 120 <i>Sealer / bonding primer</i>	1-2 (25-50)	Sanitile 255 <i>WB acrylic-epoxy</i>	2-4 (50-100)		
Moderate	Clean	Sanitile 120 <i>Sealer / bonding primer</i>	1-2 (25-50)	Sanitile 555 <i>Waterborne epoxy</i>	2-4 (50-100)		



Exposure Level	Surface Preparation (SSPC)	1 <sup>st</sup> Coat	Mils (Microns)	2 <sup>nd</sup> Coat	Mils (Microns)	3 <sup>rd</sup> Coat (optional as required)	Mils (Microns)
<b>Concrete Walls / Ceilings</b>			<b>Applications</b> Block or concrete poured walls in kitchen areas, locker rooms, food processing, warehouses, rest rooms, computer rooms, shower areas, and other process areas.				
Light	Clean	Sanitile 100 <i>Acrylic block filler</i>	5-20 (125-500)	Sanitile 155 <i>Waterborne acrylic</i>	2-3 (50-75)	Sanitile 155 <i>Waterborne acrylic</i>	2-3 (50-75)
Light to Moderate	Clean	Sanitile 100 <i>Acrylic block filler</i>	5-20 (125-500)	Sanitile 255 <i>WB acrylic-epoxy</i>	2-4 (50-100)	Sanitile 255 <i>WB acrylic-epoxy</i>	2-4 (50-100)
Moderate to Heavy Duty	Clean	Sanitile 100 <i>Acrylic block filler</i>	5-20 (125-500)	Sanitile 555 <i>Waterborne epoxy</i>	2-4 (50-100)	Sanitile 555 <i>Waterborne epoxy</i>	2-4 (50-100)
Moderate to Heavy Duty	Clean	Sanitile 100 <i>Acrylic block filler</i>	5-20 (125-500)	Sanitile 655 <i>Epoxy</i>	4-6 (100-150)	Sanitile 655 <i>Epoxy</i>	4-6 (100-150)
Moderate to Heavy Duty	Clean	Sanitile 100 <i>Acrylic block filler</i>	5-20 (125-500)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)
Heavy Duty	Clean	Sanitile 500 <i>WB epoxy block filler</i>	5-20 (125-500)	Sanitile 555 <i>Waterborne epoxy</i>	2-4 (50-100)	Sanitile 555 <i>Waterborne epoxy</i>	2-4 (50-100)
Heavy Duty	Clean	Sanitile 500 <i>WB epoxy block filler</i>	5-20 (125-500)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)
Heavy Duty	Clean	Sanitile 600 <i>Epoxy block filler</i>	5-20 (125-500)	Sanitile 655 <i>Epoxy</i>	4-6 (100-150)	Sanitile 655 <i>Epoxy</i>	4-6 (100-150)
Heavy Duty	Clean	Sanitile 600 <i>Epoxy block filler</i>	5-20 (125-500)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)	Sanitile 855 <i>Polyester-urethane</i>	2-3 (50-75)
Heavy Duty	Clean	Sanitile 755 <i>Solvent-free epoxy</i>	5-15 (125-375)	Sanitile 755 <i>Solvent-free epoxy</i>	5-15 (125-375)	Sanitile 755 <i>Solvent-free epoxy</i>	5-15 (125-375)

Notes:

1. Carbozinc 11 Series consists of several inorganic zinc products designed to meet every need:

- Carbozinc 11: Standard high performance inorganic zinc silicate.
- Carbozinc 11 VOC: High performance inorganic zinc silicate designed to meet local VOC limits of 3.2 lbs./gal. (389 g/l)
- Carbozinc 11 HS: High performance inorganic zinc silicate designed to meet local VOC limits of 2.4 lbs./gal. (288 g/l)

2. Carboguard 800 Series Epoxies are designed to meet your needs:

- Carboguard 893: High solids epoxy primer or intermediate that provides excellent corrosion protection.
- Carboguard 893 SG: Economical epoxy primer / intermediate that provides excellent corrosion protection with an extended re-coat window.
- Carboguard 888: Low temperature cure epoxy that provides excellent corrosion protection with an extended re-coat window.
- Carboguard 890: High solids epoxy providing excellent corrosion protection as a primer, intermediate, or topcoat.
- Carboguard 890 LT: Low temperature cure, high solids epoxy providing excellent corrosion protection as a primer, intermediate, or topcoat.



3. Carbothane 133 VOC for Carbothane 133 HB as local VOC regulations dictate.
4. Thermaline 4900 VOC and Thermaline 4700 VOC may be substituted for Thermaline 4900 and Thermaline 4700, respectively, as local VOC regulations dictate.
5. Rustbond Penetrating Sealer may be used as a primer/sealer overcoat over existing, aged paints (with appropriate topcoats) in many maintenance applications as an economical approach to maintenance painting.
6. Carbozinc 859 can provide superior performance as a maintenance primer. Please consult your Carboline Sales Representative to discuss your specific application.
7. In maintenance painting, some coats may be eliminated depending on the condition of the existing paint system. Please consult your Carboline Sales Representative.
8. The application technique of stripe coating edges and weld lines will improve coating system performance.
9. Carbothane 133 HB may be used in lieu of 134 Series when a satin finish and higher film build characteristics are desired.
10. Carboxane 2000 may be used in lieu of Carbothane 133 HB or 134 Series when an ultra-durable performance topcoat is desired.
11. Surface Cleaner 3 is a water based, biodegradable cleaner that is effective in cleaning an degreasing surfaces prior to painting.
12. Where surface preparation designations of SSPC SP 10, SP 6, SP 7, SP 3, and SP 2 are used the ISO designations of Sa 2 ½, Sa 2, Sa 1, St 3, and St 2 (respectively) are also applicable.