

Technicure™ TDU-200M

CAS # 17526-94-2

Description:

Technicure TDU-200M, [1,1'-(4-methyl-m-phenylene)bis-(3,3-dimethyl)] urea, is a substituted urea. It is used as a dicyandiamide (DICY) accelerator in one-component epoxy resin based formulations. Typically the product is used with epoxy resin and dicyandiamide between 1-3 phr. The loading level of an accelerator will provide balance of low temperature reactivity and formulation shelf stability.

Advantages:

- Good formulation shelf stability
- Moderate glass transition temperature
- Excellent adhesion to a variety of substrates

Typical Applications:

- One-component paste and film adhesives for automotive and aerospace applications
- Composites such as pre-pregs
- Powder coatings

Handling Precautions:

Refer to the product Safety Data Sheet

Typical Properties:

Appearance:	Off White powder
Particle size:	>80% less than 44 micron
Melting point:	182- -195 °C
Assay:	98% minimum
Moisture content:	<0.7%

Recommended use level with

Epoxy resin (EEW=190): 1-3 PHR with 3-8 PHR of DICY

Typical Formulations (by wt.):

Liquid epoxy resin (EEW=190)	100	100
Technicure D-10 ¹	8	8
Technicure TDU-200M	1	3
Fumed silica (H 200U) ²	1	1

Reactivity by DSC³

Onset Temp., °C	139	136
Peak Temp., °C	149	145
Heat of Reaction, J/gm	267	273

Glass Transition Temperature, °C

	130 ⁴	147 ⁴
	155 ⁵	154 ⁵

1. Dicy – Product of ACCI Specialty Materials
2. Fumed silica – Product of OCI Company Ltd.
3. 10°C/min. scan rate
4. By DMA, after 30 minutes cure at 140°C
5. By DMA, after 60 minutes cure at 140°C

A&C Catalysts, Inc.

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Supplemental Technical Information:

Three one-part formulations (Table 1) containing Technicure TDU-200M as a dicy accelerator were prepared to evaluate the effect of increasing level of the product on gel time at different temperatures.

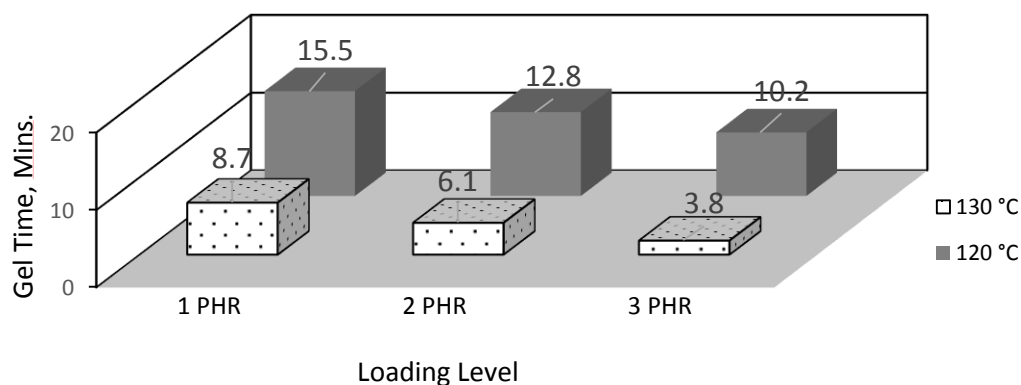
Data in Table 1 shows that as the loading level of Technicure TDU-200M increases the gel time decreases. The effect of loading level is more pronounced at higher temperature.

Table 1. Formulations (by wt.) and gel time

Liquid Epoxy resin (EEW=190)	100	100	100
Technicure D-10	8	8	8
Technicure TDU-200M	1	2	3
Fumed silica (H 200U)	1	1	1
Gel time ¹ , minutes			
@ 120°C	15.5	12.8	10.1
@130°C	8.7	6.1	3.8

1. Sunshine gel timer

Gel time as a function of loading level and cure temp.



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