

POWDER - Lak

(PTY) LTD

Technical Information

Powder – Lak Series 8000 Busbar coatings

- Basic Material** A thermo-curing combination of epoxy resin and catalyst.
- Product Indication** Powder – Lak (Pty) Ltd. Busbar Coatings have been formulated to be applied by the fluidised bed dipping process or via corona discharge gun.
- Applications** Powder – Lak (Pty) Ltd. Busbar Coatings exhibit excellent dielectric strength, a high degree of hold-up of the coating and excellent physical and chemical resistance properties.
- Substrates** All substrates which are capable of withstanding the required preheat and curing temperature are suitable for this coating. Sharp edges should however be avoided as these tend to have a lower film thickness.
- Pretreatment** Oxides and other impurities, such as grease and oil, should be removed by physical or chemical methods. Optimum adhesion can be achieved by sand or grit blasting or chemical etching.
- Preheating** Busbars should be preheated to a temperature of 180 – 200° Celcius prior to being dipped into the fluidised bed. The time required for preheating will depend on the type of metal as well as the thickness of the substrate. As a guideline, a 12.5mm thick copper busbar will reach 200° Celsius in approximately 30 minutes.
- Uncoated sections** Areas where a coating is not required can be masked off using a heat resistant sleeve with poor conductivity. Alternatively coat the areas concerned with a release agent before preheating and cut away the excess powder while still hot after curing. Care should be exercised not to lift the busbar coating.
- Coating Procedure** Option 1: Dipping
Busbars (heated to the required temperature) are dipped into fluidized powder, causing the powder to melt and adhere to the busbar.
Once sufficiently covered, the item shall be re-stoved according to the recommended curing schedule. The thickness of the coating will be determined by the preheat temperature, the heat retention properties of the busbar and the duration of the dipping. For optimum uniformity of film thickness, if a specific film thickness is required, several successive dippings are recommended.

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Option 2: Corona spraygun application – for small or complex items

Busbars (heated to the required temperature) are coated using standard corona discharge guns, while hot. It is important to set powder output to maximum to achieve the required thickness quicker.

One must consider that due to a decreased output, when compared to a fluidised bed application, several coats may have to be applied to the item, each coat applied when the item is at temperature, to assist in achieving the desired paint thickness. When powder coating is done with hand-held equipment, adequate **Personal Protective Equipment** must be worn.

It is recommended that the paint thickness exceeds a minimum of 1000 microns. Finished items must be tested for pinholes using suitable equipment.

As a safety precaution all items should be properly earthed; this includes the fluid bed.

Curing

The coated busbar should be cured for:

Post Cure

10 minutes @ 200°C (Metal Temperature)

Residual Cure

Minimum of 160°C for 10 minutes

It is not recommended to exceed temperatures of 210°C as this will negatively affect the final paint film.

Note that the total time in the oven will be determined by the heat loss during the coating operation, as well as the metal type, thickness of the busbar and the thickness of the paint film. It is recommended to have the oven tested on a regular basis.

Cure Test

When cooled to ambient temperature, the cured top coat can be tested by rubbing the film with a swab dipped in Methyl Ethyl Ketone (M.E.K.). After 20 rubs the swab should not exhibit any colouring from the powder coat and the film should not display any loss of gloss.

Technical Characteristics

Particle Size 75 – 250 um

Gel Time/Temp. 18 seconds @ 185°C

Curing Temp/Time See **Curing**

Specific Gravity 1,50

Storage product. Powder must be kept in a dry, cool environment (<25°C) to prevent degradation of the

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| | |
|------------|---|
| Shelf Life | 6 months from date of purchase. |
| Colours | Manufactured to customers specifications. Conditions may apply. |
| Packaging | 20kg non-returnable, box with polythene bag (unless specified differently). |

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|---|----------------------------------|------------|
| Resistance to Indentation (Bucholz value) | SABS 1217 Type 2 | > 100 |
| Adhesion Mpa | SABS 1217 Type 2 | > 25 |
| Impact Resistance, J | SABS 1217 Type 2 | > 20 |
| Water absorbtion, g/m2 | SABS 1217 Type 2 | 1,44 |
| Resistance to Water Absorbtion | SABS 1217 Type 2 | No Defects |
| Dielectric Strength, kV/mm | SABS 1217 Type 2 | 21,5 |
| Methyl Ethyl Ketone Resistance | SABS 1217 Type 2 | No Defects |
| Toxicity and Tainting Properties | SABS 1217 Type 2 (Method 241) | Complies |

| | | |
|----------------------------|------------------|------|
| Cathodic Disbonding | | |
| Current Flow, m2 | SABS 1217 Type 2 | < 30 |
| Disbonded Area, mm2 | SABS 1217 Type 2 | Nil |

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|--------------------------------|-----------------------|--------------|-----------------------|
| Thermal Characteristics | CAN/CSA-2245,20 – M86 | | |
| | <u>Tg10C</u> | <u>Tg20C</u> | <u>Delta H J/gram</u> |
| Blue | 60,4 | 97,2 | -119,8 |
| Green | 64,0 | 97,5 | -108,7 |
| Red | 60,0 | 98,5 | -121,4 |

NOTE: Test results apply to powders applied under controlled conditions. Variations may occur due to the surface, application, pretreatment, curing, etc.

The data on this information sheet does not constitute a guarantee.