



# 50-3185 NC THERMALLY CONDUCTIVE POTTING & ENCAPSULATING RESIN

## DESCRIPTION:

50-3185 NC is a filled epoxy encapsulant possessing excellent physical, electrical, and thermal properties. 50-3185 NC is an excellent choice where low thermal expansion, outstanding electrical insulation and/or high thermal conductivity is required. Three catalysts are available to choose from.

When cured with Catalyst 190 or Catalyst 30 this system meets NASA's outgassing requirements.

## FEATURES:

- Low Thermal Expansion
- Excellent Electrical Insulator
- High Thermal Conductivity
- Protects & Conceals Circuitry

## APPLICATIONS:

50-3185 NC is ideal for high voltage applications such as power supplies, transformers, high voltage insulators, bushings, etc...

## CHOICE OF CURING AGENTS:

### CATALYST 190:

Room temperature curing with a 45 minute pot life. Tough and rigid at all temperatures up to 150°C.

### CATALYST 12:

Room temperature curing with a 4 hour pot life. Low viscosity and easy handling properties. Excellent adhesion. Has a service temperature up to 150°C (300°F). Recommended for large castings and low exotherm.

### CATALYST 30:

Heat curing with a pot life of 4 hours. Low viscosity with excellent handling properties. Excellent thermal and mechanical shock.

## TYPICAL SPECIFICATIONS:

	<u>Resin only</u>	<u>Catalyst #190</u>	<u>Catalyst #12</u>	<u>Catalyst #30</u>
Viscosity resin, 25°C, cps	47,740	----	----	---
Mixed viscosity, 25°C, cps		16,800	3,440	21,500
Hardness, shore D		96	94	96
Specific gravity, @ 25°C		2.31	2.25	2.32



**TYPICAL SPECIFICATIONS:**

	<u>Catalyst #190</u>	<u>Catalyst #12</u>	<u>Catalyst #30</u>
Flexural strength, psi	15,000	15,000	18,000
Compressive strength, psi	24,000	16,000	27,100
Linear shrinkage, in/in	.004	.004	.005
Water absorption, %24 hr.	.01	.05	.03
Fungus resistance	Non-Nutrient	Non-Nutrient	Non-Nutrient
Coefficient of thermal expansion per °C	29.7x10 <sup>-6</sup>	31.9x10 <sup>-6</sup>	27.4x10 <sup>-6</sup>
Glass transition temperature, ° C	77	47	111
Thermal conductivity, W/m- °K	1.36	1.12	1.31
Thermal shock resistance cycles	>10	>10	>10
*Outgassing % TML	.75	1.10	.31
% CVCM	.02	.02	0.00
Dielectric strength, V/mil	390	380	370
Dielectric constant, 1MHz	5.21	5.41	5.41
Dissipation factor, 1MHz	0.036	0.059	0.047
Volume resistivity, ohm-cm, 25°C	4.9x10 <sup>16</sup>	4.9x10 <sup>16</sup>	4.9x10 <sup>16</sup>

\*Outgassing testing is being conducted by a third party with Catalyst #30.

**INSTRUCTIONS FOR USE:**

Since 50-3185 NC resin may settle upon storage, remix prior to each use.

**CATALYST 190:**

1. By weight, thoroughly mix 3-4 parts Catalyst 190 to 100 parts 50-3185 NC resin.
2. Slight warming (40°C) of the resin prior to mixing will improve pourability and air release.
3. Pour and allow to cure overnight or with heat for 2 hours at 66°C (155°F).

**CATALYST 12:**

1. By weight, thoroughly mix 8 parts Catalyst 12 to 100 parts 50-3185 NC resin.
2. Slight warming (40°C) of the resin prior to mixing will improve pourability and air release.
3. Pour and allow to cure overnight or with heat for 4 hours at 66°C (155°F).

**CATALYST 30 (Recommended for higher operating temperature and physical property applications):**

1. By weight, thoroughly mix 7 parts Catalyst 30 to 100 parts 50-3185NC resin.
2. Slight warming (40°C) of the resin prior to mixing will improve pourability and air release.
3. Pour and cure according to one of the following recommended cure schedules:
  - a) 85°C (185°F) 3-4 hours
  - b) 100°C (212°F) 2-3 hours

For optimum performance, an additional 2 hours @ 365°F (185°C) is recommended.

**IMPORTANT:**

**EPOXIES, ETC. MAKES NO EXPRESS OR IMPLIED WARRANTIES OR MERCHANTABILITY, FITNESS OR OTHERWISE WITH RESPECT TO ITS PRODUCTS.** The information in this brochure is based on data obtained by our own research and is considered reliable. However, no warranty is expressed or implied regarding the accuracy of these data, the results to be obtained from the use thereof, or that any such use will not infringe any patent. The properties given are typical values and are not intended for use in preparing specifications. This information is furnished upon the condition that the person receiving it shall make his own tests to determine the suitability thereof for his particular purpose.