

HumiSeal® 1B59LU Synthetic Rubber Conformal Coating Technical Data Sheet

HumiSeal® 1B59LU is an air drying, single component, synthetic rubber conformal coating. The unique chemistry, of HumiSeal® 1B59LU imparts extremely low moisture vapor permeability and improved heat resistance. The coating demonstrates excellent flexibility, low stress on components, fluoresces under UV for ease of inspection and is easily repaired. The coating is in full compliance with the RoHS Directive 2011/65/EU and meets the requirements of IPC-CC-830.

Properties of HumiSeal® 1B59LU

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| Density, per ASTM D1475 | 0.79 ± 0.02 g/cm ³ |
| Solids Content, % by weight per Fed-Std-141, Meth. 4044 | 18.5 ± 1.5 % |
| Viscosity, per Fed-Std-141, Meth. 4287 | 210 ± 70 cps |
| VOC | 648 g/L |
| Drying Time to Handle per Fed-Std-141, Meth. 4061 | 6-10 minutes |
| Recommended Coating Thickness | 25 - 75 µm |
| Recommended Curing Conditions | 24 hrs @ RT or 30 min @ 76°C |
| Time Required to Reach Optimum Properties | 7 days |
| Recommended Thinners | HumiSeal® T903 or T904 |
| Recommended Stripper | HumiSeal® Stripper 1080 |
| Shelf Life at Room Temperature, DOM | 12 months |
| Minimum Operating Temperature | -65 °C |
| Maximum Operating Temperature | 150 °C |
| Glass Transition Temperature (DSC) | -49.6 °C |
| Coefficient of Thermal Expansion (TMA) | |
| Below T _g : | 18.5 ppm/°C |
| Above T _g : | 130 ppm/°C |
| Dielectric Withstand Voltage, per MIL-I-46058C | >1500 volts |
| Dielectric Strength, Per JIS C2110.8.2. | 85 KV/mm |
| Dielectric constant (23 °C, 1 MHz) | 1.9 |
| Dissipation Factor (23 °C, 1 MHz) | 0.004 |
| Insulation Resistance, per MIL-I-46058C | 8.4 x 10 ¹² Ohms (8.4 TΩ) |
| Moisture Insulation Resistance, per MIL-I-46058C | 1.8 x 10 ¹⁰ Ohms (18 GΩ) |
| Surface Insulation Resistance (85 °C / 85% RH, 50V) | 9.5 log Ohms |
| Volume Resistivity | 8.5 x 10 ¹⁵ Ohms.cm (8.5 PΩ) |
| Surface Resistivity | 2.6 x 10 ¹⁵ Ohms per Sq. (2.6 PΩ) |
| Moisture Permeability (40 °C / 90% R.H.) | 26 g/m ² .day (110 µm) |

Application of HumiSeal® 1B59LU

Conformal coatings can be successfully applied to substrates that have been cleaned prior to coating and also to substrates assembled with low residue, “no clean” assembly materials. Users should perform adequate testing to confirm compatibility between the conformal coating and their particular assembly materials, process conditions and cleanliness level. Please contact HumiSeal for additional information.

Brushing

HumiSeal® 1B59LU may be brushed with a small addition of HumiSeal® Thinner 903 or Thinner 904. Uniformity of the film depends on component density and operator's technique.

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Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® 1B59LU with HumiSeal® Thinner 903 or Thinner 904 in order to obtain a uniform film.

Once optimum viscosity is determined, a controlled rate of immersion and withdrawal (5-15 cm/min) will further ensure even deposition of the coating and a uniform film. During the application, evaporation of solvent causes an increase in viscosity that should be adjusted by adding small amounts of HumiSeal® Thinner. Viscosity in the dip tank should be checked regularly, using a simple measuring device such as a Zahn or Ford viscosity cup.

Spraying

HumiSeal® 1B59LU can be sprayed using conventional spraying equipment. Spraying should be done in an environment with adequate ventilation so that the vapor and mist are carried away from the operator. The addition of HumiSeal® Thinner 903 or Thinner 904 is necessary to ensure a uniform spray pattern resulting in pinhole-free film. The amount of thinner and spray pressure will depend on the specific type of spray equipment used and operator technique. The recommended ratio of HumiSeal® 1B59LU to HumiSeal® Thinner is 1:1 by volume, however the quantities may need to be adjusted to obtain a uniform coating.

Storage

HumiSeal® 1B59LU should be stored away from excessive heat or cold, in tightly closed containers. HumiSeal® products may be stored at temperatures of 0 to 35 °C. Prior to use, allow the product to equilibrate for 24 hours at a room temperature of 18 to 32 °C.

Caution

Application of HumiSeal® Conformal Coatings should be carried out in accordance with local and National Health and Safety regulations.

The solvents in HumiSeal® Conformal Coatings are flammable. Material should not be used in presence of open flame or sparks. Use only in well-ventilated areas to avoid inhalation of vapours or spray. Avoid contact with skin and eyes.

Consult SDS prior to use.

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