EPS® 2540

ACRYLIC EMULSION

DATA SHEET

Description

EPS 2540 is a styrenated acrylic emulsion offering outstanding corrosion resistance, adhesion, early water resistance and high gloss development / gloss retention. EPS 2540 provides paint formulators a low VOC waterborne alternative to alkyd maintenance vehicles and general product finishes on ferrous and non-ferrous metal, wood and plastic substrates.

- ✓ Superior corrosion resistance, with or without the use of corrosion resistant pigments / additives
- ✓ 50% solids
- ✓ Excellent gloss development / gloss retention
- ✓ Excellent early water resistance
- ✓ Excellent adhesion to ferrous and non-ferrous metal substrates
- ✓ Unique application properties: Ample set-to-touch (STT) dry time while maintaining short tack-free (TF) dry time. Ideal for spraying larger objects.
- ✓ Broad solvent compatibility: EPS 2540 allows the formulator the ability to use typical hydrophilic solvents (EB, DB), as well as non-HAPS, hydrophobic solvents (DPnB, Texanol), for superior performance.

Specifications

Weight Solids:	50.0 ± 0.7%
Weight/Gallon:	8.70 ± 0.10
pH:	7.5 – 8.5

Suggested Coalescing Solvent(s)

(% Solvent on Binder Solids – Pass 40°F LTC Test)

DPnB, Texanol	25%
EB, DB	35%
PnB	30%

Typical Properties

Volume Solids:	47.8 ± 0.7%
MFFT:	57°C
Volatile(s):	Water
Acid Value (on solids):	24

Suggested Paint Formulations

EPS 2540 WHT ST2 - High Gloss White Railcar Enamel

EPS 2540 ROX SP1 - Red Oxide Spray Primer

EPS 2540 BLK ST1 - High Gloss Black Spray Enamel

05-08-2014

Questions? Call EPS Technical Service @ 1-800-601-8111

EPS® 2540 SUGGESTED FORMULATION

FORMULA: EPS 2540 WHT ST2 (12/17/02)

HIGH GLOSS WHITE RAILCAR ENAMEL

Pounds	Gallons	Raw Material	Supplier	Instructions
40.0	4.80	Water		Add in order with good
12.0	1.36	Disperse Ayd W-22	Elementis	agitation.
3.0	0.41	Surfynol 104A	Air Products	
5.0	0.67	Ammonium Hydroxide		
4.0	0.46	BYK 024	BYK	
217.3	6.23	Tiona RCL-535 TiO2	Millenium	Add under agitation; disperse to 7+Hegman.
570.0	65.52	**EPS 2540**	**EPS**	Letdown in order with
32.8	3.94	Water		agitation.
2.0	0.27	Ammonium Hydroxide		
1.5	0.16	Nuosept 95	Ashland	Add grind at this point.
41.7	5.01	Water		Premix next 3 items,
10.0	1.20	4% Sodium Nitrite		then add DPnB. Mix
4.8	0.54	Rheolate 1	Elementis	well & add with good
71.3	9.32	DPnB	Lyondell	agitation.
0.5	0.06	Tafigel PUR-60	Munzing	Premix and add to
0.5	0.06	DPM		adjust viscosity.
1016.4	**100.01**	**Totals**		

Formulation Parameters

Weight Solids	50.63	%
Volume Solids	39.01	%
Weight / Gallon	10.16	lb/gal
Pigment Volume Conc.	16.53	%
	1.52	lb/gal

Typical Paint Properties

Viscosity (Stormer)	85 - 95 KU
pH	8.5 - 9.0
Color	White
60° Gloss (@ 3mils DFT)	90+

Suggested Application Methods

Spray, Brush, Roll

06-07-2011

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EPS® 2540 SUGGESTED FORMULATION

FORMULA: EPS 2540 ROX SP1 (12-17-02)

40 PVC RED OXIDE SPRAY PRIMER

Pounds	Gallons	Raw Material	Supplier	Instructions
90.0	10.80	Water		Add in order with agitation.
18.5	2.10	Disperse Ayd W-22	Elementis	
3.0	0.41	Surfynol 104A	Air Products	
1.0	0.13	AMP-95	Dow	
1.5	0.17	BYK 024	BYK	
95.0	2.56	Kroma® Red Iron Oxide RO-6097	Elementis	Add with agitation; disperse to 5+H.
210.0	9.06	Atomite	Imerys	
25.0	1.00	SZP-391	Halox	
15.0	1.00	Shieldex® AC-5	Grace	
375.0	43.10	**EPS 2540**	**EPS**	Letdown in order with agitation.
50.0	6.00	Water		
1.5	0.16	Nuosept 95	Ashland	
0.5	0.06	BYK 024	BYK	Add grind at this point.
50.0	6.00	Water		Premix next 3 items, then add DPnB and plasticizer. Mix well and add with agitation.
10.0	1.20	4% Sodium Nitrite		
4.0	0.45	Rheolate 1	Elementis	
34.0	4.44	DPnB	Lyondell	
17.0	1.82	Santicizer 160	Ferro	
77.4	9.29	Water		
1.0	0.12	Water		Premix and use to adjust viscosity.
1.0	0.11	Acrysol RM-825	Dow	
1080.4	**100.00**	**Totals**		

Formulation Parameters

Weight Solids	52.11	%
Volume Solids	37.57	%
Pigment Volume Conc.	39.69	%
VOC	106	g/l
	0.88	lb/gal

Typical Paint Properties

Viscosity (Stormer)	80 - 85 KU
pH	8.0 - 9.0
60° Gloss (@ 1.5 mils DFT)	5

Suggested Application Methods

Spray, Brush

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EPS® 2540

SUGGESTED FORMULATION

FORMULA: EPS 2540 BLK ST1 (04-16-03)

HIGH GLOSS BLACK SPRAY ENAMEL

Pounds	Gallons	Raw Material	Supplier	Instructions
20.0	2.40	Water		Add with agitation
0.5	0.06	AMP-95	Dow	
4.0	0.45	Disperse-Ayd W-22	Elementis	
2.0	0.28	Surfynol 104A	Air Products	
2.0	0.24	Dow Corning 65	Dow Corning	
20.0	1.33	Raven 850 Black	Columbian	Add with agitation, and sandmill to 7+H.
640.0	73.56	**EPS 2540**	**EPS**	Letdown in order.
22.5	2.70	Water		
2.0	0.27	Ammonium Hydroxide		Add grind at this point.
70.0	8.40	Water		Premix next 3 items,
10.0	1.20	4% Sodium Nitrite		then add solvent and
3.0	0.34	Rheolate 1		plasticizer. Mix well and
51.2	6.91	Hexyl Cellosolve (EH)	Dow	add with good agitation.
12.8	1.37	Santicizer 160	Ferro	
2.0	0.23	Acrysol RM-825	Dow	Premix and use to
2.0	0.24	Water		adjust viscosity.
864.0	**99.99**	**Totals**		

Formulation Parameters

Weight Solids	41.61	%
Volume Solids	38.75	%
Weight / Gallon	8.64	lb/gal
Pigment Volume Conc.	3.64	%
Pigment / Binder	0.06	
VOC	141	g/l
	1.17	lb/gal

Typical Paint Properties

Viscosity (Stormer)	60 - 70 KU
pH	8.5 - 9.0
60° Gloss	90+
Dry Film Thickness (mils)	1.0-1.2

Suggested Application Methods

Airless Spray

07-20-2011

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EPS®2540 FORMULATING GUIDELINES

The following guidelines are offered to assist the paint formulator in achieving the high performance properties offered by EPS 2540. Several suggested paint formulations are also available for reference.

Pigment Volume Concentration (PVC):

Formulating at the correct PVC is critical in optimizing corrosion resistance of coatings. For best results in high gloss coatings, the PVC should be formulated as low as possible (less than 20 % is suggested) to obtain maximum corrosion protection and gloss development. In primer formulations, where a higher PVC or the use of corrosion inhibitive pigments is desired, it is necessary to use a higher level of dispersant. Formulas at a PVC of approximately 40% still show good long term viscosity stability, as well as resistance to settling and separation. The use of AMP-95 (Dow), at a level of 1 pound per 100 gallons, has also been found effective in terms of long term stability, as well as aiding in pigment dispersion and grind base stability of these higher PVC coatings.

Dispersants:

Tamol 681(Dow), Disperbyk 190 (BYK), and Disperse-Ayd W-22 (Elementis) are recommended for use with EPS 2540. Each should be evaluated and compared to see which fits your particular formulating needs. Disperse-Ayd W22 has been found most effective in high PVC (40%) primer formulas (such as EPS 2540 SP-1). This formula shows a slightly higher level of dispersant than would be used at lower PVCs, although this level was determined necessary for the proper balance of required properties.

Co-solvents:

The use of DPnB (25% on resin solids) is recommended to form films as low as 40°F while offering excellent corrosion resistance and excellent open dry times for finishing large objects. Small additions of plasticizer, such as Paraplex WP-1, Santicizer 160, or KP140 may enhance the film properties. Other co-solvents, such as Texanol (25% on solids), PnB (30%), as well as EB and DB (35%) have been found to be adequate when used with EPS 2540, albeit with slightly less performance.

Thickeners:

Most rheological additives work well with the EPS 2540. Among those showing particular success were Acrysol RM-825 and Acrysol RM-2020 (Dow), Tafigel PUR-60 (Munzing), Rheolate 1 (Elementis), and Attagel 50 (BASF). It may be necessary at times to use a package of Rheology modifiers, in order to attain viscosity control as well as proper sag resistance.

Corrosion Inhibitive Pigments:

While EPS 2540 has been found stable with a large variety of corrosion inhibitors, the proper balance of corrosion resistance in regard to properties such as viscosity stability, settling and desired gloss can be difficult to attain. IN high PVC primer formulas, EPS has determined that a unique synergy makes the combination of SZP-391 (Halox) and Shieldex AC-5(Grace), at levels of 25 and 15 pounds per 100 gallons, respectively, an ideal choice to attain all properties.

Flash Rust Inhibitors:

The addition of a flash rust additive to DTM paints is recommended. Sodium nitrite is recommended at a maximum level of one pound per 100 gallons of paint.

Defoamers:

Most anti-foam agents evaluated with EPS 2540 proved effective to various degrees. For difficult defoaming issues, or during formulation of higher PVC coatings, it may be necessary to use a combination of defoaming products. Strong defoamers, such as BYK 024 (BYK), may not be as effective for microfoaming. In this case, an additional anti-foam agent may be required. Laboratory results have found Foamaster 111, Foamaster S (BASF), and Surfynol DF-210 (Air Products) to be adequate for this purpose.

pH:

The pH of paints produced with EPS 2540 should be 8.0-9.5. AMP-95 (Dow) and ammonium hydroxide are recommended for pH adjustments.

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