

# SELECTION & SPECIFICATION DATA

Generic Type	Phenalkamine modified epoxy	
Description	Carboguard 235 HAR is a high abrasion resistant phenalkamine modified, surface-tolerant, epoxy specially formulated for application in marine and other severe service industrial environments and is suitable for fresh and salt water immersion resistance. This high solids, high performance epoxy is application friendly and can be used at low temperatures down to 20°F.	
Features	<ul> <li>High abrasion resistance</li> <li>Surface tolerant properties</li> <li>Fast and low-temperature cure</li> <li>Outstanding as a heavy duty hull coating for marine</li> </ul>	
Color	Black; Buff; Gray; Red Oxide, Blue	
Finish	Semi-Gloss	
Primer	Self priming	
Dry Film Thickness	102 - 203 microns (4 - 8 mils) per coat	
Solids Content	By Volume 69% +/- 2%	
Theoretical Coverage Rate	27.2 m²/l at 25 microns (1107 ft²/gal at 1.0 mils) 6.8 m²/l at 100 microns (277 ft²/gal at 4.0 mils) 3.4 m²/l at 200 microns (138 ft²/gal at 8.0 mils) Allow for loss in mixing and application.	
VOC Values	<b>As Supplied</b> : 2.30 lbs/gal (276 g/l) Thinner 248 : Thinned 16 oz per gal; 2.83 lbs/gal (340 g/l)	
Limitations	Product will chalk and discolor in sunlight exposure but does not affect performance properties. Substrates below 32°F may be frost covered. Do not apply coating to frost or ice.	
Topcoats	Topcoat for improved weathering or chemical resitance. <u>Immersion:</u> Antifoulants <u>Non-immersion:</u> Epoxies or Polyurethanes Call Carboline Technical Service for recommendation.	

## SUBSTRATES & SURFACE PREPARATION

**General** All surfaces must be thoroughly cleaned to remove dirt, grease, mill scale, loose rust, and any other contaminants that can reduce adhesion.

Steel Atmospheric Exposure – Minimum SSPC-SP3 power tool cleaning or SSPC-SP12 WJ-3 Immersion Exposure – SSPC-SP10, 2-3 mil profile

## MIXING & THINNING

MixingThoroughly mix each component separately, then combine and mix well using mechanical agitation.Induction Time:Allow 15 minutes induction time at 77°F or 30 minutes at 40°F. Do not mix more<br/>than can be applied during the product's useful pot life.

**Thinning** | May be thinned up to 15 oz/gal with Thinner 248.

# **Carboguard 235 HAR**

PRODUCT DATA SHEET



**Ratio** | 4:1 by volume (Part A to Part B)

Pot Life | 4 hours @ 77°F

# APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General	Apply using airless spray, conventional spray, brush or roller. Stripe coat crevices, welds, and sharp angles for best performance. Brush and roller application may require several coats to achieve uniform film thickness and appearance. Use a 50% overlap with each pass when spraying to eliminate holidays and pinholes.
Conventional Spray	DeVilbiss MBC-50 gun, E fluid tip, 704 nozzle, 60-65 psi atomization pressure, 5-15 psi fluid pressure.
Airless Spray	Apply using a 30:1 pump able to deliver 3000 psi. Hose: 1/4" I.D. (min.) Tip Size: 0.015-0.019" High Pressure Filter: 60 Mesh
Brush	Natural bristle or nylon/polyester
Roller	3/8" woven/phenolic core

## APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	4°C (40°F)	-7°C (20°F)	-7°C (20°F)	0%
Maximum	32°C (90°F)	49°C (120°F)	38°C (100°F)	95%

Consult Technical Service for conditions outside these ranges. Industry standards are for substrate temperatures to be above the dew point. This product is unique in that it can tolerate damp substrates. See Brush or Roller above. Special thinning and application techniques may be required above or below normal conditions.

## CURING PROGRAM

Surface Temp.	Dry to Handle or Recoat	Dry to Touch	Maximum Dry to Recoat for Immersion
-7°C (20°F)	28 Hours	10 Hours	30 Days
4°C (40°F)	12 Hours	4 Hours	30 Days
24°C (75°F)	4 Hours	2 Hours	15 Days
32°C (90°F)	2 Hours	1 Hour	7 Days

\*These times are to be used as a guideline. The optimum time to topcoat with an antifoulant is when the 235 film is "touch-tacky". If the touch-tacky time has been exceeded, or if the film is "glossy", you can generally reprime/refresh the first coat with a fresh coat of itself. The longer the first coat has to cure, particularly in sunlight exposure or elevated temps, the higher risk of inadequate adhesion. If those maximum recoat times have been exceeded, the surface must be abraded by sweep blasting or sanding prior to the application of additional coats. Contact your local Carboline Representative for assistance/guidance.





## **CLEANUP & SAFETY**

**Cleanup** | Clean up all tools and equipment promptly with Thinner #248 or #2.

SafetyRead and follow all caution statements on this product data sheet and on the MSDS for this<br/>product. Employ normal workmanlike safety precautions. Use adequate ventilation and wear gloves<br/>or use protective cream on face and hands if hypersensitive. Keep container closed when not in<br/>use.

## PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: 24 months Part B: 24 months *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containters.
Shipping Weight (Approximate)	<u>5 Gal Kit</u> 58-64 lbs (26-29 kg)
Storage Temperature & Humidity	40-110°F 0-90% RH
Flash Point (Setaflash)	109° F mixed
Storage	Store in a dry, protected area.

## WARRANTY

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