Starting Formulation

SF 1013
White Enamel
High Solids EPON™ Resin 828 and 1001-CX-75 / EPIKURE™ Curing Agent 3140 and 3502

Features
- Formulated for spray application
- Desirable mixing ratio of 65/35 by volume
- Attractive volatile organic content (VOC) of 2.75 pounds/gallon
- Minimum 6 hour working pot life

<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>EPON Resin 1001-CX-75</td>
<td>Hexion</td>
<td>220.4</td>
<td>24.47</td>
</tr>
<tr>
<td></td>
<td>EPON Resin 828</td>
<td>Hexion</td>
<td>141.6</td>
<td>14.58</td>
</tr>
<tr>
<td></td>
<td>Beetle U216-8</td>
<td>Cytec Industries</td>
<td>18.8</td>
<td>2.21</td>
</tr>
<tr>
<td></td>
<td>TiO2 (R-900)</td>
<td>Du Pont Company</td>
<td>199.2</td>
<td>5.69</td>
</tr>
<tr>
<td></td>
<td>Sparmite</td>
<td>Elementis Pigments, Inc.</td>
<td>456.9</td>
<td>12.47</td>
</tr>
<tr>
<td></td>
<td>Thixatrol ST</td>
<td>Elementis Specialties Inc.</td>
<td>3.1</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Disperse with high-speed disperser until a temperature of about 150 °F and grind to Hegman 7-8.

Then, add the following with mixing:

- Methyl isobutyl ketone
  - Shell Chemical Company
  - 15.5 pounds
  - 2.32 gallons

- Propylene glycol methyl ether
  - Shell Chemical Company
  - 13.6 pounds
  - 1.78 gallons

- Xylene
  - Shell Chemical Company
  - 8.1 pounds
  - 1.12 gallons

Total Part A
- 1,077.2 pounds
- 65.00 gallons

Part B

- EPIKURE Curing Agent 3140
  - Hexion
  - 65.2 pounds
  - 8.05 gallons

- EPIKURE Curing Agent 3502
  - Hexion
  - 65.2 pounds
  - 9.20 gallons

- Methyl isobutyl ketone
  - Shell Chemical Company
  - 40.3 pounds
  - 6.03 gallons

- Propylene glycol methyl ether
  - Shell Chemical Company
  - 40.3 pounds
  - 5.24 gallons

- Xylene
  - Shell Chemical Company
  - 46.9 pounds
  - 6.48 gallons

Total Part B
- 257.9 pounds
- 35.00 gallons

Total Part A & B
- 1,335.1 pounds
- 100.00 gallons

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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>1,077.2</td>
<td>65.00</td>
</tr>
<tr>
<td>Part B</td>
<td>257.9</td>
<td>35.00</td>
</tr>
<tr>
<td>Part A + B</td>
<td>1,335.1</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Resin Composition

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A</td>
<td>% Solids</td>
<td>54</td>
</tr>
<tr>
<td>Part B</td>
<td>% Solids</td>
<td>46</td>
</tr>
<tr>
<td>Part A + B</td>
<td>% Solids</td>
<td>100</td>
</tr>
</tbody>
</table>

Disperse the base component in a high speed disperser. Continue dispersing the mixture until a temperature of about 150 °F is reached to insure proper development of thixotropy by the Thixatrol ST. The base component and curing agent component should be packaged separately.

Typical Handling Properties

This formulation is designed for spray application only, although other application methods may be considered. A film thickness of 6-8 mils or less per coat is recommended, with an interval of one day between coats. Coatings exceeding 10 mils may exhibit a reduced rate of cure, particularly with regard to through-curing characteristics.

The formulation may be readily applied with conventional spray equipment, such as a DeVilbiss MBC-510 spray gun equipped with an “E” fluid tip and needle, and a No. 54 air cap and pressure pot set-up. Recommended pot pressure and atomizing pressure are about 10 psi and 60 psi, respectively. The mixed formulation should preferably be allowed to age for approximately one hour before application. This step would leave a usable pot life of about 5-6 hours out of the total pot life of 6-7 hours.

Surfaces to be coated should be cleaned thoroughly. The preferred method for cleaning steel surfaces is sand- or grit-blasting. Acid etching with dilute hydrochloric acid is usually the most efficient method of cleaning masonry surfaces. Such surfaces should be structurally sound and free of any surface powdering. After acid etching, the masonry surface should be rinsed with copious amounts of water and dried before applying the coating.

For application of this system in confined or poorly ventilated areas, we recommend the use of a fresh air-supplied hood and other protective clothing sufficient to cover the applicator’s entire body.

The application methods for an EPON™ Resin 1001F/EPON Resin 828/EPIKURE™ Curing Agent 3140/EPIKURE Curing Agent 3502 White Enamel can involve the use of air or airless spray equipment, roller or brush. This system is normally air dried but can be force cured by baking if desired. This operation requires the use of well ventilated facilities (fresh air supply and adequate exhaust) along with the use of OSHA/NIOSH approved respiratory equipment for worker protection. In addition, the worker must wear appropriate protective clothing to avoid skin contact.

Typical Formulation Table 1 / Formulation Properties

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mx ratio Part A : Part B</td>
<td>By volume</td>
<td>65/35</td>
</tr>
<tr>
<td></td>
<td>By weight</td>
<td>4.18:1.0</td>
</tr>
</tbody>
</table>
Nonvolatile content by weight % 79.4 ¹
Weight per gallon lb./gal. 13.35
Pigment : Binder Weight Ratio 1.62
Pigment volume concentration (PVC) % 29.8
Volatile Organic Compound (VOC) lb/gal 2.75
                          g/L 330
Induction Time hrs 1
Pot life hrs 6-7
Viscosity @ 25°C
Part A + Part B KU 72

¹ The theoretical volatile component of EPIKURE Curing Agent 3502 (27% wt solids) was taken into
account for these calculations.

Typical Film Properties

Table 2 / Film Performance Properties

<table>
<thead>
<tr>
<th>Determined on films applied to MEK-washed Q Panels and cured 7 days at 25 °C and 55% relative humidity.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry film thickness</td>
<td>mils 1.6-2.0</td>
</tr>
<tr>
<td>Gardner circular dry time</td>
<td></td>
</tr>
<tr>
<td>Set-to-touch</td>
<td>hrs 9.5</td>
</tr>
<tr>
<td>Cotton free</td>
<td>hrs 10.5</td>
</tr>
<tr>
<td>Thru-dry</td>
<td>hrs 16</td>
</tr>
<tr>
<td>Pencil hardness</td>
<td>4H</td>
</tr>
<tr>
<td>Flexibility, conical mandrel</td>
<td>in 1/8</td>
</tr>
<tr>
<td>MIBK resistance, minutes to soften two pencils</td>
<td>60</td>
</tr>
</tbody>
</table>

Cure Schedules

Table 3 / Cure Schedules

A ketimine curing agent, such as EPIKURE Curing Agent 3502, reacts somewhat slowly with epoxy resins in the absence of moisture. When water is present it combines with the ketimine to produce a low molecular weight ketone and a polyamine. This polyamine, along with the EPIKURE Curing Agent 3140, combines to function as a reactive curing agent for the epoxy resin.

<table>
<thead>
<tr>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Cure* (70 °F to 80 °F)</td>
<td></td>
</tr>
<tr>
<td>Dry to handle</td>
<td>hours 8-10</td>
</tr>
<tr>
<td>Development of physical properties</td>
<td>days 2</td>
</tr>
<tr>
<td>Development of chemical and solvent resistance</td>
<td>days 7</td>
</tr>
<tr>
<td>Force dry, to a sandable stage</td>
<td></td>
</tr>
<tr>
<td>100°F</td>
<td>hrs 1.5 – 2</td>
</tr>
<tr>
<td>110°F</td>
<td>hrs 1 – 1.5</td>
</tr>
<tr>
<td>120°F</td>
<td>min 45</td>
</tr>
</tbody>
</table>

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140°F min. 30
Force dry, to full cure
140°F hrs 1.5
High temperature bake, to full cure
200°F min. 20
250°F min. 10
300°F min. 7
350°F min. 4
400°F min. 2

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

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