

## Technical Data Sheet

# 009-0051

Air drying impregnating varnish, conformal coating

**ELANTAS Malaysia Sdn. Bhd.**

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## Product Description

009-0051 is a Class B single component acrylic polymer, solvent based acrylic conformal coating. It has been designed with a solvent system that balances an optimum evaporation rate with reduced safety risk and thus dries rapidly in thin films at ambient temperatures – for ultra short drying times, temperatures up to 80°C can be employed.

009-0051 dries to give a tough, flexible film that has good adhesion to most commonly used substrates and exhibits excellent resistance to moisture. The film also has excellent anti tracking properties and is able to be soldered through.

For ease of visual examination of coated components an Ultraviolet fluorescent tracer has been incorporated into the formulation, which fluoresces under UV light enabling noncoated areas to be identified more easily.

009-0051 has been independently tested for compatibility with various types of solder masks (both UV and 2-pack solder resists of various specifications) and was found to be compatible in all the tested cases.

The product fulfils the directive 2011/65/UE and 2002/95/CE (RoHS). The raw materials of the product are pre-registered according to directive to CE 1907/2006 and s.m.i (REACH). The product does not contain polycyclic aromatic hydrocarbons and substances listed in the SVHC Candidate List. 009-0051 also conforms to the requirements of BS 5917 and MIL-I46058C.

## Areas of Application

009-0051 is designed for application to Printed Circuit Boards and small electronic components. Application can be by Brush, Spray or Dipping techniques onto dry, grease free clean components.

## Properties of cured resin

The tough-hard material displays very good mechanical and dielectric properties even under high temperatures. Windings impregnated with 009-0051 show good bond strength. In addition, the cured material displays good resistance to the effects of liquid chemicals and their vapours.

## Flow time (viscosity)

009-0051 is produced with a relative low viscosity: 200-300 cps at 25°C. The kind of processing, e.g. with higher room temperatures, leads to rising losses of solvent and increased viscosity. In this case it will be necessary to adjust the value by addition of thinner.

## Processing methods

009-0051 is used as a finishing varnish or as impregnating varnish. In the impregnating process it has to be carried out with a corresponding impregnating material. The viscosity of air-drying varnish in opened container will increase permanently due to the evaporation of solvent, film forming can occur additionally. Therefore the containers should be closed carefully after application, the flow time should be checked frequently and adapted with thinner if required. Like all solvent based products 009-0051 should be stirred up carefully before each application. 009-0051 is designed for brush, spray or dipping techniques onto dry, grease free clean components. When spraying is used, it is recommended to add 10-20 % of thinner. Drying of the varnish will be at ambient temperature normally, time can be shortened by support of heat, for instance with hot air at 70-90 °C.

## Health & Safety

Refer to Elantas Malaysia Material Safety Data Sheet (SDS) for 009-0051.

## Storage

Under appropriate storage conditions, protected from humidity and solar radiations, 009-0051 and thinner can be stored in unopened container at or below 25°C for 12 months.

### Properties of component as supplied

| Property             | Conditions   | Value            | Units             |
|----------------------|--------------|------------------|-------------------|
| Density              | @ 23 °C      | 0.94 - 0.96      | g/cm <sup>3</sup> |
| Viscosity Brookfield | 25 °C        | 200 - 250        | mPas              |
| Non volatile content | 1g-1h-130 °C | 34 - 38          | %                 |
| Appearance           | -            | Yellowish liquid | -                 |
| Shelf life           | @25 °C       | 12               | months            |

### Drying Condition

|           |          |           |
|-----------|----------|-----------|
| Surface   | 23 °C    | 80 °C     |
| Touch dry | 15 mins  | 8-12 mins |
| Non slip  | 1 hour   | 0.5 hours |
| Fully dry | 24 hours | 10 hours  |

### Cured resin Properties

| MECHANICAL PROPERTIES                                  | Condition | Value | Unit |
|--------------------------------------------------------|-----------|-------|------|
| Bond Strength, IEC 61083 (helical coil)                | 23 °C     | > 80  | N    |
|                                                        | 155 °C    | -     |      |
|                                                        | 180 °C    | -     |      |
| Mandrel test (3 mm), IEC 60464-3                       | 23 °C     | 180   | °    |
| Adhesion on steel UNI EN ISO 2409 (double application) | 40 μ      | 100   | %    |

| ELECTRICAL PROPERTIES                                        | Conditions                  | Value             | Units  |
|--------------------------------------------------------------|-----------------------------|-------------------|--------|
| Volume resistivity after water immersion, IEC 60464-2        | Initial value<br>7d storing | >10 <sup>16</sup> | Ω.cm   |
|                                                              |                             | >10 <sup>15</sup> |        |
| Volume resistivity at elevated temperature, IEC 60464-2      | 155 °C<br>180 °C            | >10 <sup>11</sup> | Ω.cm   |
|                                                              |                             | >10 <sup>11</sup> |        |
| Electrical strength after water immersion, IEC 60464-2       | Initial value<br>7d storing | >140              | KV/ mm |
|                                                              |                             | -                 |        |
| Electrical strength at elevated temperature, IEC 60464-2     | 155 °C<br>180 °C            | >100              | KV/ mm |
|                                                              |                             | >100              |        |
| Temperature at relative permittivity tang ° = 0.1, IEC 60250 | 50 Hz<br>1 KHz<br>10 KHz    | -                 | °C     |
|                                                              |                             | >130              |        |
|                                                              |                             | >207              |        |

| CHEMICAL PROPERTIES                             | Conditions        | Value     | Unit |
|-------------------------------------------------|-------------------|-----------|------|
| Resistance to vapor of solvents,<br>IEC 60464-2 | Acetone           | Resistant | -    |
|                                                 | Xylene            | Resistant | -    |
|                                                 | Methanol          | Resistant | -    |
|                                                 | Hexane            | Resistant | -    |
| Water absorption, IEC 62                        | @23 °C            | <5        | Mg   |
|                                                 | 0.5 hours @100 °C | <10       | mg   |

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