

OTech - Platinum Coating Solution Data Sheet

Product description

OrelTech's unique process allows aerosol spraying, dip-coating or printing of conductive pure platinum thin films on various surfaces. Deposited layers undergo short development (curing) using plasma treatment resulting in a thin fine platinum structure. OrelTech coating solutions do not contain banned chemicals, do not produce chemical waste and are significantly environmentally friendlier than the alternatives on the market.

Benefits

- Easy and fast coating and patterning via aerosol or dip-cast
- Low temperature process
- Deposited on various plastics, metals, ceramics
- No solid or liquid waste
- Environmentally friendly
- **Biocompatible and non-toxic**
- Cost-efficient solution



OTech Platinum catalytic effect

Typical properties of the coating solution

OTech Coating Solutions	
Platinum content	10-18 g/l 35-45 g/l 60-70 g/l
Shelf life, 25°C	12 month
Cure type	Cold plasma
Deposition method	Dip-die, aerosol, inkjet
Substrate	ABS, PLA, PC, PEEK, Ti, glass, others
pH	>2
Operating temperature	Up to 70°C
Time to deposit	10-20 minutes
Metal layer thickness	30 nm – 2000 nm
Metal layer purity	>99.6%

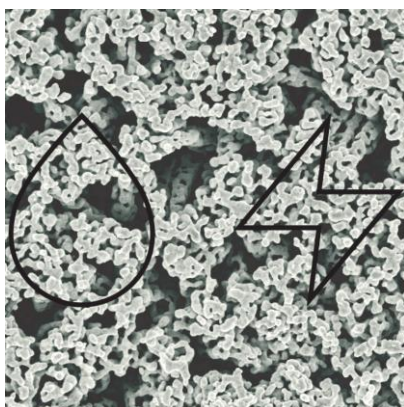
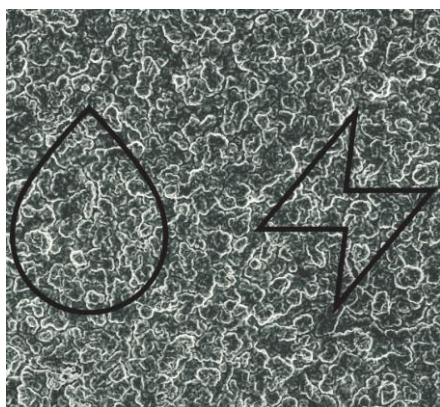


Directions for use and storage

- **Use:** Unlike plating solutions, OTech coating solutions do not require a plating bath. The solution can be applied directly on a substrate. Then, substrates have to undergo a short curing (metallization) process using a cold plasma instrument (see curing conditions below).
- **Storage:** Coating solutions 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 coating.
- **Handling:** Please note that the ink is acidic (**pH > 2**). Use gloves and protective goggles, avoid direct skin contact. In some cases, there is a need to rinse the substrate after the metallization process.

Curing conditions

- **Curing time:** 10-20 minutes.
- **Curing apparatus:** Cold plasma instrument with a low-pressure chamber (0.3-0.5 mbar).
- **Curing temperature:** Temperature in the plasma chamber does not exceed 70 °C. No additional heating is needed. That temperature can be lowered to room temperature using a temperature-controlled plasma chamber.



Otech Platinum coating as Thin Film (left), Large Area structure (middle) and Nanoparticle Deposition (right)