

Low Cost Plastic Coating for AudioVideo Casings using Elvacite® 2013

Formulation No: C2 – 9, Status Code A

(a) **Introduction** - This starting formulation is recommended for production of low cost plastic coating on substrates such as ABS or HIPS. These plastic substrates are usually used on audio and video casings.

(b) **Formulation**

| Ingredients | w/w |
|---------------------------------|------------------------------|
| Elvacite® 2013 | 75.0 (30% 2013 + 70% xylene) |
| BaSO ₄ | 11.0 (1250 mesh) |
| Talc | 12.0 (1250 mesh) |
| Carbon Black ⁽²⁾ | 0.8 |
| BYK-161 | 0.1 |
| BYK-306 | 0.1 |
| Aluminium powder ⁽¹⁾ | <u>1.0</u> |
| | 100.0 |

² spec depends on individual's requirement

Properties of solution :

(a) Non-volatile: 46.5 %

(b) Viscosity -. This formulation gives about 50 sec, Ford cup.#4.

(c) **Recommended Processing Procedure**

1) Dissolution of Elvacite® Resin

30% solids w/w: 30% Elvacite® + 70% xylene. Roll untill bead resins dissolve.

2) To make mill base:

- (i) Add BYK- 161 to carbon black + resin solution (1:1:3 by wt). (BYK- 161 is used to wet & disperse carbon black.)
- (ii) Add (i) to rest of pigments & filler + rest of resin solution. Grind untill well dispersed in 3-roll mill to particle size of about 20 micron.
- (iii) Add aluminium powder to xylene at 1:1 by wt. Disperse well.
- (iv) Add (ii) to (iii) + rest of ingredients. Blend well.

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(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°C.

Thinner

(1) 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 and hence lower boiling point thinner is needed for better flow, use Toluene: MEK: EAc: BAc at 2: 1 : 1 : 1

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

(e) Film Performance

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

*** Alcohol Test**

Alcohol : 99.9% ethanol

Substrate: ABS, PS

Crosshatch Adhesion: no removal for both ABS & PS substrates

100g weight, 50 times rub: minimal colour migration on both ABS & PS substrates

500g weight 50 times rub: some colour migration on both ABS & PS substrates

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