

Liquid Nano Coating



Product Highlights

- Adheres to plastic, metal, glass, ceramic, PTFE, PCBs
- No VOCs
- Short processing times
- Chemically resistant
- **RoHS, REACH, WEEE compliant**
- Repels oil and water
- Heat cure optional
- Masking optional
- Cost effective alternative to traditional coatings
- Easy to apply
- Solder through repairable
- Easily reworkable

Product Uses

- Fluidic Devices
- Micro Motors
- Inkjet Print Heads
- Biomedical Devices
- Ball Bearing Tracks
- LED assemblies
- Printed Circuit Boards
- MEMS
- Metal Mesh

Specifications

| | |
|---------------------|---|
| Chemistry | C6 fluoro-carbon |
| Color and Clarity | Colorless or yellow liquid, lightly turbid to clear |
| Concentration | 0.2% to 10% in fluoro-solvent |
| Viscosity | 2% Polymer Coating ~ 0.82cP +/- 5% 4% Polymer Coating ~ 1.85cP +/- 5% 10% Polymer Coating ~ 5.75cP +/- 5% |
| Shelf Life | > 2 years |
| Application Options | Dipping, spraying, brushing, syringe-dispensing |
| Dry Time | 5-30 seconds |
| Cure Time | No cure required, optional room temperature for 24 hours or 10 minutes at 60°C |
| Boiling Point | 80°C |
| Thickness | 0.1-0.6 µm (depending on concentration and application method) |

Orderable Part Numbers

| Part Number | Polymer Percentage | UV Tracer Present | Film Thickness |
|---------------------------|--------------------|-------------------|----------------|
| NANOCOAT200-2-500ML | 2% | No | ~0.1µm |
| NANOCOAT200-4-500ML | 4% | No | ~0.5µm |
| NANOCOAT200-10-500ML | 10% | No | ~1.0µm |
| NANOCOAT200UV-2-500ML | 2% | Yes | ~0.1µm |
| NANOCOAT200UV-4-500ML | 4% | Yes | ~0.5µm |
| NANOCOAT200UV-10-500ML | 10% | Yes | ~1.0µm |
| NANOCOAT200-THINNER-500ML | 0% | No | |

Properties of Nano Coat 200 Film

| | |
|-----------------------------|---------------|
| Contact Angle to Water | ~ 115° |
| Contact Angle to Oil | >55° |
| Surface Tension | 8-12 dynes/cm |
| Hardness | >2B pencil |
| Flammability | Non-burning |
| UV-Tracer | Optional |
| Heat Stability-Continuous | 150°C |
| Max Heat Stability one hour | 250°C |
| Refractive index surface | ~ 1.34 |
| Transparent | Yes |
| Electrically resistive | Yes |
| Removable | Yes |
| Solder Through Repairable | Yes |
| Dielectric Constant (30%RH) | 3.0 (1kHz) |

Concentration and Thickness Guide

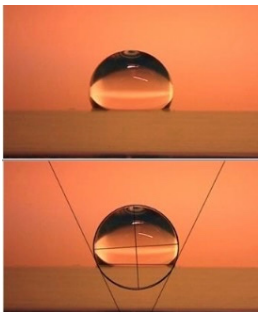
| | |
|-------------------------------|----------|
| Film thickness at 2% polymer | ~ 0.1µm |
| Film thickness at 4% polymer | ~ 0.5 µm |
| Film thickness at 10% polymer | ~ 1.0 µm |

Electrical Properties (Aluminum Plates)

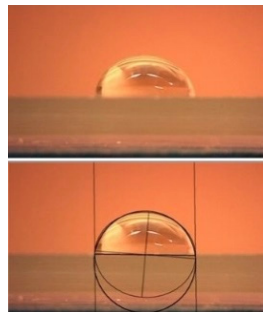
| Coating Thickness | Surface Resistance (ohm) | Volume Resistance (ohm·m) |
|-------------------|--------------------------|---------------------------|
| 0.1 µm film | Conductive* | 4 x 10 ²⁰ |
| 0.5 µm film | 1 x 10 ⁹ | 8 x 10 ²⁰ |
| 1.0 µm film | 5 x 10 ¹¹ | ND |

* The nano coating itself is electrically non-conductive. However, at 0.1 µm thickness, measurement probes are able to mechanically penetrate the coating and contact the aluminum plate, which is conductive.

Contact Angle Analysis on Glass



2.0% polymer on glass
Water contact angle: 113.3°



2.0% polymer on glass
Oil contact angle: 82.0°

Dip Coating Application Guide

A. Masking (could be optional depending on circumstance)

Microphones, speakers, camera lenses may need masking using stretch film or masking agent

B. Cleaning Process

Device may need to be cleaned using IPA Wipes and/or compressed air to remove dust.

C. Coating Process

Dip coat manually or using automated system

- Recommended starting test point immersion and withdrawal speed of 15cm/min.
- Control speed to avoid excessive air bubbles which may result in voids in the coating.
- Withdrawal speed determines cosmetic appearance and uniformity of the coating.
- Dry by hanging at room temperature or optional heat cure at 60°C for 10 minutes.
- Monitor coating concentration during production run.

D. De-masking

Remove stretch film or masking agent with tweezers

Storage and Handling

Store at room temperature 20-25°C (68-77°F).

Transportation

This product requires ground shipping. Shipping below 0°C (32°F) or above 25°C (77°F) for normal transit times by ground or air will not impact this product's stated shelf life.

Health and Safety

| | |
|----------------------------------|-----|
| Ozone Depletion Potential (ODP): | 0 |
| Global Warming Potential (GWP): | 320 |
| Atmospheric Lifetime (Years): | 4.1 |

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[NANOCOAT200-THINNER-500ML](#)