

OMICURE™ U-405 and OMICURE™ U-405M

Phenyl Dimethyl Urea

CAS NO. 101-42-8

DESCRIPTION

OMICURE U-405, an aromatic substituted urea, is intended for use as a latent accelerator for the dicyandiamide cure of epoxy resins. The addition of OMICURE U-405 to these formulations produces shelf stable one part products with shorter cure times and/or temperatures. OMICURE U-405M represents the micronized grade of OMICURE U-405.

Of the CVC substituted ureas, OMICURE U-405 is most similar in structure to Monuron and Diuron. However, OMICURE U-405, does not contain any chlorine and is, therefore, safer to use than Monuron or Diuron. When substituting OMICURE U-405 for either of these products, the formulator should use approximately 30-50% less 94 to achieve similar degrees of acceleration. Suggested use levels of OMICURE U-405 are ≤ 5 phr. At 100°C cures can be obtained in about one hour and in less than four minutes at temperatures $\geq 150^\circ\text{C}$. Cure times 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-405 is insoluble at processing and storage temperatures will enhance overall storage stability. OMICURE U-405 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	126 - 136
Moisture Content, max %	0.7
Particle size, min. % through a 325 mesh screen	80
Particle size, U-405M (micronized) min. % through a 325 mesh screen	95

HEALTH & SAFETY PRECAUTIONS

OMICURE U-405 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-405 for additional safety and health information. The MSDS is revised as new data becomes available.

PACKAGING & AVAILABILITY

OMICURE U-405 (unmicronized) and U-405M (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-405
Accelerated DGEBA/DICY**

FORMULATION, pbw	A	B	C	D	E	F
DGEBA*	100----->					
OMICURE DDA-10 (dicyandiamide)	8----->					
Hydrophobic fumed silica	3----->					
Omicure U-405	0	1	3	5	-	-
Monuron	-	-	-	-	5	-
Diuron	-	-	-	-	-	5
Room Temperature Shelf Life						
Time to double viscosity, weeks	>70	20	10	9	16	24
Tg**, °C	140	130	118	110	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

DISCLAIMER

The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Because of the variations in methods, conditions, and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the applications disclosed. Full-scale testing and end product performance are the responsibility of the user. CVC Thermoset Specialties shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond CVC's direct control. THE SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered permission, recommendation, nor as an inducement to practice any patented invention without permission of the patent owner. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

CVC Thermoset Specialties—844 N. Lenola Road/Moorestown, NJ 08057
An Emerald Performance Materials Company

© Copyright 2006 Emerald Performance Materials LLC. 6/2006