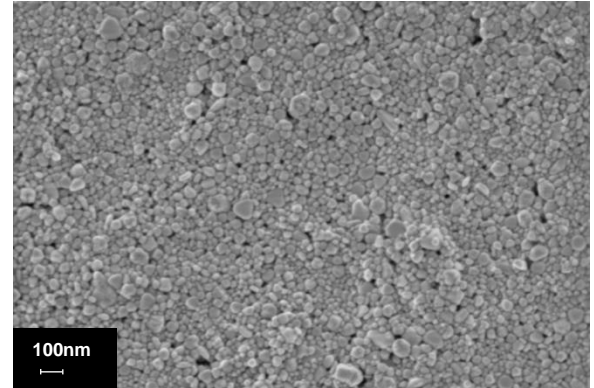


General Information

Sicryst™ IC50DM-7, a conductive ink based on single-crystal **copper nanoparticles** in diethylene glycol monomethyl ether (DGME), is suitable for various digital printing technologies such as Inkjet and Aerosol systems. The ink offers high copper loading, low viscosity, reliable jetting, good printability, long shelf life, storage at room temperature (under Argon). Printed and laser sintered patterns provide low electrical resistivity and good adhesion to substrates.

Ink Properties

Properties	Typical Values
Metal Loading, Cu (w/w)	50 %
Cu(0) in Copper Nano Particles	>95 %
Particle Size (Lumisizer®)	d ₅₀ = 50 nm d ₉₀ = 120 nm
Specific Gravity	1.85 g/ml
Viscosity (Brookfield, Cone Spindle 40, 25°C)	20 cP
Surface Tension (Pendant Drop Method)	28 dyn/cm
Open Time (Ricoh E3 printhead, 35°C)	1.5 min
Particle Size and Morphology (HRSEM)	See HRSEM image

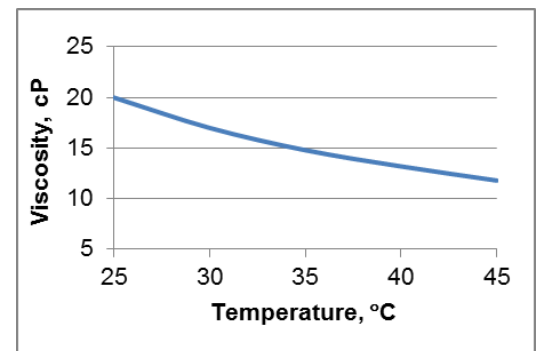


Nano Cu, HRSEM Image, x100,000

Electrical and Adhesion Properties

Sintering Conditions (on glass)	Resistivity (4PP)
Laser Sintering	≤5 μΩ·cm (≤3 bulk)
Thermal 300°C / 30 min (under Argon)	≤120 μΩ·cm (≤70 bulk)

Adhesion (not limited) to: Kapton®, FR4, ITO, glass
(ISO-2409, no cuts)



Viscosity Profile

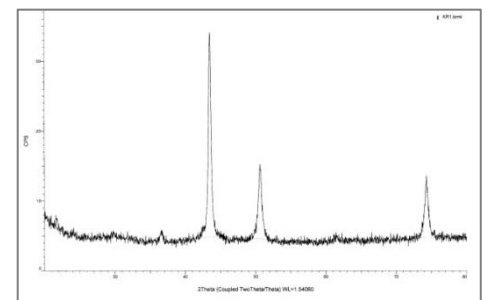
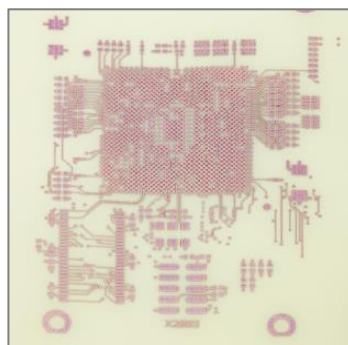
Compatible printheads[#]

Ink works well, among others, with printheads:

KM1024, KM1024i, Ricoh E3, Aerosol

Product Applications

Digital Printing (Inkjet, Aerosol)
Printed Electronics



XRD Pattern of Nano Copper Particles

[#] - Printheads listed here were tested and perform well. Other compatible printheads may also be applicable.