

### TECHNICAL DATA SHEET

## Prexonics® SILVER INK D1

#### Product description

Particle-free silver ink for conductive coating or conductive trace applications.

#### Key benefits

Excellent processability. Pure liquid and particle-free material for slot die, spin coating or inkjet applications.

As part of the Prexonics® System Solution, the ink is optimized for best processing in the Prexonics® Equipment.

#### Main ingredients

Item	Before sintering (liquid)	After sintering (solid)
Silver	15 ± 5 wt. %	Pure silver
Vehicle (solvent base)	85 ± 5 wt. %	-



#### Typical properties of the ink material

Item	Specification			Condition	Method
	LSL	Target	USL		
Appearance	Clear and transparent liquid			at 23 ± 3°C	Visual
Viscosity (mPa.s)	6.0	7.0	8.0	at 25°C, 30 rpm	Brookfield DV3T, reading @ 2 min
Surface tension (mN/m)	27.0	28.0	29.0	at 23 ± 3°C	Bubble tensiometer, reading @ 15 s
Density (g/cm³)	1.05	1.10	1.15	at 23 ± 3°C	Pycnometer

#### Physical properties of the sintered coating material

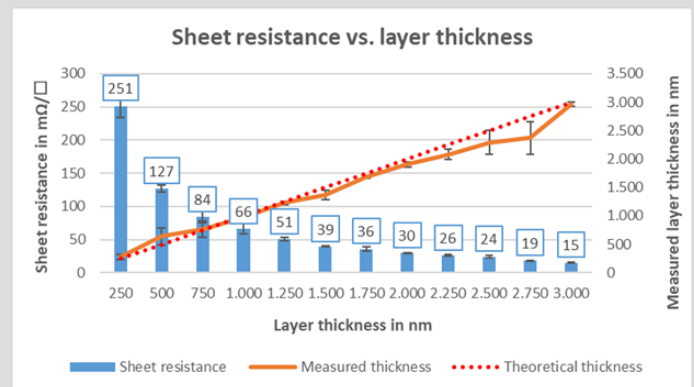
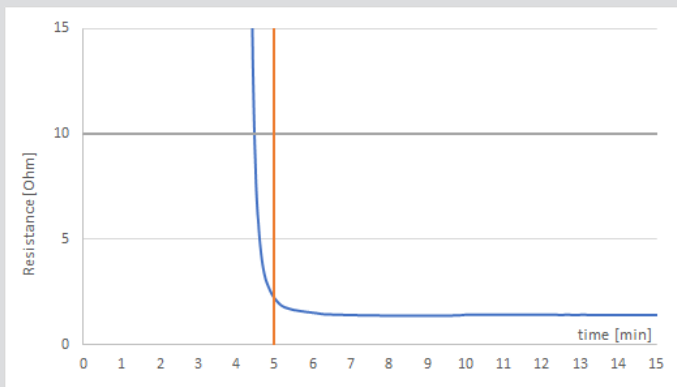
Item	Representative value	Condition	Method
Appearance	Silver color	at 23 ± 3°C	Visual
Weight loss	85 ± 5 wt. %	RT to 250°C, 5 K/min	Thermogravimetry
Volume resistivity (Ω.cm)	2.75 x 10 <sup>-6</sup>	500 nm coating at 25°C	4-point probe
Thermal conductivity (W/m.K)	248	500 nm coating at 25°C	Calculated
Thermal expansion (ppm/K)	19.7	-	Literature value for bulk Ag

Substrate types: glass, PI, FR4, EMC, copper, etc.

### Thermal sintering conditions

Recommended thickness of wet layer: 15 - 25  $\mu\text{m}$   
Recommended oven conditions: 180 - 280°C in air  
Recommended sintering time: 5 - 60 min at peak temperature

The electrical conductivity of the coating increases with increasing sintering temperatures and times.  
No cleaning step is required after sintering



Sintered layer Thickness: 1  $\mu\text{m}$

Sinter Temperature: 180°C

### Shelf life, work life and storage

Storage: Keep originally packed in a refrigerator at  $6 \pm 4^\circ\text{C}$   
Shelf life: 6 months from manufacturing date (originally packed, in refrigerator at  $6 \pm 4^\circ\text{C}$ ).  
The ink can be naturally thawed to room temperature before use. Heating is not allowed.  
Remaining, unused ink in original container can be placed back to the refrigerator.  
Work life: Min. 28 days in closed ink supply system at temperature  $< 40^\circ\text{C}$ .

Further handling and ink cleaning guidelines are available upon request.

### Safety and Health

Wear protective gloves and goggles. Refer to the material safety datasheet for more details on safety guidelines.



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TDS No.: TC-04-04  
Issue date: 2024/04/25  
Version: 1