OTech Platinum - Platinum Ink for Electrodes and Nanoparticle Deposition Data Sheet

Product description

OrelTech's unique process allows printing and aerosol spraying of highly conductive platinum thin films, high surface area structures or non-connected nanoparticle islands. Printed layers undergo short development (curing) using plasma treatment resulting in a thin fine pure platinum structure. OrelTech inks in liquid form do not contain nanoparticles and are significantly environmentally friendlier than the alternatives on the market. Lack of nanoparticles also allows them to be much more cost-effective than other conductive inks.

Benefits

- Coating and patterning by inkjet, aerosol or slot-die printing
- Low temperature process
- Printed on polymers, metals and fabrics
- No solid or liquid waste
- Material saving
- Cost-efficient solution

Typical properties of the ink

OTech Jet	
Viscosity, cP	3 – 20
Shelf life, 25^0C	12 month
Cure type	Cold plasma
Application method	Inkjet, slot-die, aerosol
Substrate	Plastic, paper, fabric
Appearance	Clear yellow-orange liquid
Acidity	pH > 2
Applications	• Sensors • Electrodes • Medical devices • Catalysis • Other sensitive devices

For additional questions please contact konstantin@oreltech.com

Directions for use and storage

- **Storage**: Inks can be stored in closed containers for up to 12 month in dry, dark conditions.

- **Clean-up**: Materials can be cleaned up using alcohols and ketones, preferably isopropanol.

- **Pre-treatment**: In some cases, to ensure better wettability and/or adhesion, the substrate material must be pre-treated prior to ink application.

- **Handling**: Please note that the ink is acidic (pH > 2). Use gloves and protective goggles, avoid direct skin contact. In some cases (fabric substrates) there is a need to rinse the substrate after the metallization process.

Curing conditions

- **Curing time**: 15-20 minutes.

- **Curing apparatus**: Cold plasma instrument with a low pressure chamber.

- **Curing temperature**: Temperature in the plasma chamber does not exceed 70 ^{0}C. No additional heating is needed. That temperature can be lowered to room temperature using a temperature-controlled plasma chamber.

Typical properties of the cured film

Sheet resistance, Ω/□	5-10
Catalytic activity	High
Adhesion	Tested on PET
Layer thickness, nm	50 –500