

Coil Coating Applications

A typical coil coating formulation is provided in Table 14. For polyester resin systems, including high solids polyester applications, MODAFLOW® 2100 is suggested for flow and leveling at a use level of 0.1% - 1.0% on TRS.

TABLE 14

Chromate-Free Exterior Coil Primer with DUROFTAL™ VPE 7186 & Resimene® HM-8205

Component		Wt.
DUROFTAL™ VPE 7186/60SNBMPAC	(1)	121.33
Aromatic 200	(2)	12.60
EEP	(3)	13.79
SANTOSOL® DME-1	(1)	14.00
1,6-hexanediol		6.24
Mix until diol dissolves		
Aerosil 200	(4)	1.26
Kronos 2310 TiO ₂	(5)	74.48
Barium Sulfate	(6)	24.64
Aluminum Silicate, ASP Ultrafine	(7)	39.20
Halox 650	(8)	6.16

Grind to Hegman 7 with vertical bead mill

Duroftal VPE 7186/60SNBMPAC	(1)	123.20
MODAFLOW® 2100	(1)	1.20
Resimene HM-8205	(1)	15.27
2-Butoxyethanol		18.50
Nacure 3327	(9)	2.69
Total		474.56

Bake Primer

Oven:	560 °F (293 °C)
PMT:	450 ± 10 °F (232 °C)
Dwell:	30 seconds
Film Build:	0.2 mil
MEK Double Rubs:	20
With PVDF top coat:	(0.8 mil)
T-Bend:	OT
Cross-hatch Tape Test:	no loss
MEK Double Rubs:	200+
QUV Exposure on Scribed Panel:	4000 hours (> 166 days)

(1) Cytec Surface Specialties	(2) ExxonMobil	(3) Eastman
(4) Degussa	(5) Kronos	(6) Solvay
(7) Engelhard	(8) Halox	(9) King Industries

Appliance Topcoat

MODAFLOW® Resin or MODAFLOW® 2100 have long been used in conventional solids coil coating systems. A typical starting point formula (over primer) with high impact and good chemical resistance for an appliance topcoat is provided in Table 15.

TABLE 15

White Flexible Coil Coating (High Temp.)

Component		Wt. %
Dynapol LH 830-02	(1)	40.00
Aerosil 200	(1)	0.20
Kronos 2310	(2)	28.00
SANTOSOL® DME-1	(3)	3.00
2-butoxyethanol		4.80
Grind to: Fineness 10-12 micrometers		
Dynapol LH 830-02	(1)	8.00
Resimene CE-7103	(3)	5.10
Nacure 2558	(4)	0.50
MODAFLOW® 2100	(3)	0.60
2-butoxyethanol		9.80
Total		100.00

Formulation Details

Polyester/Melamine Weight Ratio:	85/15
Percent Catalyst (TRS):	0.37

Curing Conditions

Dwell Time/Temp:	17 sec. @ 382°C (720°F)
Peak Metal Temperature:	232 ± 5°C
Substrate:	Aluminum (0.63 mm thick), titanium conversion treatment, BetzDearborn Permatreat 1021B
Panel placed at 45° angle. Care must be taken to achieve a uniform temperature across the panel due to the short dwell time.	

Film Properties

Dry Film Thickness:	22-23 µm
Gloss (60°):	98
MEK Resistance:	> 200 double rubs
Pencil Hardness:	HB - F
Impact Test (Forward):	70 in-lb (max. for aluminum)
T-Bend Adhesion/Crack Free:	OT
Heat Aging (16 hrs. @ 80°C):	OT

(1) Degussa	(2) Kronos	(3) Cytec Surface Specialties
(4) King Industries		