

## Technical Data Sheet

### THICK FILM MATERIALS

Product Type: Resistors

Product Name: PCR12000

# CELClON

2 Ω/□ to 10 Ω/□ Resistor System



#### Description

The PCR12000 series is a lead-free resistor series that was developed for applications which require peak firing temperatures lower than traditional thick film resistors series. The PCR12000 series is formulated to fire at a 590°C peak firing temperature, which makes this series suitable for substrates such as glass for plasma display panels (PDP). The PCR12000 Series is also compatible with the Heraeus Celcion material set.

#### Key Benefits

- ROHS<sup>1</sup> compliant
- Free of lead
- Low temperature 590 °C firing
- Formulated to fire on glass

#### Typical Properties

PCR12000 Series	PCR12045	PCR12019	PCR12020	PCR12035	PCR12038
Resistance (Ω/□) Termination: 3571 prefired at 620 °C. Resistor geometry 1 x 1 mm printed with 280 mesh screen.	2 ± 10 %	10 ± 10 %	20 ± 10 %	40 ± 10 %	100 ± 10 %
TCR (ppm°C) Cold TCR: -55°C to +25 °C Hot TCR: +25 °C to +125 °C	300 ± 300	300 ± 300	300 ± 300	300 ± 300	300 ± 300
ESD (1 %) 1 mm x 1 mm resistor % resistance change after 2 x 2000 volt pulses	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

#### Viscosity

PCR12035 and PCR12038

150 – 200 Kcps, Brookfield HBT,  
SC4 – 14 spindle and 6R utility cup at 10 rpm at 25 °C

PCR12045, PCR12019 and PCR12020

180 – 220 Kcps, Brookfield HBT,  
SC4 – 14 spindle and 6R utility cup at 10 rpm at 25 °C

## Technical Data Sheet

# CELCION

2 Ω/□ to 10 Ω/□ Resistor System



### Recommended Processing Guidelines

#### Printing Conditions

165 – 325 mesh, 1.1 mil wire and 0.5 mil emulsion screen  
Allow prints to level for 5 – 10 minutes at room temperature

#### Print Speed

Up to 10 in/sec (25 cm/sec)

#### Drying Conditions

Dry at 150 °C for 8 – 10 minutes

#### Firing Conditions

Firing range between 550 – 650 °C  
Recommended 590 °C peak temperature with a 10 minutes dwell time  
Total cycle time of 30 minutes

#### Thinner

RV-372 (Terpineol)

#### Thickness Information (µm)

	PCR12045	PCR12019	PCR12020	PCR12035	PCR12038
Dry	16 – 20	16 – 20	16 – 20	16 – 20	16 – 20
Fired	14 – 18	14 – 18	14 – 18	14 – 18	14 – 18

#### Warranty

Material guaranteed to meet specifications for 6 months from date of shipment.

#### Storage

Store in a dry location at 5 – 25 °C.

#### DO NOT REFRIGERATE.

Allow paste to come to room temperature prior to opening.

Spatulate well before using, as settling may occur during storage.

Legend:

<sup>1)</sup> REACH compliant according to the latest \*\* Annex XIV to Regulation (EC) of the European Parliament and of the council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (“REACH”) by European Chemicals Agency and its subsequent amendments; the material does not contain any substance listed in Annex XIV.

<sup>2)</sup> RoHS compliant according to the latest \*\* Directives (European Union) of Restriction of Hazardous Substances (“RoHS”) and its subsequent amendments (including the exceptions related to Pb).

\* See the data sheet issue date (DD/MM/YY) as reference of validity of latest edition which is available on request

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