Guideline Formula 13. External Varnish for Bodies

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>WEIGHT</th>
<th>PRODUCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic resin (60% nv, medium mole weighth, Ohv 110)</td>
<td>370</td>
<td></td>
</tr>
<tr>
<td>BE 659</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Razeen LR 1100</td>
<td>60</td>
<td>JANA</td>
</tr>
<tr>
<td>PMA</td>
<td>285</td>
<td>DOW</td>
</tr>
<tr>
<td>PMA</td>
<td>139</td>
<td>DOW</td>
</tr>
<tr>
<td>Phosphoric Acid</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

And all items in turn to item 1.

Formulating Details

- **Film former type**: Acrylic
- **Crosslinker type**: Benzoguanamine
- **Solis ratio**: 8.7/1 (acrylic + epoxy/amino)
- **Typical Stoving Schedule**: 15-45 secs @ 200-250°C
- **Solids**: 0.31
- **Viscosity**: 45 seconds Ford Cup 4/25°C

Testing

**Mechanical**
- Wedge bend
- Box draw
- Adhesion (cross hatch to basecoat)
- Abrasion resistance
- Scratch
- Slip

Pasteurisation 80°C/30 minutes in water
 Process 115°C/30 minutes in water

External Coating for Ends
Guideline Formula 6 is suitable
Internal Coating for Ends
Guideline Formula 5 is suitable

**Guideline Formula 5 is suitable**
Guideline Formula 12. External White Basecoat for bodies

Acrylic resin (60% nvm, medium mole weight, Ohv 110) 370
Titanium dioxide 250
Cymel 301 25
Razeen LR 1100 70

PMA 185
PM 99
Phosphoric Acid 1

Disperse item 2 in item 1 using HSD and keeping temperature below 50°C. Continue until off
Scale using a Hegman gauge. Add remaining items in turn.

Formulating Details

Film former type Acrylic
Crosslinker type HMMM
Solids ratio 11.7/1 (acrylic +epoxy/amo)
Typical Stiving Schedule 15-45 secs @ 200-250°C
Solids 56%
65 seconds Ford Cup
Viscosity 4/25°C

Testing

Mechanical
Wedge bend
Box draw
Adhesion (cross hatch)
Abrasions resistance
Scratch
Slip

2.3 Two Piece Aerosols


Razeen SR 5099 140
Xylene 273
Butanol 205
Ethyl glycol 282
Phenolic (butylated resole 60%) 70  
BE 659 20  
Lanco wax TF1780 10  

Dissolve epoxy in items 2-4 by heating to 80°C. Cool and add remaining items.

### Formulating Details

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film former type</td>
<td>Epoxy phenolic</td>
</tr>
<tr>
<td>Crosslinker type</td>
<td>Benzoguanamine</td>
</tr>
<tr>
<td>Solids ratio</td>
<td>12.6/1 (epoxy + phenolic/amino)</td>
</tr>
<tr>
<td>Typical Stoving Schedule</td>
<td>6 - 7 minutes at 230°C</td>
</tr>
<tr>
<td>Solids</td>
<td>Solids</td>
</tr>
<tr>
<td>Viscosity</td>
<td>25 seconds Ford Cup 4/25°C</td>
</tr>
</tbody>
</table>

### Testing

#### Mechanical

- Buckle test
- Box draw followed by wedge bend
- Cross hatch adhesion
- Necking test

#### Chemical

- Dichloromethane at 40°C/24 hours
- Diethyl ether/water/ethanol 45/10/45 at 40 °C/24 hrs.
- Cross hatch adhesion
- Enamel rating

### External White for bodies

Guideline Formulation 12 is suitable  
Typical stoving schedule is 1-2 minutes at 160 -190°C

### External Varnish for bodies

Guideline Formulation 13 is suitable  
Typical stoving schedule is 1-2 minutes at 160 -190°C

### External White for end (Cones)

Guidelines Formulation 8 is suitable  
Typical stoving schedule is 10-12 minutes at 160 -180°C

### External Varnish for ends (Cones)

Guideline Formulation 6 is suitable and can be used without white basecoat if required  
Typical stoving schedule is 10-12 minutes at 160 -180°C

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