

OMICURE™ U-52 and OMICURE™ U-52M
4,4' Methylene bis (Phenyl Dimethyl Urea)
CAS NO. 10097-09-3

DESCRIPTION

OMICURE U-52, an aromatic substituted urea, is intended for use as a latent accelerator for the dicyandiamide cure of epoxy resins. The addition of OMICURE U-52 to epoxy/dicy formulations produces shelf stable one part products which cure in shorter times and/or at lower temperatures. Of the CVC substituted ureas, methylene bis (phenyl dimethyl urea) provides the best combination of acceleration, long shelf life and maintenance of cured properties in dicy cured DGEBA. OMICURE U-52M represents the micronized grade of OMICURE U-52.

Suggested use levels of OMICURE U-52 in DGEBA/DICY are ≤ 5 phr. At 5 phr curing can be accomplished in about one hour at 100°C and in less than five minutes at temperatures $\geq 150^\circ\text{C}$. Room temperature shelf lives (doubling of viscosity) are longer than six months. Cure times and shelf lives are dependent on the composition of the formulated product and your particular end application. Some of the factors which can effect shelf life are formulation ingredients and compounding parameters. Ingredients in which OMICURE U-52 is insoluble at processing and storage temperatures will enhance overall storage stability. OMICURE U-52 can be incorporated into your formulation concurrent with the dicy addition.

APPLICATIONS

As a latent accelerator in the dicyandiamide cure of epoxy resins used in:

- ☐ Adhesives
- ☐ Powder Coatings
- ☐ Prepregs
- ☐ Encapsulation
- ☐ Reinforcements

TYPICAL PROPERTIES

Appearance	Clean powder
Color	Off white
Odor	Ammoniacal
Melting Point, °C	220 - 230
Moisture Content, max %	0.7
Particle size, U-52 min. % through a 325 mesh screen	80
Particle size, U-52M (micronized) min. % through a 325 mesh screen	95

HEALTH & SAFETY PRECAUTIONS

OMICURE U-52 is a fine powder classified as a nuisance dust. It is not a primary skin or eye irritant but will cause respiratory irritation with prolonged dust inhalation.

The use of engineering controls to keep the material confined or convey dust away from the breathing zone is the preferred method of handling. Alternatively, an approved dust respirator and impervious clothing should be worn if the material becomes airborne.

Allowing the dust to settle on vegetation may cause harm and may prevent germination.

Refer to CVC Thermoset Specialties Material Safety Data Sheet on OMICURE U-52 for additional safety and health information. The MSDS is revised as new data becomes available.

PACKAGING & AVAILABILITY

OMICURE U-52 (unmicronized) and OMICURE U-52M (micronized) come in plastic lined corrugated cardboard boxes (net weight 40 lbs.) and plastic 5 gallon pails. Check with your sales representative for specific designations and particle size specifications.

**Shelf Life and Tg of Omicure U-52
Accelerated DGEBA/DICY**

FORMULATION, pbw	A	B	C	D	E	F
DGEBA*	100	----->				
OMICURE DDA-10 (dicyandiamide)	8	----->				
Hydrophobic fumed silica	3	----->				
Omicure U-52	0	1	3	5	-	-
Monuron	-	-	-	-	5	-
Diuron	-	-	-	-	-	5
Room Temperature Shelf Life						
Time to double viscosity, weeks	>70	57	56	52	16	24
Tg**, °C	140	133	127	119	115	115

*EEW:182-192, 25°C Viscosity: 11,000-14,000 cps

**Determined on DSC second scan, first scan to 275°C, 20°C per minute

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