**Product Description**
DuPont™ Fodel® Q170P photoimageable thick-film paste is a top layer silver/platinum conductor composition specially developed to be compatible with alumina and low-temperature cofired ceramic (in post-fired applications).

**Product Benefits**
- Extremely high conductor line density
- No screen print pattern distortion
- Good solder leach resistance
- Precise conductor line edge definition

**Processing**
**Using Safe Lighting**
To prevent accidental polymerization, handle Fodel® materials under yellow or amber "safe lights" which have no UV, violet, or blue light wavelengths. Use safe lights in all areas where parts are printed, dried, exposed, and developed. Protect parts from all sources of white light unless these sources are carefully checked to ensure that they will not cause polymerization. To determine whether white light is present in your production area, turn off all yellow lights and look for any remaining white light. (This assumes that there are no white light leaks from yellow light fixtures). For additional information on Safe Lighting refer to Fodel® Design Guide.

**Substrates**
Properties were measured on 96% alumina substrates. Substrates of other composition and from various manufacturers may result in performance property variations.

**Printing**
Print a single conductor layer with a 200-mesh (40 µm wire) or 280-mesh (30 µm wire) stainless steel screen. The thickness of the final fired conductor will be about 45% of the dried conductor thickness. The print speed is 2-3 in/sec using a single wet pass.

This table shows anticipated typical physical properties for Fodel® Q170P based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.
**Drying**
Allow the wet print to level for 5-10 minutes at room temperature. Dry for 15-25 minutes at 80°C. Higher drying temperature or longer drying times will deactivate the photosensitive system.

**Exposure**
Expose the conductor layer (18-24 µm dried thickness) with the appropriate photo tool and a Hg or Hg/Xe ultraviolet light source (365 nm.). The recommended exposure energy range is 600-1200 mJ/cm².

**Development**
The development process is conducted in a conveyorized, spray development unit filled with 0.8-1.0% Na₂CO₃ at 85°F (30°C). Total development time will depend upon equipment design, spray pressure, and Fodel® paste thickness. The total cleaning time (TTC) for a dried, unexposed sample of the conductor should be determined. The exposed conductor sample should then be developed for 1.2-1.5x the TTC. The samples should then be rinsed with water immediately after development, normally in the same piece of equipment. The excess water is then removed by blow-dry with ambient or warm air.

**Firing**
Fodel® Q170P photoimageable thick-film pasteconductor is normally fired in a belt furnace. A 60-minute firing cycle with a peak temperature of 850°C for 10 minutes is recommended, however a 30 minute firing cycle may be used.

**Storage and Shelf Life**
Fodel® Q170P conductor composition should be thoroughly mixed prior to use. Jar rolling is not recommended. Paste should be stored in opaque containers and should be opened and handled in yellow safe light areas (Fodel® Safe Lighting). 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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