

# Oil & Gas Field Equipment

Performance Coatings



**Carboline has been supplying cost-effective coating solutions to heavy industry fabricators and owners since 1947. Products that are applicator-friendly in a shop environment that also perform in the field are a winning combination for our customers.**

### **Problem Solving Approach**

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Our goal is to help you find more efficient and cost-saving approaches to your painting process through the use of innovative coating technologies. Whether it is wet-on-wet (WOW), single-coat, or fast-curing systems; our coatings will often allow you to speed up your process, reduce your costs and improve the performance of your coating system.

### **Performance Driven Products**

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Not only do coatings have to perform on oil field equipment when it comes to controlling corrosion and appearance but they must perform in a shop environment. This means they must be easy to apply and offer benefits that result from faster throughput, fewer repairs, repaints or call-backs.





## Special needs of oil field equipment

Unfortunately there is no “one solution” to fit all needs. Depending on the end use and service exposure; protective coatings could be asked to resist high temperatures applications, extreme chemical exposures, or severe impact and abrasive conditions. Carboline offers solutions for every need with lab tested and field-proven protective coatings. Solutions that satisfy the service needs are also ones that are shop-friendly.

### Systems for Every Need

- > Corrosion protection
- > Weathering resistance
- > Impact and abrasion resistance
- > Protective linings
- > Chemical resistance
- > Fast cure
- > Single coat
- > Surface tolerant
- > Non-slip coatings

### Technologies

- > Corrosion resistant epoxy and zinc primers
- > Ultra-weathering finishes
- > DTM (single-coat) alkyds, epoxies and urethanes
- > Insulative acrylic and epoxy coatings
- > Chemically resistant epoxy linings
- > Surface tolerant mastics



## DTM (Direct-to Metal) Systems

Single-coat systems offer the ultimate in front-end savings by eliminating labor steps compared to multi-coat paint systems. A variety of coatings are available depending on the level of performance and weathering resistance desired.

### Carbocoat® Alkyds

These single-component, alkyd-based coatings offer easy-to-apply features and economical initial costs. Their corrosion resistance and weathering properties are more suitable for light-duty equipment with short to moderate life expectancies.

### Carbothane® DTMs

These direct-to-metal, 2-component, high-build, urethane coatings offer speed of cure and high performance weathering properties. They are especially suitable for equipment that requires a higher level of aesthetics over a longer period of time.



## High Performance Systems

These systems consist of a corrosion resistant zinc or epoxy primer and a weathering finish that offer the ultimate in longer term corrosion protection and appearance. Newer technologies allow extremely fast recoat times (often wet-on-wet) which dramatically speeds the painting and curing process. The choice of zinc-rich or epoxy primers and urethane finishes are recommended based on long-term performance needs.

### Carbozinc® Primers

These zinc-rich epoxy coatings provide outstanding corrosion and undercutting resistance and long-term protection. Higher zinc levels offer even longer term endurance.

### Carbothane Finishes

These urethane coatings provide excellent color and gloss retention for long-term appearance. Polyester blends offer increased chemical resistance for special applications.

### Carboguard® Epoxies

These chemically resistant epoxy coatings provide an increased level of barrier protection for severe chemical exposures and physically abusive applications.

# Oil & Gas Equipment - Coating System Guide

This system guide is designed to help the user make the proper selection of coating systems based on their needs of corrosion performance, VOC compliance, weathering requirements, and operational parameters regarding dry and handle times. Most of these systems can be accelerated for dry times through the use of either heat or field additives depending on the need.

This guide is comprised of three sections: Single-Coat Systems; High Performance Systems and Special Applications; and is designed to guide the user into systems to match their needs.

## Single-Product Direct-to-Metal (DTM) Systems

PRODUCT	DESCRIPTION	VOC (g/l)	DFT (mils)	DRY HANDLE	GLOSS	PERFORMANCE LEVEL
<b>DTM Alkyds</b>						
<b>Carbocoat 45</b>	High gloss alkyd enamel Good weathering resistance	419	2.0-3.0	7 hrs	High	Corrosion: 1 Weathering: 1
<b>Carbocoat 8215</b>	Semi-gloss alkyd enamel Good weathering and fast dry times	418	2.0-3.0	2 hrs	Semi	Corrosion: 1 Weathering: 1
<b>DTM Epoxies</b>						
<b>Carboguard 60</b>	High gloss, epoxy polyamide, excellent barrier resistance	240	4.0-6.0	5 hrs	Semi	Corrosion: 2 Weathering: Chalks
<b>Carboguard 635 VOC</b>	Satin gloss, epoxy phenalkamine, fast-cure and moisture tolerant	246	4.0-6.0	3 hrs	Satin	Corrosion: 2 Weathering: Chalks
<b>Carboguard 890</b>	High gloss, cycloaliphatic epoxy, high chemical resistance	217	4.0-6.0	6 hrs	High	Corrosion: 2 Weathering: Chalks
<b>DTM Polyurethanes</b>						
<b>Carbothane 8812</b>	High gloss acrylic-polyurethane	395	3.0-5.0	6 hrs	High	Corrosion: 1 Weathering: 3
<b>Carbothane 8832</b>	High gloss acrylic-polyurethane Faster dry times	336	3.0-5.0	2 hrs	High	Corrosion: 1 Weathering: 3
<b>Carbothane 8845</b>	High gloss acrylic-polyurethane High DOI (Distinctness of Image)	228	3.0-5.0	7 hrs	High	Corrosion: 1 Weathering: 3

PERFORMANCE LEVEL	CORROSION PERFORMANCE	WEATHERING PERFORMANCE	EXPECTED SERVICE LIFE*
<b>1</b>	100-300 hours Salt Fog	Up to 500 hours QUV-A	12-24 months
<b>2</b>	300-1000 hours Salt Fog	500-1500 hours QUV-A	24-60 months
<b>3</b>	>1000 hours Salt Fog	>1500 hours QUV-A	>60 months

\*Service life will be dependent on the coating system selected, the surface preparation used and the operating exposure or service.

## 2-Coat: Standard Performance Systems

PRODUCT	DESCRIPTION	VOC (g/l)	DFT (mils)	DRY RECOAT	DRY HANDLE	PERFORMANCE LEVEL
<b>Corrosion Resistant Primers</b>						<b>Anti-Corrosive Performance Level</b>
<b>Carbocoat 8239</b>	Alkyd primer Single-component Fast dry times	335	2.0-3.0	30 min	1-2 hrs	1
<b>Carbocoat 8229</b>	Universal alkyd primer Single-component Good general corrosion protection	268	2.0-3.0	30 min	2 hrs	1
<b>Carboguard 8922</b>	Epoxy primer Two-component Very good corrosion protection Fast dry times	334	2.0-4.0	5 min	3 hrs	2
<b>Weatherable Topcoats</b>						<b>Weathering Performance Level</b>
<b>Carbocoat 140</b>	High gloss alkyd enamel Fast dry times	420	1.5-2.0	4 hrs	1 hrs	1
<b>Carbocoat 8215</b>	Semi-gloss alkyd enamel Good weathering resistance Fast dry times	418	2.0-3.0	2 hrs	2 hrs	2
<b>Carbocoat 45</b>	High gloss alkyd Good weathering	419	2.0-3.0	4 hrs	7 hrs	2

## 2-Coat: High Performance Systems

PRODUCT	DESCRIPTION	FEATURES				PERFORMANCE LEVEL
		VOC (G/L)	ZINC CONTENT	THICKNESS	TOPCOAT TIME	
<b>High Performance Zinc Primers</b>						
<b>Carbozinc 808</b>	Epoxy-zinc with very good corrosion resistance	259	60%	2-4 mils	90 min	3
<b>Carbozinc 859</b>	Epoxy-zinc with excellent corrosion resistance	326	81%	3-5 mils	30 min	3+
<b>High Performance Polyurethane Finishes</b>						
		VOC (G/L)	HIGH GLOSS	THICKNESS	DRY HANDLE*	
<b>Carbothane 133 LH</b>	Semi-gloss acrylic-polyester polyurethane Very good weathering	211		3-5 mils	8 hrs	3
<b>Carbothane 134 HG</b>	High gloss acrylic-polyurethane Excellent weathering	265	✓	2-3 mils	8 hrs	3+
<b>Carbothane 8845</b>	High gloss; high build; acrylic-polyurethane	228	✓	3-5 mils	6 hrs	3

\*All urethanes can be accelerated using Additive 8509 to reduce dry to handle times by 25-50%; and further accelerated using heat.



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