

**Technical Data Sheet**

**Electrical Insulation**

**DOLPHON<sup>®</sup> BC-352**

**Clear Epoxy Varnish**

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## DOLPHON® BC-352

### Product Description

DOLPHON® BC-352 is a one-part, epoxy varnish designed for use on equipment that will be exposed to harsh environments or hermetic applications. BC-352 has great chemical resistance, even to solvents. The great moisture resistance provides excellent insulation resistance even under high humidity.

### Areas of Application

DOLPHON® BC-352 is commonly used in units for refrigeration and air conditioning but has vast application ability allowing for use in stators, armatures, rotating field coils and laminations. BC-352 provides an excellent base coat for epoxy encapsulation systems.

### Features and Benefits

- Excellent wetting, adhesion and high bond strength at elevated temperatures
- Outstanding chemical and solvent resistance for corrosive applications
- Abrasion and moisture resistant
- Less than 0.5% extractables with Freon R-134A
- Superior tank stability
- Included in UL approved systems up to 220°C

### Application Methods

- Dip-and-Bake

### Transportation / Storage

Store below 25°C / 77°F in a dry controlled environment out of direct sunlight. This material should be suitable for use stored under these conditions in the original sealed containers for twelve (12) months from the date of shipment.

Failure to store this product as recommended above may lead to deterioration in product performance.

Keep containers tightly sealed to minimize evaporation. Refrigeration is recommended for long term storage.

Mix product thoroughly before use.

See ELANTAS PDG Technical Bulletin *TI-4001 - Unsaturated Polyester Resin* Maintenance for additional information.

### Health / Safety

Refer to the Safety Data Sheet.

### Typical Properties of Material as Supplied

| Property          | Conditions  | Value                         | Units     |
|-------------------|-------------|-------------------------------|-----------|
| Color             |             | Light-Dark Amber              |           |
| Viscosity         | 25°C / 77°F | 125 – 255                     | cP        |
| Weight per Gallon | 25°C / 77°F | 8.0 - 9.0                     | pounds    |
| Film Build        | ASTM D115   | 1.5 – 2.0                     | Mils/side |
| Flash Point       | ASTM D93    | 27<br>81                      | °C<br>°F  |
| Viscosity Reducer |             | DOLPHON® T-352 Thinning Agent |           |

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### Processing / Curing Schedule

DOLPHON® BC-352 is suggested to have the following dip and bake cycle. Preheat parts to 250°F-325°F (121°C-163°C) to remove moisture. If thermoset tapes are used, pre-set tapes according to tape manufacturer's recommendations. Cool to 130°F-140°F (54°F-60°C). Dip until bubbling stops (15-30 minutes). Drain between 5-20 minutes. Bake in a preheated oven at recommended time and temperature.

Suggested Bake cycles are 1-2 hours at 325°F (162.8°C) or 2-4 hours at 300°F (148.9°C). Times are taken after the unit reaches baking temperature. For hermetic and exceptionally high bonding applications, bake for 6 hours at 325°F (162.8°C).

The cure schedules above are based on time after the unit reaches the specified temperature and are recommendations only. The user is responsible for determining the optimum cure conditions for their application.

### Typical Electrical Properties

| Property              | Test Method | Conditions                                   | Value          | Units     |
|-----------------------|-------------|----------------------------------------------|----------------|-----------|
| Dielectric Strength   | ASTM D115   | Dry<br>Wet                                   | 4,600<br>3,600 | volts/mil |
| Dielectric Constant   | ASTM D150   | 25°C / 77°F, 100 Hz                          | 3.3            |           |
| Dissipation Factor    | ASTM D150   | 23°C/ 73°F, 50% R.H.<br>23°C/ 73°F, 96% R.H. | 0.003<br>0.041 | W/m·K     |
| Insulation Resistance | ASTM D150   | 23°C/ 73°F, 50% R.H.<br>23°C/ 73°F, 96% R.H. | ∞<br>500,000   | meg-ohms  |

### Chemical Resistance

| Substance                             | Test Method | Value     |
|---------------------------------------|-------------|-----------|
| Water                                 | ASTM D5638  | Excellent |
| Acid (10% Nitric Acid)                | ASTM D5638  | Excellent |
| Acid (10% Hydrochloric Acid)          | ASTM D5638  | Excellent |
| Alkali (Boiling 20% Sodium Hydroxide) | ASTM D5638  | Excellent |
| Sodium Hyposulfite (10% Solution)     |             | Excellent |
| Salt Water                            | ASTM D5638  | Excellent |
| Oil                                   | ASTM D115   | Passed    |

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### Typical Mechanical Properties

| Property                                 | Test Method | Conditions                   | Value    | Units            |
|------------------------------------------|-------------|------------------------------|----------|------------------|
| Helical Coil Bond Strength<br>(to break) | ASTM D2519  | 25°C / 77°F<br>150°C / 302°F | 55<br>18 | pounds<br>pounds |

### Refrigerant Extraction

| Property | Test Method | Value | Units |
|----------|-------------|-------|-------|
| R-22     | NEMA RE-2   | <1.0  | %     |
| R-134a   | NEMA RE-2   | <0.5  | %     |

### Thermal Properties

| Property               | Test Method        | Value | Units |
|------------------------|--------------------|-------|-------|
| Thermal Class, UL-1446 | Twisted Pair, MW16 | 220   | °C    |
| Thermal Class, UL-1446 | Twisted Pair, MW35 | 180   | °C    |

### UL Recognized Insulation Systems (John C Dolph Co File E317429, ELANTAS North America File E87039)

| Thermal Class | System           |
|---------------|------------------|
| Class 155     | DV-155J (III)    |
| Class 180     | 16, VR 16        |
| Class 200     | DV-200A, DV-200B |

The above properties are typical values and are not intended for specification use.

ELANTAS North America, LLC warrants the chemical composition of its products within stated tolerances, but does not guarantee that a product will be appropriate for any particular application. Any recommendation, performance of tests or suggestion is offered merely as a guide and is not a substitute for a thorough evaluation by the user. No representative of ELANTAS North America, LLC has the authority to offer a warranty that a product will perform satisfactorily in manufacturing an article and no such representation should be relied upon.

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