

DuPont Microcircuit Materials

THICK FILM COMPOSITION

QS170 Silver/Platinum Conductor

Product Description

Silver/Platinum Conductor composition QS170 is a general purpose microcircuit conductor offering excellent adhesion and wide processing latitude. It has been designed to provide high yields and to be cost effective in demanding commercial circuit.

Product Benefits

- High Conductivity
- Broad Process Latitude
- Good Solder Adhesion

Processing

Substrate Preparation

Properties are based on test using 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.

Printing

A 325 mesh stainless steel screen with a 15 μ m emulsion to obtain a minimum of 10 μ m fired thickness is recommended. Printing speeds up to 30 cm/s can be used.

Drying

Allow prints to level for 5-10 minutes at room temperature. Dry for 10 minutes at 150°C in air.

Firing

Dried parts should be fired in a belt furnace. A total cycle time of 30 minutes and a peak temperature of 850°C for 10 minutes is recommended.

Typical Physical Properties

Test	Properties
Resistivity (m Ω /sq @ 11 μ m fired thickness)	< 5
Fired Thickness (μ m)	10 - 12
Line Resolution (μ m)	150/100 lines/spaces
Solder Acceptance: Dip (5 sec) [%] Reflow	> 90 > 90
Solder Leach Resistance: Dip (10 sec/dip)	4 - 5
Adhesion on 97% Alumina: Initial (N) Aged 150°C (N)	25 - 30 > 20
Migration Resistance: (%) 125 μ m/125 μ m Lines/space pattern 60°C/90% RH, 48 VDC 1000 hrs Encapsulant with QS580 Glass	100 Pass
Viscosity (Pa.S) (Brookfield HBT, SC4-14/6R, 50rp, 25°C)	70 - 130
Coverage (cm ² /g)	95
Thinner	4553

Table 1 shows typical physical properties for QS170

Storage and Shelf Life

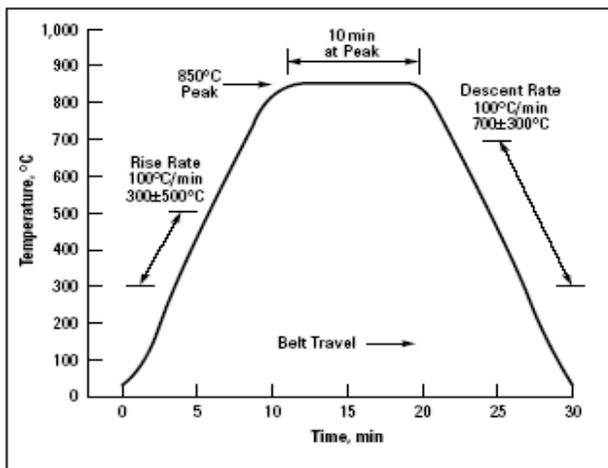
Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and Handling

The following precautions should be exercised when handling QS170:

- Use with adequate ventilation
- Avoid prolonged contact with skin
- If contact with skin occurs, wash affected area immediately with soap and water
- Avoid prolonged breathing of vapor
- Dangerous if swallowed - DO NOT CONSUME
- Refer to MSDS for more details

Figure 1: Recommended Firing Profile



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Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.

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