

January 2001



**EPOTUF® 37-143**  
 Product Code: 37143-00  
**Epoxy Resin Dispersion**

**DESCRIPTION**

EPOTUF® 37-143 is an aqueous dispersion of a liquid Bisphenol-A epoxy resin which when combined with EPOTUF® waterborne curing agents can be used to formulate compliant, room temperature cured, two-component, waterborne epoxy coatings.

**APPLICATIONS**

- Industrial maintenance coatings
- Aerospace primers
- Concrete floor coatings
- Architectural coatings
- Clear coatings for wood

**FEATURES**

- Low odor – contains no volatile organic solvents
- Excellent elevated temperature stability
- Easy clean up with water
- Excellent freeze-thaw stability
- Excellent chemical and solvent resistance

**PROPERTIES**

Percent Solids, Weight	78
Percent Solids, Volume	76.7
Viscosity at 25°C, cps	3,000
Pounds per Gallon, Solution	9.4
Epoxide Equivalent Weight, on Solids	200
Epoxide Equivalent Weight, on Solution	256
Solvent	Water

**STORAGE**

EPOTUF® 37-143 should be stored in sealed containers at temperatures between 40°F and 100°F to ensure a useful shelf life of at least six months. Storage at elevated temperatures or freezing conditions may result in some particle settling which will require redispersion with moderate agitation.

***Read the EPOTUF® 37-143 Material Safety Data Sheet before handling, storing, or using this product.***

The information herein is general information designed to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to contents and suitability for their specific applications. We warrant that our products will meet our written specifications. **Nothing herein shall constitute any other warranty express or implied, including any warranty of merchantability or fitness for a particular purpose,** nor is any protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is limited to replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.

**SUGGESTED FORMULATION**

**Gloss White Enamel**  
EB-37680B

**Component A**

<u>Lbs.</u>	<u>Gals.</u>	<u>Material</u>	
154.8	17.48	EPOTUF® 37-680	
2.3	0.31	Patcote 841M	(1)
21.1	2.88	Arcosolv PTB	(2)
28.5	3.80	2-Butoxy Ethanol	
13.4	1.54	Benzyl Alcohol	
1.0	0.14	Disperbyk 101	(3)
Premix 3 minutes:			
257.0	7.70	Tioxide TR92	(4)
High-speed disperse to 7 N.S.			
271.3	30.63	EPOTUF® 37-680	
81.5	9.77	Water	
<u>43.2</u>	<u>5.75</u>	2-Butoxy Ethanol	
874.1	80.00	TOTAL	

**Component B**

81.5	9.16	EPOTUF® 37-143
<u>90.3</u>	<u>10.80</u>	Water
171.8	20.00	TOTAL
1045.9	100.00	TOTAL COMPONENTS A + B

**Analysis:**

22.20	Pigment Volume Concentration, Percent
0.993	Pigment/Binder Ratio
556	Spread at 1 Mil, Ft <sup>2</sup> per Gallon
49.31	Percent Solids, Weight
34.67	Percent Solids, Volume
10.46	Pounds per Gallon
	VOC
300	Grams per Liter
2.50	Pounds per Gallon

**Suppliers:**

(1) Patco Specialty Chemicals	(3) BYK Chemie
(2) ARCO Chemical	(4) Tioxide North America

**TYPICAL PERFORMANCE DATA**

**Film Properties**

MDFT on CRS Panels, 7-Day Room Temperature Cure	1.5
Gloss 60°/20°	96/87
Impact Resistance, Inch-Pounds, Direct/Reverse	80/40
Flexibility, Conical Mandrel	Pass
MEK Double Rubs	>100
Yellowness Index	
Initial	0.02
16-Month Indirect Sunlight	2.7

**SUGGESTED FORMULATION**

**Waterborne Epoxy Primer**  
Using EPOTUF® 37-143 and 37-681

**Component A**

<u>Lbs.</u>	<u>Gals.</u>	<u>Material</u>	
148.4	16.75	EPOTUF® 37-681	
20.3	2.77	Arcosolve PTB	(1)
8.1	0.92	Dowanol PPh	(2)

Mix under slow speed until uniform and thickened, then add slowly:

70.8	2.11	YD-2288 Yellow Iron Oxide	(3)
15.7	0.38	BK-5099 Black Iron Oxide	(3)
289.8	11.98	Wollastokup 10 ES	(4)

High-speed disperse to 6 N.S. (do not exceed 1000 RPM or 130°F). Then add the following under slow mixing until uniform:

150.4	16.98	EPOTUF® 37-681
15.8	2.16	Arcosolve PTB
<u>216.2</u>	<u>25.95</u>	Water
935.5	80.00	TOTAL

**Component B**

Mix the following under high-speed agitation until a uniform emulsion is formed. This component may phase separate (water layer on top) but readily mixes back to a uniform material.

69.3	7.87	EPOTUF® 37-143
32.2	5.02	Mineral Spirits
37.1	5.02	Aromatic 150
<u>17.4</u>	<u>2.09</u>	Water
156.0	20.00	TOTAL
1091.5	100.00	Total Formulation

**Analysis:**

51.7	Percent Solids, Weight
34.0	Percent Solids, Volume
10.9	Weight/Gallon, Pounds
42.5	Pigment Volume Concentration, Percent
2.5	VOC, Pounds per Gallon (minus water)
8	Pot Life at 77°F, Hours

**Suppliers:**

(1) ARCO Chemicals	(3) Elementis
(2) Dow Chemicals	(4) NYCO

**TYPICAL PERFORMANCE DATA**

**Film Properties**

Mix Component A, four parts by volume, with Component B, one part by volume, spray unreduced.  
1 to 2 mil film, air dried 7 days.

Pot Life, Hours	4
Viscosity, seconds, #4 Ford Cup	~35
Tack Free Dry Time, 1 MDFT, Hours	4
Pencil Hardness	F
Impact Resistance	
Direct	160+
Reverse	80
Flexibility, 1/8" Mandrel Bend	Pass
Adhesion	
Steel	Excellent
Aluminum	Excellent
ABS Plastic	Excellent

**Chemical Resistance, 8-Hour Spots**

10% Sulfuric Acid	Excellent
10% Hydrochloric Acid	Good
2% Nitric Acid	Excellent
10% Acetic Acid	Poor
10% NaOH	Excellent
Xylene	Excellent
Unleaded Gasoline	Good
Methanol	Fair
Water	Excellent

**Salt Spray Resistance, 1000 Hours**

Field Blistering	None
Field Corrosion	None
Scribe Blistering	8VF
Scribe Creep	<1/16"
Tape Adhesion	100%

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**FORMULATING NOTES**

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Addition of co-solvent such as Butyl Cellosolve aids in obtaining rapid pigment grind. **DO NOT USE ADDITIONAL WATER IN THE GRIND.** Temperature during grinding should not exceed 130°F.

In the finished 2-component paint formulation, a maximum water-to-solvent ratio of 3:1 maintains good gloss and early water resistance. The choice and level of co-solvent can affect gloss, corrosion resistance, and dry times. Alcohols such as secondary Butanol and n-Isopropyl alcohol may produce undesirable film defects depending on amount used. Ketones and aromatic solvents are not recommended. Glycol Ethers and Glycol Ether Acetates are preferable.

Benzyl alcohol and Propylene Glycol Phenyl Ether (PPH) contribute to the system thixotropy, acting as thickening agents. These types of solvents tend to remain in the cured epoxy film and are considered 100% non-volatile. Their use should be limited to that level required for thickening so as to minimize possible effects on performance.

Holding all or part of these solvents until the letdown stage of the formulation may allow their use as a viscosity adjustment additive (i.e., add until desirable viscosity is obtained).

Sodium Nitrite, a flash rust inhibitor, is not compatible with EPOTUF® 37-680. However, formulations based on 37-680 have not exhibited flash rusting in the laboratory.

Soft setting of Part A is normal and can be easily redispersed with agitation. Part B may show a soft settle or phase separation but can be redispersed with no reduction in system properties.

No induction time is required for this system.

Stainless steel processing equipment is recommended to minimize metal ion contamination.