



AMERON
INTERNATIONAL

Performance Coatings & Finishes

Amercoat® 235

Multi-purpose epoxy coating - Formerly Bar-Rust™ 235

Product Data/ Application Instructions (For Marine & Offshore use)

- Exceptional corrosion protection in salt and fresh water immersion and corrosive chemical environments
- Surface tolerant, lowers the cost of surface preparation
- Excellent adhesion to tight rust
- Good adhesion to damp surfaces
- Low temperature cure, cures down to 0°F (-18°C)
- Fast dry-to-recoat
- Self-priming

Low solvent content meets VOC requirements, reduces the chances for film pinholing and solvent entrapment at the substrate-coating interface, often a major cause of coating failure with conventional epoxies and lower solids systems.

Typical Uses

Tank Linings and Pipe Coatings

- Ballast tanks
- Bilges, wet voids and drainage pipes

Ships, Offshore and Marine Structures

- Above and below-water hull areas
- Decks and superstructures
- Multi-purpose repair coating

Fabrication and New Construction

- Speeds up production, even at low temperatures
- A single multi-purpose, surface-tolerant coating

Qualifications

- Grain cargo-North England Ind. Health Ser.
- MIL-P-23236B(SH) Type 1 and IV Class 2
- Canada Health and Welfare, dry food, fish holds (off white and buff only)
- USDA approval for incidental food contact (limited colors)
- MIL-P-24647 and Chapter 631, Table 631-8-10, keel to rail and exterior topside

Chemical Resistance Guide

ASTMD 1308, 24 hour contact at 77°F	Excellent, no effect on film integrity
50% Sodium hydroxide	10% Hydrochloric acid
28% Ammonia	20% Tannic acid
5% Trisodium phosphate	Crude oil
25% Citric acid	5% Sodium chloride
25% Lactic acid	10% Ammonium hydroxide
10% Sulfuric acid	Sewage

Physical Data

Finish	Semigloss	
Color	Haze Gray, Med. Gray, Black, Off-White, Buff, Oxide Red, Med. Green	
Components	2	
Curing mechanism	Solvent release and chemical reaction between components	
Volume solids (ASTM D2697 modified)	68% ± 3%	
Dry film thickness (per coat)	4-8 mils (100-200 microns)	
Coats	1 or 2	
Theoretical coverage	ft ² /gal	m ² /L
1 mil (25 microns)	1091	26.8
5 mils (125 microns)	218	5.4
VOC (EPA 24) mixed	lb/gal	g/L
	2.4	292
Temperature resistance	dry	
	°F	°C
continuous	250	121
Flash point (SETA)	°F	°C
Amercoat 235 base	98	37
converter	104	40
T-4	100	38
T-5	80	27
T-10	80	27
Amercoat 12	2	-17

Application Data

Applied over	Steel, concrete, aluminum, galvanizing				
Surface preparation	SSPC-SP2, 3, 7 or 10				
Steel	ASTM D4259 or 4260				
Concrete	Alodine®, Alumiprep® or light abrasive blast				
Aluminum	Galvaprep® or light abrasive blast				
Galvanizing	Airless or conventional spray. Brush or roller may require additional coats.				
Method					
Mixing ratio (by volume)	4 part base to 1 part converter				
Thinner	T-4, T-5 or T-10				
Equipment cleaner	Thinner or Amercoat 12				
Pot life	70°F				
	4.5 hours				
Drying time	°F/°C				
	90/32	70/21	50/10	32/0	20/-7
dry through(hours)	5	10	22	45	62

Typical Properties

Physical

Property	Method	Result
Abrasion	ASTM D 4060, CS-17	120 mg loss
Resistance	1000 gram load, 1000 cycles	
Adhesion	ASTM D 4541	1000 psi
Exterior Exposure	Exposed in Florida facing integrity 45° South for 3 years or adhesion. Less than 1/32 inch undercutting at scribe. Less than 2% rust at edges.	No effect on film
Humidity Resistant	ASTM D 2247, 1000 hours. Less than 1/32 inch undercutting at scribe. Less than 2% rust at edges.	No effect on film integrity or adhesion.
Immersion Resistance	ASTM D 1308 Water, 24 months at 77°F	No effect
Impact Resistance	ASTM D 2794, 10 ga. steel	60 inch-pounds
Moisture Permeability	ASTM E 96	0.7 perms
Pencil Hardness	ASTM D 3363	3H
Salt Fog Resistance	ASTM B 117, 1000 hours. Less than 1/32 inch undercutting at scribe. Less than 2% rust at edges.	No effect on film integrity or adhesion.

Systems

1 st coat	2 nd Coat	3 rd coat
Amercoat 235	None	None
Amercoat 235	Amercoat 229C	None
Amercoat 235*	Amercoat 235*	None
Amercoat 235	Amercoat 235	Antifouling Systems ABC® #1, ABC #2,
ABC #3, ABC #4		
Dimetcote® 9, 9FT, 9HS or 302	Amercoat 235	None
Dimetcote 9, 9FT, 9HS or 302	Amercoat 235	Amercoat 450HS

*Immersion service.

Tank Coating System – Two coats of Amercoat 235 at 4 to 8 mils (100 to 200 microns) per coat, plus two stripe coats over sharp edges, cutouts and welds. Use contrasting colors for each coat and stripe coat.

Recoat/Topcoat time (@ 5 mils DFT)

			°F/°C			
minimum (hours)	90/32	70/21	50/10	32/0	20/-7	
Amercoat 235	2	4	8	16	28	
Amercoat 229	3	4	7	12	40	
			°F/°C			
maximum (days)	120/49	90/32	70/21	50/10	32/0	20/-7
Amercoat 235	30	30	30	30	30	30
Amercoat 229	1	4	5	5	7	7
Amercoat 450HS/S	1	4	5	5	7	7
Cure to immersion			7 days			

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. Abrasive blasting is usually the most effective and economical method. When this is impossible or impractical, coating can be applied over mechanically cleaned surfaces.

Amercoat 235 may be used over most types of tightly adhering coatings prepared with Prep 88. A test patch is recommended for use over existing coatings.

The surface preparation recommended for Amercoat 235 is to include removal of water, salt, dirt, oil, loose rust and **all rust scale**. For maximum performance, treat all surfaces with Prep 88 Cleaner, followed by high pressure wash. The minimum standard for non-immersion service is Steel Structures Painting Council Standard SSPC-SP2 or Swedish Standard DSt2; for immersion service, the minimum standard is SSPC-SP3 or Swedish Standard DSt3, in each case a coat of Pre-Prime 167 sealer followed by a full coat of Amercoat 235 can also be used.

Steel – All direct to metal coatings provide the maximum performance over near white blasted surfaces. There are, however, situations and cost limitations, where grit blasting to near white metal is not possible. Amercoat coatings were designed to provide excellent protection over less than ideal surface preparation.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner, treat with Alodine® 1200, Alumiprep® or equivalent or blast lightly with fine abrasive.

Galvanizing – Remove oil or soap film with detergent or emulsion cleaner, then use zinc treatment such as Galvaprep® or equivalent or blast lightly with fine abrasive.

Concrete – Acid etching (ASTM D4260) or abrasive blast (ASTM D4259) new concrete cured a minimum of 14 days.

Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment such as Graco Bulldog 30:1 or larger, with a 0.021- to 0.025-inch fluid tip, 3/8" ID hose with 50 ft. maximum length.

Conventional spray – Industrial equipment, such as DeVilbiss MBC or JGA or Binks 18 or 62 spray gun. A moisture and oil trap in the main air supply line, a pressure material pot with mechanical agitator and separate regulators for air and fluid pressure are recommended.

Power mixer – Jiffy Mixer powered by an air or explosion-proof electric motor.

Brush or roller – Additional coats may be required to attain proper thickness.

Environmental conditions

Air and Surface Temperature
20° to 122°F (-7° to 50°C)

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation. At freezing temperatures, surface must be free of ice.

To obtain the maximum performance, adhere to all application instructions, precautions, conditions and limitations. For conditions outside the requirements or limitations described, contact your Ameron representative.

Application Procedure

1. Flush all equipment with thinner or Amercoat® 12 before use.
2. Stir base using an explosion-proof power mixer to disperse pigments.
3. Add converter to base. Mix thoroughly until uniformly blended to a workable consistency.

Induction time (minutes)	70°F/21°C
	15
4. Do not mix more material than can be used within the expected pot life, 4½ hours at 70°F.
5. For optimum application, material should be from 50° to 90°F (10° to 32°C).
6. Use only Ameron recommended thinners at 1 pint/gal.

Thinner

For exterior and clean up	T-10 Thinner
For interior	T-4 Thinner
Over aged alkyds	T-5 Thinner

Below 50°F additional thinning may be needed and multiple coats required to achieve specified thickness.

7. To minimize orange peel appearance, adjust conventional spray equipment to obtain adequate atomization at lowest air pressure.
8. Apply a wet coat in even, parallel passes with 50 percent overlap to avoid holidays, bare areas and pinholes. If required, cross spray at right angles.
9. When applying directly over inorganic zincs or zinc-rich primers, a mist coat/full coat technique may be required to minimize bubbling. This will depend on the age of the Dimetcote®, surface roughness and conditions during curing.
10. Ventilate confined areas with clean air between coats and while curing the final coat. Prevent moisture condensation on the surface between coats.
11. Repair damaged areas by brush or spray.
12. Clean equipment with thinner or Amercoat 12 immediately after use.

Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

Shipping Data

Packaging unit	1 gal	5 gal
Shipping weight (approx)	lbs	kg
1-gal unit		
base	12.7	5.8
converter	2.0	0.9
5-gal unit		
base	51.2	23.2
converter	8.8	4.0

Shelf life when stored indoors at 40° to 100°F (4° to 38°C)

base and converter 1 year from shipment date.

Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities.

This mixed product is photochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of both components. Safety precautions must be strictly followed during storage, handling, and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. Ameron makes no recommendation about the types of safety measures that may need to be adopted because these depend on application and space, of which Ameron is unaware and over which it has no control.

If you do not fully understand the warnings and instructions or if you cannot strictly comply with them, do not use the product.

This product is for industrial use only. Not for residential use.

Warranty

Ameron warrants its products to be free from defects in material and workmanship. Ameron's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at Ameron's option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by Buyer to Ameron in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify Ameron of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

Ameron makes no other warranties concerning the product. No other warranties, whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall Ameron be liable for consequential or incidental damages.

Any recommendation or suggestion relating to the use of the products made by Ameron, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

Limitation of Liability

Ameron's liability on any claim of any kind, including claims based upon Ameron's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. **In no event shall Ameron be liable for consequential or incidental damages.**



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