Starting Formulation

SF 1702

Waterborne Gloss White Enamel – 3:1 Ratio
EPI-REZ™ Resin 6520-WH-53 / EPIKURE™ Curing Agent 6870-W-53

Introduction This starting point formulation is designed to function as a high gloss enamel with a relatively long pot life (4-5 hours). Its applications include direct to metal coatings and general industrial top coats.

Suggested Uses
- Topcoat metal over primed surfaces
- Maintenance topcoat
- Direct to Metal (DTM) coatings

Features
- Combining ratio of 3:1 by volume
- Long gloss-pot life
- VOC\(^1\) level of 1.7 lb/gal (210 g/l)
- No induction period required

\(^1\) VOC is the acronym for volatile organic compound as defined by the U.S. 40CFR51.100 (s).

<table>
<thead>
<tr>
<th>Formula</th>
<th>Material</th>
<th>Supplier</th>
<th>Pounds</th>
<th>Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A</td>
<td>Eastman EP</td>
<td>Eastman Chemical Company</td>
<td>71.0</td>
<td>9.33</td>
</tr>
<tr>
<td></td>
<td>Deionized Water</td>
<td></td>
<td>61.6</td>
<td>7.38</td>
</tr>
<tr>
<td></td>
<td>BYK 022 defoamer</td>
<td>BYK Chemie</td>
<td>3.6</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>ETHOX TAM 20</td>
<td>ETHOX Chemicals, LLC</td>
<td>4.0</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>CARDURA™ Glycidyl Ester E10P</td>
<td>Hexion</td>
<td>10.8</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>OPTIFLO® H-600</td>
<td>Süd-Chemie</td>
<td>9.0</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>TI-PURE® R-960</td>
<td>DuPont Chemical Company</td>
<td>225.0</td>
<td>6.97</td>
</tr>
<tr>
<td></td>
<td>EPI-REZ Resin 6520-WH-53</td>
<td>Hexion</td>
<td>425.0</td>
<td>47.22</td>
</tr>
<tr>
<td></td>
<td>CoatOSil® 1770 Silane</td>
<td>Hexion Performance Products</td>
<td>6.8</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>Total Part A</td>
<td></td>
<td>816.8</td>
<td>75.00</td>
</tr>
</tbody>
</table>

Mix well at high speed, ~10 minutes

High speed disperse to Hegman 7+ then

<table>
<thead>
<tr>
<th>Part B</th>
<th>EPIKURE Curing Agent 6870-W-53</th>
<th>Hexion</th>
<th>180.0</th>
<th>19.78</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VERSATIC™ Acid 10</td>
<td>Hexion</td>
<td>11.1</td>
<td>1.46</td>
</tr>
<tr>
<td></td>
<td>DOWANOL® DPM (pre-mix with VERSATIC 10)</td>
<td>Dow Chemical Company</td>
<td>7.2</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>Raybo 60 (flash rust additive)</td>
<td>Raybo Chemical Company</td>
<td>4.2</td>
<td>0.45</td>
</tr>
</tbody>
</table>

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### Mixing Instructions

<table>
<thead>
<tr>
<th></th>
<th>Pounds</th>
<th>Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A</td>
<td>816.8</td>
<td>75.00</td>
</tr>
<tr>
<td>Part B</td>
<td>222.6</td>
<td>25.00</td>
</tr>
<tr>
<td>Part A + B</td>
<td>1039.4</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### Typical Formulation Properties

**Table 1 / Formulation Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix ratio Part A: Part B</td>
<td>By volume</td>
<td>3 : 1</td>
</tr>
<tr>
<td>Amine hydrogen eq. to Epoxy eq. ratio (based on solids)</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>Epoxy Resin / Curing Agent ratio (solids basis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resin</td>
<td>%</td>
<td>0.69</td>
</tr>
<tr>
<td>Curing Agent</td>
<td>%</td>
<td>0.31</td>
</tr>
<tr>
<td>Total weight solids</td>
<td>%</td>
<td>56.5</td>
</tr>
<tr>
<td>Total volume solids</td>
<td>%</td>
<td>46.5</td>
</tr>
<tr>
<td>Pigment to Binder ratio by weight</td>
<td>%</td>
<td>0.65</td>
</tr>
<tr>
<td>PVC</td>
<td>%</td>
<td>15</td>
</tr>
<tr>
<td>VOC</td>
<td>g/L</td>
<td>210</td>
</tr>
<tr>
<td>Induction Time</td>
<td>minutes</td>
<td>0 - 5</td>
</tr>
<tr>
<td>Gloss pot life</td>
<td>hrs</td>
<td>4 – 5</td>
</tr>
<tr>
<td>Viscosity, Part A + Part B, Stormer at 25 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial</td>
<td>KU</td>
<td>114</td>
</tr>
<tr>
<td>At 15% dilution with water</td>
<td>KU</td>
<td>84</td>
</tr>
</tbody>
</table>

### Typical Film Properties

**Table 2 / Film Performance Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>ASTM Method</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film thickness</td>
<td>D -1186</td>
<td>mils</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Pencil hardness</td>
<td>D-3363</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 hrs</td>
<td></td>
<td></td>
<td>5B</td>
</tr>
<tr>
<td>7 days</td>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Set to touch dry</td>
<td>D-5895-B</td>
<td>hrs</td>
<td>1.5</td>
</tr>
<tr>
<td>Cotton free</td>
<td>D-5895-B</td>
<td>hrs</td>
<td>13</td>
</tr>
<tr>
<td>Through dry</td>
<td>D-5895-B</td>
<td>hrs</td>
<td>23</td>
</tr>
</tbody>
</table>

**Generated:** March 9, 2020

**Issue Date:**

**Revision:**

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Direct/Reverse impact

D-2794 in-lb 160/160

Gloss 60°/20° (2 – 3 mil DFT), after 24 hour cure

D-523 98 / 77

MEK double rubs

D-5402 cycles

24 hrs 34

7 days 99

Conical mandrel

D-522 % 32

¹ After seven days cure at 75-79°F and 50-60% R.H.

Storage

Recommendations regarding storage conditions can be obtained by visiting our web site at www.hexion.com

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