Starting Formulation

SF 4012 General Epoxy Adhesive 828 3245 General Purpose Aluminum Filled Epoxy Adhesive
EPON™ Resin 828 / EPIKURE™ Curing Agent 3245

Introduction
This formulation is designed for general purpose use in areas where adhesion to a
variety of substrates, such as metals, wood and concrete, is required. This epoxy
adhesive has a pot life that is adequate for most ambient temperature applications and
cures to handling strength in 4 to 5 hours.

<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 828</td>
<td>Hexion</td>
<td>50.0</td>
<td>5.18</td>
</tr>
<tr>
<td></td>
<td>Aluminum Powder #120</td>
<td>Reynolds Metals Co.</td>
<td>50.0</td>
<td>2.25</td>
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<tr>
<td></td>
<td>Total A</td>
<td></td>
<td>100.0</td>
<td>7.43</td>
</tr>
<tr>
<td>Part B</td>
<td>EPIKURE Curing Agent 3245</td>
<td>Hexion</td>
<td>5.0</td>
<td>0.59</td>
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<tr>
<td></td>
<td>Total B</td>
<td></td>
<td>5.0</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>Total Part A &amp; B</td>
<td></td>
<td>105.0</td>
<td>8.02</td>
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</tbody>
</table>

Mixing Instructions
Disperse Aluminum Powder #120 into EPON Resin 828 using a high speed mixer or
equivalent mixing equipment until a homogeneous blend is obtained.

Immediately prior to use, blend tetraethylenepentamine with the resin portion and stir
until a uniform mixture is attained. A one-pint batch of this formulation has a one-hour pot
life at normal room temperature. Larger batches have a shorter pot life due to the
exothermic reaction.

For optimum adhesion, this adhesive should be applied to substrates free of oil, dirt and
grease. An adhesive bond line approximately 0.005-inch thick provides the best results.
Application may be by brush or trowel. If shorter cure times are required, a 10 minute
cure at 120 °C provides satisfactory strength development.

Typical Handling / Handling Properties

<table>
<thead>
<tr>
<th>Properties</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Shear Strength</td>
<td>psi</td>
<td>1,050</td>
</tr>
<tr>
<td>Aluminum</td>
<td>psi</td>
<td>350</td>
</tr>
<tr>
<td>Copper</td>
<td>psi</td>
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PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.
Combining ratio (resin/curing agent) by weight 100 : 5

Viscosity Paste

Gel Time, 1 pint mass min. 60

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

General Information

These are starting formulations and are not proven in the user’s particular application but are simply meant to demonstrate the efficacy of the products and to assist in the development of the user’s own formulation. It is the user’s responsibility to fully-test and qualify the formulation, along with the ingredients, methods, applications or equipment identified herein (“Information”), by the user’s knowledgeable formulator or scientist, and to determine the appropriate use conditions and legal restrictions, prior to use of any Information.

Safety, Storage & Handling

Please refer to the MSDS for the most current Safety and Handling information.

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these materials should be used, stored, or transported until the handling precautions and recommendations as stated in the Material Safety Data Sheet (MSDS) for these and all other products being used are understood by all persons who will work with them. Questions and requests for information on Hexion Inc. ("Hexion") products should be directed to your Hexion sales representative, or the nearest Hexion sales office. Information and MSDSs on non-Hexion products should be obtained from the respective manufacturer.

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