MTFA500 (DF044)
Epoxy Adhesive Film

Introduction
MTFA500 (DF044) toughened epoxy adhesive film is designed to cure between 80°C and 120°C, allowing flexibility in component manufacture.

Typical applications: General purpose

Key Features & Benefits
- Cure temperature from 80°C to 120°C
- Service temperature up to 135°C after post-cure
- Low CTE and shrinkage
- Work life at 20°C: 30 days
- Storage life at -18°C: 12 months
- Very low VOC content – no added solvents during manufacture

Storage & Out Life
This material should be kept frozen at -18°C. It must be kept sealed in a polythene bag which must not be opened until fully thawed to room temperature. If the material is not fully used, then the material must be resealed in the polythene bag to prevent moisture absorption.
Performances

Tests performed on MTFA500 resin films

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climbing Drum Peel</td>
<td>Peel Strength (T)</td>
<td>437 N</td>
</tr>
<tr>
<td></td>
<td>Peel Strength (L)</td>
<td>538 N</td>
</tr>
<tr>
<td>DMA</td>
<td>Tg – Storage Modulus Onset</td>
<td>141 °C</td>
</tr>
<tr>
<td></td>
<td>Tg – Tan δ Peak</td>
<td>150 °C</td>
</tr>
</tbody>
</table>

Mechanical testing carried out at 23±2°C, 50±5% RH. All mechanical tests were completed independently by UKAS approved organisations. Complete tests reports can be supplied independently upon request. All figures are actual test results and haven’t been normalised.

Cure Cycles & performances

- **Recommended Initial cure:** 80°C for 16h, at a ramp rate of 2°C/min
- **Recommended Post cure:** 120°C for 1h, at a ramp rate of 0.3°C/min (where required for high Tg)

<table>
<thead>
<tr>
<th>Cure</th>
<th>Duration</th>
<th>Tg</th>
</tr>
</thead>
<tbody>
<tr>
<td>80°C (minimum)</td>
<td>16 hours</td>
<td>90°C</td>
</tr>
<tr>
<td>90°C</td>
<td>8 hours</td>
<td>100°C</td>
</tr>
<tr>
<td>100°C</td>
<td>4 hours</td>
<td>110°C</td>
</tr>
<tr>
<td>120°C (maximum)</td>
<td>1 hour</td>
<td>130°C</td>
</tr>
<tr>
<td>135°C Post cure</td>
<td>1 hour</td>
<td>140°C</td>
</tr>
</tbody>
</table>

- Curing Schedule is meant to be a guide only and is subject to local conditions.
- To avoid exotherm particular care must be taken with thick laminates. Ramp rates must not exceed 3.0°C per minute during initial cure. Ramp rates must not exceed 0.3°C per minute during post cure.

Volatile content: < 1.0%
Fibre volume fraction: 50 to 60%
Voidage (autoclave cure): < 1.0%
Viscosity Profile
Testing carried out at 23±2°C, 50±5% RH. Ramp rate: 2°C/min.

Health and Safety
This material contains epoxy resin which can cause allergic reactions with skin contact and must avoid repeated and prolonged skin contact.

Please refer to the product Safety Data Sheet before using this material. The following precautions must be taken when using epoxy resin prepregs:

- Overalls must be worn
- Impervious gloves must be worn.
- Curing schedule is meant to be as a guide only and is subject to local conditions.
- To avoid exotherm, particular care must be taken with thick laminates.
- Ramp rates must not exceed 3.0°C/min during initial cure and 0.3°C/min during post cure.

SHD Composite Materials Ltd cannot accept any liability for injury or damage where the above precautions have not been taken or where the material is used for any purpose other than its intended use.

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Note: The information and assistance provided herein is for your consideration without legal responsibility. Users are required to perform verification and testing to confirm that the product meets with their requirements.