DuPont LF161

ENCAPSULANT COMPOSITION

Technical Data Sheet

Product Description

DuPont LF161 glass encapsulant composition is intended to form an insulating and protective layer over thick film circuits and is an integral element of the System LF multilayer system. It is applied to ceramic substrates by screen printing and fired in an air (oxidizing) atmosphere.

Product Benefits

- Lead, Cadmium, Chromium and Nickel Free*
- Protection against reactive chemicals
- Fireable on a low temperature (620ºC) profile

*Cadmium, lead, chromium and nickel "free" as used herein means that these are not intentionally added to the referenced product. Trace amounts however may be present.

Processing

Printing

325 mesh stainless steel with 10µm emulsion.

Drying

Allow prints to level for 5-10 minutes at room temperature, then dry for 10-15 minutes at 150°C.

Firing

620°C plateau for at least 4 minutes, 7 to 10 minutes above 600ºC, and at least 25 minutes above 100ºC on a 30-minute cycle in an air atmosphere.

Recommended Processing Procedure

Substrates

Substrates of different compositions and from various manufacturers may result in variation in performance properties.

Thinner

This composition is optimized for screen-printing, thinning is not normally requited. Use the DuPont recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non-recommended thinner may affect the rheological behavior of the material and its printing characteristics. Refer to table 1.

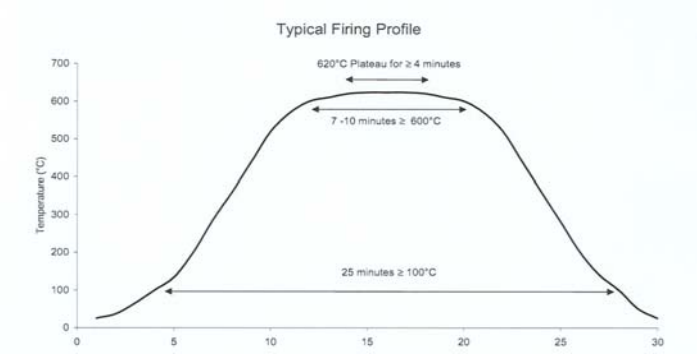
Typical Physical Properties

Test	Properties
Viscosity (Pa.s) Brookfield HAT, UC&SP, 10 rpm, 25°C]	90-130
Coverage (cm^2/g) [Based on average fired thickness of 9µm]	165
Thinner	DuPont 8250
Shelf Life (months)	6
Fired Thickness (µm)	7 – 10

This table shows anticipated typical physical properties for DuPont LF161 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Firing

Fire in a well ventilated belt, conveyor furnace, or static furnace. Airflows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle.



Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gently, hand stirring with a clean burr-free spatula (flexible plastic) for 0.5 - 1 minute. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well-ventilated area. Note: optimum printing characteristics are generally achieved in the room temperature range of 20°C – 23°C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.

Drying

Allow prints to level at room temperature, and then dry in a well-ventilated oven or conveyor dryer.

Storage and Shelf Life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and Handling

For Safety and Handling information pertaining to this product, read the Material Safety Data Sheet (MSDS).

Caution: Do not use in medical applications involving implantation in the human body or contact with internal body fluids or tissue unless the product is provided by DuPont under a formal written contract consistent with the DuPont Policy Regarding Medical Applications of DuPont Materials H-50103-2 ("Medical Applications Policy") and which expressly acknowledges the contemplated use. For additional information, please request a copy of DuPont Medical Caution Statement H-50102-2 and the DuPont Medical Applications Policy.

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