

AMICURE[®] UR2T

Cure Accelerator

DESCRIPTION

Amicure UR2T cure accelerator is a substituted urea-based accelerator [1,1'-(4 methy-m-phenylene) bis(3,3 dimethyl urea)] for dicyandiamide-cured epoxy resins. It combines excellent latency at ambient temperature with rapid cure in systems heated above its activation temperature.

Amicure UR2T cure accelerator is supplied as a micropulverized crystalline solid which is easily dispersed into liquid epoxy resin.

TYPICAL PROPERTIES

| Property | Value | Unit | |
|--------------------------------------|--|------|--|
| Appearance | White Powder | | |
| Melting Point | 182-190 | °C | |
| Assay | 97 | % | |
| Recommended Use Level (phr, EEW=190) | 0.5-3.0 parts with 4.0-8.0 parts dicyandiamide | | |
| Solubility in Water | < 0.5 | % | |

ADVANTAGES

- Rapid cure and property development
- High glass transition temperature
- Good one-pack shelf stability
- Good flow properties

APPLICATIONS

- One-pack paste and film adhesives
- Heat-cure composites
- Prepreg composites

STORAGE AND HANDLING

Refer to the Safety Data Sheet for Amicure UR2T Cure Accelerator.

SHELF LIFE

At least 24 months from the date of manufacture in the original sealed container at ambient temperature. Store away from excessive heat and humidity in tightly closed containers.

TYPICAL CURE SCHEDULE

45-60 minutes at 265°F (130°C).

TYPICAL PERFORMANCE

Formulation

| | | |
|--------------------|-------|-----------|
| Bis-A liquid resin | 100.0 | (EEW=190) |
| Amicure CG-1200 | 6.0 | |
| Amicure UR | 2.0 | |

Lap Shear Strength (psi)*

| Cure Temp. | Cure Time (min) | | | | | |
|---------------|-----------------|-------|-------|-------|-------|-------|
| | 5 | 10 | 15 | 20 | 30 | 40 |
| 275°F (135°C) | — | — | 2,679 | — | 2,927 | 2,845 |
| 300°F (150°C) | — | 3,465 | — | 3,070 | 3,134 | — |
| 320°F (177°C) | 3,408 | 3,483 | — | 3,253 | — | — |

* Lap points were prepared using chromic acid solution etched 2024-T3 1"x4" aluminum coupons with ½" overlap and 10 mils bond line thickness.

SUPPLEMENTARY DATA

TABLE 3: REACTIVITY PROFILE

| Formulation | 1 | 2 | 3 |
|---|-------|-------|-------|
| Bis-A liquid resin (EEW=190) | 100.0 | 100.0 | 100.0 |
| Amicure CG-1200 | 6.0 | 6.0 | 6.0 |
| Amicure UR2T | 2.0 | 3.0 | 4.0 |
| Stroke Gel Time (min) | | | |
| @ 266°F (130°C) | 8.5 | 7.3 | 6.0 |
| @ 285°F (140°C) | 5.0 | 4.0 | 3.5 |
| @ 300°F (150°C) | 3.0 | 2.5 | 2.1 |
| @ 320°F (160°C) | 1.9 | 1.9 | 1.5 |
| @ 338°F (170°C) | 1.5 | 1.3 | 1.1 |
| @ 355°F (180°C) | 1.2 | 1.0 | 1.0 |
| DSC Reactivity Profile* | | | |
| Beginning of Exotherm (°C) | 122 | 122 | 122 |
| Onset (°C) | 141 | 139 | 137 |
| Peak Exotherm (°C) | 151 | 150 | 147 |
| Heat of Reaction, J/g | 220 | 281 | 249 |
| Glass Transition Temperature (°C) | 118 | 119 | 118 |
| Isothermal Reaction at 265°F (130°C) | | | |
| Time to reach peak exotherm (min) | 6.3 | 5.7 | 5.5 |

* Scan rate = 50°F (10°C)/min

FIGURE 1 :
GEL TIME VS. PHR OF AMICURE UR2T

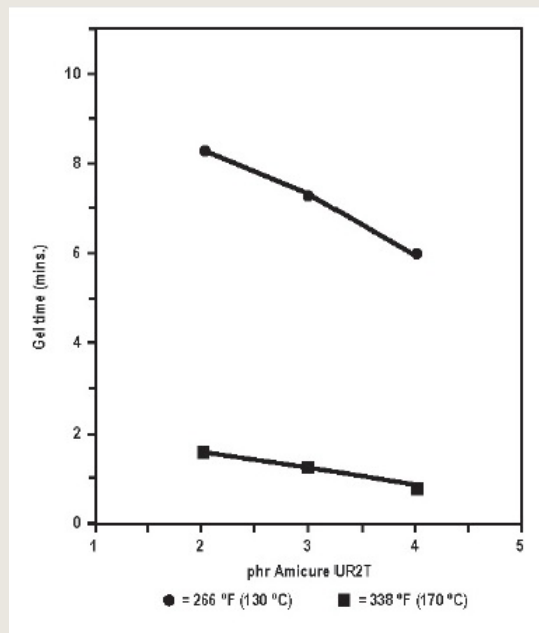
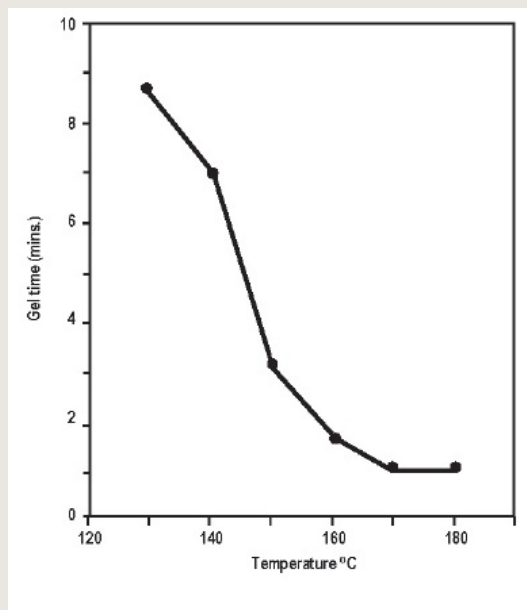


FIGURE 2:
GEL TIME VS. TEMPERATURE,
FORMULATION 1



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