

# EPO-TEK® H74

Epoxy; Epoxide  
Epoxy Technology Inc.

Message:  
EPO TEK® H74 is a two component, thermally conductive epoxy designed for hybrid circuit assembly including die attach, substrate attach, lid-seal, heat dissipation, and hermetic sealing in general.

| General Information                 |                                    |      |     |
|-------------------------------------|------------------------------------|------|-----|
| Features                            | Fast Cure                          |      |     |
|                                     | Good Chemical Resistance           |      |     |
|                                     | Low to No Outgassing               |      |     |
|                                     | Moisture Resistant                 |      |     |
|                                     | Solvent Resistant                  |      |     |
|                                     | Thermally Conductive               |      |     |
|                                     | Thixotropic                        |      |     |
| Uses                                | Adhesives                          |      |     |
|                                     | Electrical/Electronic Applications |      |     |
|                                     | Seals                              |      |     |
| Agency Ratings                      | ASTM E 595                         |      |     |
|                                     | EC 1907/2006 (REACH)               |      |     |
|                                     | EU 2003/11/EC                      |      |     |
|                                     | EU 2006/122/EC                     |      |     |
| RoHS Compliance                     | RoHS Compliant                     |      |     |
| Forms                               | Paste                              |      |     |
| Physical                            | Nominal Value                      | Unit |     |
| Particle Size                       | < 50.0                             | µm   |     |
| Degradation Temperature             | 425                                | °C   | TGA |
| Die Shear Strength - > 15 kg (23°C) | 35.2                               | MPa  |     |
| Operating Temperature               |                                    |      |     |
| Continuous                          | -55 to 250                         | °C   |     |
| Intermittent                        | -55 to 350                         | °C   |     |
| Storage Modulus (23°C)              | 5.93                               | GPa  |     |
| Thixotropic Index                   | 2.14                               |      |     |
| Weight Loss on Heating              |                                    |      |     |
| 200°C                               | 0.29                               | %    |     |
| 250°C                               | 0.50                               | %    |     |
| 300°C                               | 0.80                               | %    |     |

| Thermal                                   | Nominal Value                                                  | Unit              |             |
|-------------------------------------------|----------------------------------------------------------------|-------------------|-------------|
| Glass Transition Temperature <sup>1</sup> | > 100                                                          | °C                |             |
| CLTE - Flow                               |                                                                |                   |             |
| -- <sup>2</sup>                           | 2.1E-5                                                         | cm/cm/°C          |             |
| -- <sup>3</sup>                           | 9.5E-5                                                         | cm/cm/°C          |             |
| Thermal Conductivity                      | 1.3                                                            | W/m/K             |             |
| Thermoset                                 | Nominal Value                                                  | Unit              | Test Method |
| Thermoset Components                      |                                                                |                   |             |
| Part A                                    | Mix Ratio by Weight: 100                                       |                   |             |
| Part B                                    | Mix Ratio by Weight: 3.0                                       |                   |             |
| Shelf Life (23°C)                         | 52                                                             | wk                |             |
| Uncured Properties                        | Nominal Value                                                  | Unit              | Test Method |
| Color                                     |                                                                |                   |             |
| -- <sup>4</sup>                           | Amber                                                          |                   |             |
| -- <sup>5</sup>                           | Grey                                                           |                   |             |
| Density                                   |                                                                |                   |             |
| Part B                                    | 1.02                                                           | g/cm <sup>3</sup> |             |
| Part A                                    | 2.10                                                           | g/cm <sup>3</sup> |             |
| Viscosity <sup>6</sup> (23°C)             | 45 to 65                                                       | Pa · s            |             |
| Curing Time (150°C)                       | 1.0                                                            | hr                |             |
| Pot Life                                  | 120                                                            | min               |             |
| Cured Properties                          | Nominal Value                                                  | Unit              | Test Method |
| Shore Hardness (Shore D)                  | 90                                                             |                   |             |
| Lap Shear Strength (23°C)                 | 11.4                                                           | MPa               |             |
| Relative Permittivity (1 kHz)             | 4.95                                                           |                   |             |
| Volume Resistivity                        | > 4.0E+12                                                      | ohms · cm         |             |
| Dissipation Factor (1 kHz)                | 7.0E-3                                                         |                   |             |
| NOTE                                      |                                                                |                   |             |
| 1.                                        | Dynamic Cure 20-200°C/ISO 25<br>Min; Ramp -10-200°C @ 20°C/Min |                   |             |
| 2.                                        | Below Tg                                                       |                   |             |
| 3.                                        | Above Tg                                                       |                   |             |
| 4.                                        | Part B                                                         |                   |             |
| 5.                                        | Part A                                                         |                   |             |
| 6.                                        | 5 rpm                                                          |                   |             |

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