CVC Thermoset Specialties

An Emerald Performance Materials Company

TECHNICAL BULLETIN

OMICURE™ BC-120
Boron Trichloride Amine Complex
Latent Curing Agent and Accelerator for Epoxy Resins

DESCRIPTION

OMICURE BC-120, a Lewis Acid, is intended for use as a room temperature latent, elevated temperature catalytic curing agent for epoxy resins. BC-120, in combination with liquid epoxies, produces clear homogeneous formulations. To incorporate BC-120 heat the resin to 30-35°C and stir in the curing agent. When used to cure EPALLOY 7190 (DGEBA), where 1 to 9 phr BC-120 are typically used, room temperature shelf lives of greater than one year can be realized. Curing can be accomplished at temperatures above 120°C. Higher temperatures reduce cure times. When using 3 phr BC-120 with 7190, and curing for 2 hours at 150°C, a Tg of 120°C was obtained. Using higher amounts of BC-120, (See Table 1 on the reverse side) will shorten cure times and increase Tg. Higher Tgs can also be achieved by using epoxy novolac resins in place of 7190 (See Table II on the reverse side).

BC-120 can also be used as an accelerator in the aromatic amine, acid anhydride or dicyandiamide cure of epoxy resins. The pot lives of these formulations will be significantly longer than those obtained when using BF3 MEA or DMP-30 as the accelerator. Typically 0.5 to 1.0 phr BC-120 are used for acceleration.

APPLICATIONS

- ❑ Castings
- ❑ Potting
- ❑ Adhesives
- ❑ Electric Enamels
- ❑ Filament Winding
- ❑ Pultrusion

TYPICAL PROPERTIES

Appearance	Waxy solid to liquid
Color	Tan to Brown
Melting Point, °C	25 - 35
Water Content, max %	0.1
pH, max 3	
Solubility in EPALLOY 7190	Yes

HEALTH & SAFETY PRECAUTIONS

CAUTION:

OMICURE BC-120 is a highly acidic material. Avoid contact with skin or eyes as BC-120 may cause irritation and burning. Do not inhale vapors. Use with adequate ventilation. Wash exposed skin and contaminated clothing after handling.

OMICURE BC-120 should be stored in tightly closed, acid resistant containers. Avoid exposure to humidity. If upon opening a container, BC-120 is found to be in its solid state, mild heating (about 100° F), in a sealed container, will re-melt the product . Refer to **CVC Thermoset Specialties** Material Safety Data Sheet on OMICURE BC-120 for additional safety and health information. The MSDS is revised as new data becomes available.

PACKAGING & AVAILABILITY

OMICURE BC-120 is supplied in 5 gallon plastic pails with a Reike pour spout.

DISCLAIMER

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TABLE I

Effect of OMICURE BC-120 Concentration, in EPALLOY 7190, on Tg

FORMULATION, pbw	A	B	C	D	E	F	G
EPALLOY 7190	100- ->						
OMICURE BC-120	1	3	5	6	7	8	9
THERMAL ANALYSIS							
Ramp Cure to 285°C @ 20°C/min.							
enthalpy, J/g	62	185	342	388	426	453	453
onset, °C	--	131	132	135	132	133	133
Tg, °C	--	41	104	127	139	140	137

CONCLUSIONS:

1. The recommended concentrations of BC-120 to provide the highest Tg with EPALLOY 7190 is 7 to 8 phr.

TABLE II

Effect of OMICURE BC-120 Concentration, in EPALLOY 8250, on Tg

FORMULATION, pbw	A	B	C	D	E
EPALLOY 8250	100 ->				
OMICURE BC-120	5	6	7	8	9
THERMAL ANALYSIS					
Ramp Cure to 295°C @ 20°C/min.					
enthalpy, J/g	363	414	460	464	465
onset, °C	129	128	128	130	129
Tg, °C	138	150	152	147	145