

# DuPont QM17

SILVER/PLATINUM CONDUCTOR COMPOSITION

## Technical Data Sheet

### Product Description

DuPont QM17 silver conductor is part of the DuPont QM System of materials, a silver-based system for low cost multilayer. It is intended to be applied to ceramic substrates by screen printing and fired in a conveyor furnace in an oxidizing atmosphere (air) to form interconnecting tracks and component attach pads. DuPont QM17 can also be used as both an inner layer and top layer conductor and it is suitable for soldering and termination of resistors.

### Product Benefits

- Excellent solderability.
- Good adhesion on DuPont QM42 dielectric.
- High conductivity
- Cadmium and nickel oxide free\*

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

### Processing

#### Substrates

Substrates of other compositions and from various manufacturers may result in variations in performance properties.

#### Printing

280-325 mesh stainless steel screen with a 10 - 14µm emulsion build up. Print speed 10 to 300 cm/second may be used.

#### Drying

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

#### Firing

Fire in a well ventilated moving conveyor furnace, in air with a 30-minute cycle, to peak temperature of 850°C.

### Typical Fired Properties

Test	Properties
Resistivity (mΩ/sq ) (@ 15 µm fired thickness)	≤4
Fired thickness (µm)	10 - 15
Print resolution (µm)	≥ 150
Solder Acceptance <sup>2</sup> 62Sn/36Pb/2Ag @ 220°C (%)	≥ 90
Solder Leach Resistance <sup>2</sup> 62Sn/36Pb/2Ag @ 230°C (cycles)	3 - 4
Adhesion <sup>3</sup> : (N) Initial, on QM 42 and alumina On alumina aged 150°C, 1000 hrs On QM42 aged 150°C, 48 hrs <sup>4</sup> On QM42 aged 125°C, 240 hrs	>20 > 20 > 18 > 15
Composition Properties	
Viscosity (Pa.s) Brookfield HAT, UC&SP,[SC4—14/16R],10 rpm, 25° C±0.2°C	150-210
Solids (%)	82 - 83
Shrinkage (%) (Dried to Fired)	45 - 50
Thinner	DuPont 4553
Coverage(cm <sup>2</sup> /g) (Based on fired thickness of 10 µm)	95

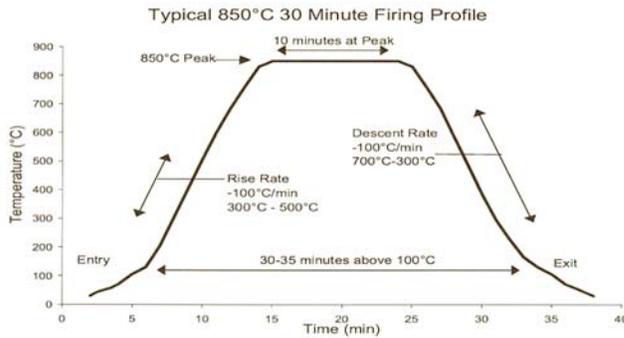
<sup>2</sup> Using Alpha 611 flux. Solder coverage measured after a 5s dip in solder. A leaching cycle is represented by a 10s dip in solder and tested on 500µm lines. See soldering test procedure for details (H-1.12)

<sup>3</sup> See the DuPont wire peel test procedure. See wire peel adhesion test procedure for details (E-3.12)

<sup>4</sup> Adhesion at 150°C reduces to < 10N at aging times greater than 100 hrs

This table shows anticipated typical physical properties for DuPont QM17 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

## Typical 30-minute fire profile



## 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).

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