**Vipel® Corrosion Resistant Epoxy Novolac, Vinyl Ester Resin**

<table>
<thead>
<tr>
<th>TYPICAL CAST MECHANICAL PROPERTIES* (1) see back page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Tensile Strength</td>
</tr>
<tr>
<td>Tensile Modulus</td>
</tr>
<tr>
<td>Tensile Elongation</td>
</tr>
<tr>
<td>Flexural Strength</td>
</tr>
<tr>
<td>Flexural Modulus</td>
</tr>
<tr>
<td>Heat Distortion Temperature</td>
</tr>
<tr>
<td>Barcol Hardness</td>
</tr>
</tbody>
</table>

**DESCRIPTION**
The Vipel F085 series is an epoxy novolac vinyl ester resin dissolved in styrene. The Vipel F085 series is ideally suited for applications where outstanding mechanical properties and resistance to chemicals, oxidation and heat are required.

**TYPICAL LIQUID RESIN PROPERTIES* (2) see back page**

<table>
<thead>
<tr>
<th>Versions</th>
<th>Viscosity cps</th>
<th>Thix Index</th>
<th>Gel Time min</th>
<th>Gel to Peak min</th>
<th>Peak Exotherm °F/°C</th>
<th>Specific Gravity</th>
<th>Styrene Content %</th>
</tr>
</thead>
<tbody>
<tr>
<td>F085-AAA-00</td>
<td>300¹</td>
<td>NA</td>
<td>15²</td>
<td>5</td>
<td>400/204</td>
<td>1.08</td>
<td>33</td>
</tr>
<tr>
<td>F085-CAA-00</td>
<td>200¹</td>
<td>NA</td>
<td>15²</td>
<td>7</td>
<td>420/216</td>
<td>1.07</td>
<td>35</td>
</tr>
<tr>
<td>F085-HAA-00</td>
<td>1800³</td>
<td>NA</td>
<td>14³</td>
<td>3</td>
<td>380/193</td>
<td>1.11</td>
<td>25</td>
</tr>
</tbody>
</table>

1) 77°F/25°C Brookfield RV viscosity spindle 2 at 20 rpm
2) 77°F/25°C Gel time with 0.3% cobalt 6%, 0.05% DMA and 1.5% MEKP
3) 77°F/25°C Brookfield RV viscosity spindle #3 AT 20 rpm
4) 180°F/82°C SPI gel with 1.0% BPO

*Typical properties are not to be construed as specifications.

**BENEFITS**

**Corrosion resistance**
The epoxy novolac backbone chemistry provides resistance to acids and bases and has superior resistance to many organic solvents. Vipel F085 series is generally resistant to liquids and vapors at higher temperatures than standard bisphenol-A epoxy vinyl ester resins.

The Vipel F085 series is well suited for use in the field of chlorine-alkali electrolysis. Refer to AOC's "Corrosion Resistant Resin Guide" for corrosion resistance information or for questions regarding suitability of a resin to any particular chemical environment contact AOC.

**Mechanical Properties**
The Vipel F085 series is suitable for moldings that are subjected to particularly high static and dynamic loads. It is resistant to internal stress cracking under high loading.

**Versatile**
Suitable for various fabricating methods such as hand lay-up, filament winding, etc.
See appropriate Material Safety Data Sheet for guidelines.

SAFETY

158-212°F/70-100°C.

curing room temperature cured laminates for two hours at

D. Optimimum cure and performance may be obtained by post

layer to provide a tack free surface. Optimum cure and performance

(2) in styrene may be added to the last resin

planned, a 10% solution of 5% paraffin wax solution

chemicals as a fully cured part. If no further laminating is

may not, however, be fully cured and are thus not as resistant to

chemicals as a fully cured part. If no further laminating is

planned, a 10% solution of 5% paraffin wax solution

(MP 115-118°F/46-48°C) in styrene may be added to the last resin

layer to provide a tack free surface.

C. Finished part surfaces that have been cured at room
temperature in contact with air should be relatively tack free. They

may not, however, be fully cured and are thus not as resistant to
chemicals as a fully cured part. If no further laminating is

planned, a 10% solution of 5% paraffin wax solution (MP 115-

118°F/46-48°C) in styrene may be added to the last resin layer

to provide a tack free surface.

D. Optimimum cure and performance may be obtained by post

curing room temperature cured laminates for two hours at

158-212°F/70-100°C.

SAFETY

See appropriate Material Safety Data Sheet for guidelines.

STORAGE STABILITY

This product is stable for seven months from the date of

manufacture when stored in the original containers, away from
direct sunlight or other UV light sources and at or below

77°F/25°C.

After extended storage, some drift may occur in the product

viscosity and gel time.

TYPICAL PROPERTIES OF CURED RESIN*

PROCESSING

Finished part surfaces that have been cured at room temperature

in contact with air should be relatively tack free. They may

not, however, be fully cured and are thus not as resistant to
chemicals as a fully cured part. If no further laminating is

planned, a 10% solution of 5% paraffin wax solution (MP 115-

118°F/46-48°C) in styrene may be added to the last resin layer

to assure a tack free surface. Optimum cure and performance

may be obtained by post curing room-temperature cured lami-
nates for three to six hours at 194-212°F/90-100°C.

PERFORMANCE GUIDELINES

A. Keep full strength catalyst levels between 1.0% - 2.0% of the

total resin weight.

B. Maintain shop temperatures between 65°F/18°C and

90°F/32°C and humidity between 40% and 90%. Consistent shop

conditions contribute to consistent gel times and will help the

fabricator make a high quality part.

C. Finished part surfaces that have been cured at room

temperature in contact with air should be relatively tack free. They

may not, however, be fully cured and are thus not as resistant to

chemicals as a fully cured part. If no further laminating is

planned, a 10% solution of 5% paraffin wax solution

(MP 115-118°F/46-48°C) in styrene may be added to the last resin

layer to provide a tack free surface.

D. Optimimum cure and performance may be obtained by post

curing room temperature cured laminates for two hours at

158-212°F/70-100°C.

SAFETY

See appropriate Material Safety Data Sheet for guidelines.

HIGH TEMPERATURE TENSILE PROPERTIES

<table>
<thead>
<tr>
<th>Temperature, °F/°C</th>
<th>Tensile Strength, psi/MPa</th>
<th>Tensile Modulus, psi/GPa</th>
<th>Tensile Strength, psi/MPa</th>
<th>Tensile Modulus, psi/GPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>77/25</td>
<td>11,200/777</td>
<td>540,000/3,7</td>
<td>27,000/186</td>
<td>2,000,000/13.8</td>
</tr>
<tr>
<td>150/66</td>
<td>10,000/69</td>
<td>460,000/3.2</td>
<td>24,800/171</td>
<td>2,000,000/13.8</td>
</tr>
<tr>
<td>200/93</td>
<td>8,000/55</td>
<td>370,000/2.6</td>
<td>21,600/149</td>
<td>1,750,000/12.1</td>
</tr>
<tr>
<td>250/121</td>
<td>5,300/37</td>
<td>320,000/2.2</td>
<td>21,500/148</td>
<td>1,680,000/11.6</td>
</tr>
<tr>
<td>275/135</td>
<td>4,000/28</td>
<td>248,000/1.7</td>
<td>19,500/134</td>
<td>1,420,000/9.8</td>
</tr>
<tr>
<td>300/149</td>
<td>1,900/13</td>
<td>50,700/0.35</td>
<td>17,500/121</td>
<td>1,350,000/9.3</td>
</tr>
<tr>
<td>325/163</td>
<td>1,800/12</td>
<td>158,000/7.2</td>
<td>10,000/69</td>
<td>2,000,000/13.8</td>
</tr>
</tbody>
</table>

* N, N-Dimethylaniline

** Cumene hydroperoxide 90% active

ISO 9001:2000 CERTIFIED

The Quality Management Systems at every AOC manufacturing

facility have been certified as meeting ISO 9001:2000 standards.

This certification recognizes that each AOC facility has an interna-
tionally accepted model in place for managing and assuring qual-
ity. We follow the practices set forth in this model to add value to

the resins we make for our customers.

FOOTNOTES

(1) Based on tests of Vipel F085-AAA-00 at 77°F/25°C and 50%

relative humidity. All isotropic resins should be mixed well prior
to use. The use of thixotropy degrades the corrosion performance
of a resin in some chemical environments such as sodium chloride.

All tests on unreinforced cured resin. Castings were post cured.

(2) The gel times shown are typical but may be affected by catalyst,

promoter, inhibitor concentration, resin, mold, and shop

temperature. Variations in gel time characteristics can be expected

between different lots of catalysts and at extremely high

humidities. Pigment and/or filler can retard or accelerate gelation.

It is recommended that the fabricator check the geling character-

istics of a small quantity of resin under actual operating conditions

prior to use.

The information contained in this data sheet is based on laboratory data and field experience.

We believe this information to be reliable, but do not guarantee its applicability to the user’s

process or assume any liability for occurrences arising out of its use. The user, by accepting

the products described herein, agrees to be responsible for thoroughly testing each such

product before committing to production.

Our recommendations should not be taken as inducements to infringe any patent or violate

any law, safety code or insurance regulation.