

## EPS® 2580

EPS® 2580 is a self-crosslinking, styrenated acrylic emulsion offering excellent gloss, corrosion and chemical resistance, as well as early water resistance and rapid hardness development. EPS 2580 provides the capability to formulate coatings at <50g/L VOC.

### PROPERTIES

- Early hardness development
- Early hot block resistance
- Adhesion to ferrous and non-ferrous metals
- Corrosion resistance
- Chemical resistance
- Formulated without APEOs

#### Specifications

Weight Solids 48.0 +/- 0.7%

Weight/Gallon 8.63 +/- 0.1

pH 8.5 - 9.0

#### Typical Properties

Volume Solids 46.0 +/- 0.7%

MFFT 8-12° C

Volatile(s) Water

### Formulating Guidelines

**Co-Solvents:** EPS 2580 has excellent compatibility with most coalescing solvents. For early and final property development, Texanol and / or DPnB used at 5.5% on resin solids have been shown to be the most effective coalescents. Butyl Carbitol (DB) and Hexyl Cellosolve (EH) also give good performance, but LTC should be checked as different cosolvents may display varying efficiencies. When using faster solvents like Butyl Cellosolve or PnB, it is recommended to supplement with a low-VOC coalescent to ensure good film formation. Low VOC plasticizers may also be used with EPS 2580 if desired. EPS 9147 and Dioctyl Maleate showed best overall performance. EPS 2580 is also compatible with Optifilm 400 and Velate 368.

**Dispersants:** Many dispersants can be used when formulating with EPS 2580. Disperbyk 190 and Tamol 165A have given the best overall performance and optimal corrosion and water resistance properties. When selecting the level of dispersant to use, it is important to reference supplier data sheets. This will allow for the utilization of as little dispersant as is necessary for stability. Minimizing dispersant levels has

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been shown to greatly enhance water and corrosion resistance. The use of polyelectrolyte dispersants like Tamol 1124 or Tamol 851 is not recommended due to negative effects on the corrosion performance.

**Defoamers:** A variety of defoaming agents were found effective in formulations using EPS 2580. Among those most effective were the BYK series (BYK 022, BYK 024, BYK 028). Airex 901W is not recommended due to its tendency to lower the initial gloss of the polymer. When incorporating defoamers, it is recommended to only use concentrates in the grind phase. Incorporating concentrates in the letdown can lead to poor incorporation and subsequent cratering in the finished product.

#### **Flash Rust Inhibitors:**

The use of a flash rust inhibitor in direct-to-metal paints is strongly recommended. EPS recommends Halox 570 at a loading of 10-15 pounds of a 30% solution per 100gal. Alternatively, the use of Sodium Nitrite at a maximum level of one solid pound per 100gal may be used.

#### **Neutralizers:**

Ammonia is the preferred neutralizer at a level of 1-2 pounds per 100gal. AMP-95 and other organic amines may also be used but may cause a drop in early block resistance.

#### **Rheology Modifiers:**

For optimal corrosion and water resistance properties, the use of HEUR thickeners is recommended. Typical examples shown to work well with EPS 2580 are Acrysol RM-2020 and Acrysol RM-8W. Ultimately, rheology modifier type, level, and combinations will depend on the desired viscosity, application type, formulation and flow and leveling characteristics. In general, a high shear and low shear thickener combination is recommended. For certain formulations where HEURs are not efficiently thickening the formulation, the use of HASE thickeners may be employed. The UCAR Polyphobe 116 and 117 have shown the best performance in laboratory testing.

#### **Pigmentation:**

Careful selection of pigments is critical to many end-use properties. For example, use of large and high oil absorption pigments provide excellent gloss reducing properties for eggshell and flat formulations. Additionally, for optimal corrosion performance in low gloss formulations, it is recommended that small particle size and low oil adsorption extenders are used. Extenders that have been found to work well with EPS 2580 are Atomite (calcium carbonate), and Bartex 65 (barium sulfate). The selection of titanium dioxide pigments should also be evaluated as using anatase TiO<sub>2</sub> has been found to negatively impact exterior durability.

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## EPS® 2580 Suggested Formulation

### White High Gloss Enamel: EPS 2580 WHT SP-1 (08/18)

Pounds	Gallons	Raw Material	Supplier	Instructions
47.5	5.70	Water		
1.0	0.13	28 % Ammonium hydroxide		
1.5	0.21	Surfynol 104A	Evonik	
4	0.23	BYK 028	BYK	
15.0	1.7	Tamol 165A	Dow	
15.0	1.98	DPnB		
185.0	5.40	Ti-Pure R-706	Chemours	
4.0	0.44	Proxel AQ	Lonza	
15.0	1.71	30% Halox 570 solution	ICL	Premade aqueous solution
288	17.47	Grind Total		Grind to a 7 Hegman
<b>655.0</b>	<b>75.99</b>	<b>EPS 2580</b>	<b>EPS</b>	Add grind to latex slowly with good agitation
52.0	6.24	Water		
2.5	0.27	Acrysol RM-8W	Dow	Adjust viscosity as needed
<b>997.5</b>	<b>100.00</b>	<b>Totals</b>		

#### Formulation Parameters

Weight Solids	51.49%
Volume Solids	43.27%
Pigment Volume Conc.	12.86
Pigment/Binder	0.59
Calculated VOC Level	42g/L
Weight/Gallon	10.05lbs

#### Typical Properties

Viscosity	80-90KU
pH	8-9
Color	White

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## EPS® 2580 Suggested Formulation

### Ultra Deep Tint Base Formula: EPS 2580 UDP-1 DTM (08/18)

Pounds	Gallons	Raw Material	Supplier	Instructions
<b>625.0</b>	<b>72.67</b>	<b>EPS 2580</b>	<b>EPS</b>	Add in order
3.0	0.31	Ecodis P 90	Arkema	
3.0	0.41	Surfynol 104A	Evonik	
2.5	0.33	28% Ammonium Hydroxide		
3.0	0.34	BYK 028	BYK	
171.7	20.61	Water		
1.0	0.11	Proxel AQ	Lonza	
10.0	1.20	4% Sodium Nitrite		
10.0	1.14	30% Halox 570 solution	Halox	
11.9	1.57	DPnB		
8.0	0.87	Acrysol RM-2020NPR	Dow	
4.0	0.44	Acrysol RM-8W	Dow	Adjust viscosity
<b><u>853.1</u></b>	<b><u>100.0</u></b>	<b><u>Totals</u></b>		

#### Formulation Parameters

<b>Weight Solids</b>	36.77%
<b>Volume Solids</b>	35.07%
<b>Pigment Volume Conc.</b>	0%
<b>Pigment/Binder</b>	0.00
<b>Calculated VOC Level</b>	50 g/L
<b>Weight/Gallon</b>	8.53 lb/gal

#### Typical Properties

<b>Viscosity</b>	90 – 100 KU
<b>pH</b>	8.0 – 9.0
<b>Color</b>	clear

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## EPS® 2580 Suggested Formulation

### Primer Formula: EPS 2580 WHT PR-1 DTM (08/18)

Pounds	Gallons	Raw Material	Supplier	Instructions
114.3	13.72	Water		Add in order with mixing
7.5	0.85	Tamol 165A	Dow	
3.0	0.41	Surfynol 104A	Evonik	
2.5	0.33	28% Ammonium Hydroxide		
3.0	0.34	BYK 024	BYK	
100.0	2.93	R-706	Chemours	
125.0	5.54	Atomite	Imerys	
50.0	1.99	SZP 391	Halox	Grind to 5Hegman
<b>500.0</b>	<b>58.14</b>	<b>EPS 2580</b>	<b>EPS</b>	Letdown with
66.0	7.92	Water		
1.50	0.17	Proxel AQ	Lonza	
15.0	1.80	4% Sodium Nitrite		
10.0	1.14	30% Halox 570 solution	Halox	
14.0	1.85	DPnB		
16.0	1.99	Optifilm 400	Eastman	
6.0	0.66	Acrysol RM-2020NPR	Dow	Adjust viscosity
2.0	0.22	Acrysol RM-8W	Dow	
<b>1035.8</b>	<b>100.00</b>	<b>Totals</b>		

### Formulation Parameters

Weight Solids	52.5%
Volume Solids	41.0%
Pigment Volume Conc.	28%
Pigment/Binder	1.15
Calculated VOC Level	48 g/L
Weight/Gallon	10.36 lb/gal

### Typical Properties

Viscosity	90 – 100 KU
pH	8.0 – 9.0

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