



AMERON
INTERNATIONAL

Performance Coatings & Finishes

Amercoat® 233ER

Edge retentive epoxy coating

Product Data/ Application Instructions

- Formulated for improved coverage on sharp angles, steel plate overlaps, cutouts, and other sharp edges.
- Outstanding corrosion resistance
 - Suitable for fresh and salt water immersion
 - Suitable for corrosive environments
 - Resistant to many solvents and chemicals
 - Resistant to cathodic disbondment
- Low temperature cure-fast recoat
 - Cures down to 0°F (-18°C)
 - Speeds up production; fast recoat and cure even at low temperatures
- Multi-purpose, surface tolerant coating

Typical Uses

Amercoat 233ER coating is recommended for application on:

- Ballast tanks, water tanks, bilges and any other water containment structures
- Cargo and fuel tanks
- Potable water service
 - Water tanks
 - Water pipes
 - Water valves
- Fabrication and New Construction

Qualifications

NSF-61 * - For use in drinking water (CLD 23);

Amercoat 233ER

- Colors: Buff, Off-White, and Light Blue
- Number of Coats: 1-3
- Maximum Field Use Dry Film Thickness (in mils): 15
- Maximum Thinner: 12.5% Amercoat #7
- Recoat / Cure Time: 24 hours at 77°F
- Final Cure: 7 days at 77°F
- Tanks 1,000 gallons or greater
- Pipes 12 inches in diameter or greater
- Valves 6 inches in diameter or greater

**Certain restrictions do apply*

AWWA C-210



Physical Data

Finish	Flat	
Color	Buff, Off-White, Light Blue, Oxide Red	
Components	2	
Curing mechanism	Solvent release and chemical reaction between components	
Volume solids (ASTM D2697 modified)	80% ± 3%	
Dry film thickness per coat	4 to 20 mils (100 to 500 microns)	
Coats	1 or 2	
Theoretical coverage	ft ² /gal	m ² /L
1 mil (25 microns)	1283	31.6
6 mils (152 microns)	214	5.3
20 mils (508 microns)	64	1.6
VOC	lb/gal	g/L
(EPA method 24)	1.7	201
Temperature resistance	Dry	
	°F	°C
continuous	250	121
Flash point (SETA)		
resin	83	28
cure	103	39
Amercoat 7	102	39
T-10	80	27
Amercoat 12	2	-17

Application Data

Applied over substrates	Steel, aluminum, concrete, galvanizing				
Method	Airless, conventional spray, brush or roller				
Mixing ratio (by volume)	4 parts base to 1 part converter				
Pot life (hours)	°F/°C				
	90/32	70/21	50/10		
	1½	4	6		
Induction time (min.)	10	20	40		
Drying time (ASTM D1640) @ 6 mils, DFT (hours)	°F/°C				
	90/32	70/21	50/10	32/0	20/-7
hard	6	8	13	26	53
through	8	11	20	40	64
Recoat or topcoat time @ 5 mils DFT	°F/°C				
minimum (hours)	90/32	70/21	50/10	32/0	20/-7
Amercoat 233ER	2.5	4.5	7	14	32
Amercoat 450HS	3	6	10	16	40
	°F/°C				
maximum (days)	90/32	70/21	50/10	32/0	20/-7
Amercoat 233ER	30	30	30	30	30
Amercoat 450HS	3	5	5	7	7
Time before service @ 12 mils (days)	°F/°C				
			70/21		
			7		
immersion					
Thinners (up to ½ pt)	Amercoat 7, T-10				
Equipment cleaner	Thinner or Amercoat 12				

Typical Properties

Abrasion Resistance	ASTM D 4060, CS-17 1000 gram load, 1000 cycles	110 mg loss
Adhesion	ASTM D 4541	900-1100 psi
Chemical Resistance	ASTM D 1308, 24 hour contact at 77°F 50% Sodium hydroxide 28% Ammonia 5% Trisodium phosphate 25% Citric acid 25% Lactic acid 10% Sulfuric acid 10% Hydrochloric acid 20% Tannic acid Crude oil 5% Sodium chloride 10% Ammonium hydroxide Sewage	Excellent, no effect on film integrity
Elongation	ASTM D 522, Method B	Passes 180° bend ¼ inch mandrel
Humidity Resistance	ASTM D 2247, 1000 hours	No effect on film integrity or adhesion.
Immersion	25% Sodium Hydroxide at 140°F Deionized water at 160°F	Excellent. 117 days exposure. No loss of film integrity or adhesion.
Moisture Permeability	ASTM D 96	0.7 perms
Pencil Hardness	ASTM D 3363	3H
Salt Fog Resistance	ASTM B 117, 1000 hours	No effect on film integrity or adhesion. Less than ¼ inch undercutting at scribe. Less than 3% rust at edges.
Tensile Strength	ASTM D 2379	2406 psi
Modulus	ASTM D 2370	411,300 psi
Flexural Strength (Yield Strength)	ASTM D 790	5290 psi
Hardness (Durometer)	ASTM D 2240 (Type D)	72

Surface Preparation

Coating performance is proportional to the degree of surface preparation. Prior to coating, surface must be clean, dry, undamaged and free of all contaminants including salt deposits. Round off all rough welds and remove all weld spatter.

Steel – Remove all loose rust, dirt, grease or other contaminants by one of the following depending on the degree of cleanliness required: SSPC-SP2, 3, 6 or 7. Previously blasted steel may also be prepared by ultra-high pressure water jetting to SSPC-SP 12/NACE No. 5 WJ-2L/SC-1. For more severe service and immersion, clean to SSPC-SP10. The choice of surface preparation will depend on the system selected and end-use service conditions.

Blast to achieve an anchor profile of 1-2 mils (25-50 microns) as indicated by a Keane-Tator Surface Profile Comparator or Testex Tape. Increase coating thickness if profile greater than 3 mils.

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

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.

Concrete/masonry – Surface must be cured, clean, dry, free of contamination and disintegrated or chalky materials. Clean concrete surface; abrasive blast (ASTM D4259) or acid etch (ASTM D4260). Fill concrete voids with Nu-Klad® 965 or 114A to achieve a smooth surface. Clean masonry surface by ASTM D4261. Fill masonry block with Amerlock® 400BF Block Filler.

Aged coatings – All surfaces must be clean, dry, tightly bonded and free of all loose paint, corrosion products or chalky residue. Clean by pressure water blast (1000 psi or greater), SSPC-SP1, 2, 3 or 7. Amercoat 233 ER is compatible over most types of properly applied and tightly adhering coatings. However, a test patch is recommended to confirm compatibility.

Repair – Prepare damaged areas to original surface preparation specifications, feathering edges of intact coating. Thoroughly remove dust or abrasive residue before touch up.

Application Equipment

Airless spray – Standard equipment such as Graco Bulldog or larger with a 0.021- to 0.027 - in. (0.53 to 0.69 mm) fluid tip.

Conventional spray – Industrial equipment such as DeVilbiss MBC or JGA spray gun with 78 or 765 air cap and “E” fluid tip, or Binks No. 18 or 62 gun with a 66 x 63PB nozzle set up. Separate air and fluid pressure regulators, and a moisture and oil trap in the main air supply line are recommended.

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

Brush – Natural bristle. Maintain wet edge.

Roller – Use industrial roller. Level any air bubbles with bristle brush.

Environmental Conditions

Temperature	°F	°C
air and surface	20 to 120	-7 to 49

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation.

Application Procedure

Amercoat 233ER consists of two components which must be mixed together before use. It is packaged in the proper portions in 1- or 5-gallon units.

1. Flush equipment with thinner or Amercoat 12 before use.
2. Stir each component thoroughly, then combine resin and cure and mix until uniform.
3. Thin only if necessary for workability. Use only Ameron recommended thinners.
4. Do not mix more material than will be used within pot life. Pot life is shortened by higher temperatures.
5. For conventional spray, use adequate air pressure and volume to ensure proper atomization.
6. Apply a wet coat in even, parallel passes; overlap each pass 50 percent. If required, cross-spray at right angles to avoid holidays, bare areas and pinholes.

Note: 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 primer, surface roughness and environmental conditions during application and curing.

7. Normal recommended dry film thickness per coat is 4 to 6 mils.
8. A wet film thickness of 7.5 mils (187 microns) normally provides 6 mils (150 microns) of dry film.
9. When using brush or roller application method, additional coats may be required to achieve proper film thickness.
10. When a pinhole-free film is required, check film continuity of material with a nondestructive holiday detector such as Tinker and Rasor Model M-1 for thickness up to 20 mils DFT. Above 20 mils DFT use Tinker and Rasor Model AP/W at lowest voltage practical. Apply additional coating to areas requiring touch up.
11. Clean all equipment with thinner or Amercoat 12 immediately after use.

Adhere to all application instructions, precautions, conditions and limitations to obtain the maximum performance. When used over recommended primers, refer to Application Instructions for the specific primer being used for surface preparation data and application and drying procedures. For conditions outside the requirements or limitations described, contact your Ameron representative.

Shipping Data

Packaging	1- and 5-gal units	
Shipping weight (approx.)	lb	kg
1 gal unit		
resin	11.6	5.3
cure	2.0	0.9
5 gal unit		
resin	57.7	26.2
cure	9.0	4.1

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

resin and cure 1 year from shipment date

Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities. See application instructions for complete information and safety precautions.

The 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 each component. 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 spray mists and 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 environment and space, of which Ameron is unaware and over which it has no control.

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

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.

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 invoices 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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