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Plastic Coatings with Ash Content of 7% Max

Formulation No: C2 – 10, Status Code A

(a) Introduction - This starting formulation is recommended for formulators who require coatings that give ash content of less than 7%.

(b) Formulation

Ingredients	$^{w}/_{w}$	
Elvacite® 2614*	54.77	(30% 2614 + 70% Xylene)
Carbon Black	1.89	
Talc	3.78	
BYK-161*	0.28	
BYK-066*	0.09	
Matting Agent	0.94	(Degussa OK500)
Butyl Acetate	11.34	
Cellulose Acetyl Butyrate (1)	25.97	Eastman 381-0.5 sec)
Aluminium Powder	0.94	
	100.00	

(1) CAB can be changed to NC (20% solid) for lower cost.
* Elvacite® 2614 is a bead acrylic resin from Lucite International
BYK- 161 & BYK-066 are trade names of BYK Chemie.

Properties of solution :
(a) Non-volatile : 25.5 % of above formulation
(b) Viscosity : 50 sec, Ford cup #4

(c) Recommended Processing Procedure

(1) Dissolution of Elvacite® Resin 30% solid content: 30% Elvacite® + 70% (by wt) xylene. Roll until bead resin dissolves.
(2) To make mill base:
(i) Add BYK-161 to carbon black + resin solution (1: 1: 3 by wt). Grind till well dispersed in 3-roll mill to particle size of about 10 micron. (BYK-161 is used to wet & disperse carbon black.)
(ii) Add (i) to rest of acrylic resin solution. Blend well.
(iii) Add aluminium powder to xylene at 1:1 by wt. Disperse well.
(iv) Add (ii) + rest of ingredients. Blend well.

(v) Add (iii) + (iv). Blend well.

(3) During 3-roll milling, solvent will be evaporated. Hence after milling, check weight of mill base using total weight of ingredients used. Make up solvent loss by adding in more solvent (Xylene) to (b) (iv). Blend well.

(d) Application guidelines

(i) Before spraying, dilute with thinner to spray viscosity (about 25 sec, Ford Cup #4)
(ii) Spray and dry for 60 min at 50^{O}C.

Thinner

(i) Under winter condition whereby the air is drier, the following is recommended Toluene: MEK: EAc at 2:1:1 If the substrate is bigger in size then lower boiling point thinner is needed for better flow, use Toluene: MEK: EAc: BAc at 2:1:1:1

(ii) During summer time the following thinner composition is recommended : Xylene : MEK : BAc at 1:1:1 For solvent sensitive substrate (eg some type of HIPS, add in small amount of IPA to the above thinner.

(e) Film Properties

Film Thickness (micron)	25
Pencil Hardness	2H
Alcohol Resistance*	Excellent

* Alcohol Test
Alcohol: 99.9% ethanol
Substrate: ABS, PS
Crosshatch Adhesion: no removal for both ABS & PS substrates
100 g weight 50 times rub : minimal colour migration on both ABS & PS substrates
500 g weight 50 times rub : some colour migration on both ABS & PS substrates