



# 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 140:

Room temperature curing with a 30 minute pot life. Low viscosity and easy handling properties. Excellent adhesion. Has a service temperature up to 150°C (300°F). Will soften slightly above 121°C (250°F).

### 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 #140</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
Flexural strength, psi		15,000	15,000	18,000

## TYPICAL SPECIFICATIONS (Continued):

	<u>Catalyst #190</u>	<u>Catalyst #140</u>	<u>Catalyst #30</u>
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 140:

1. By weight, thoroughly mix 6.5 to 7.5 parts Catalyst 140 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 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:

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