

Datasheet revision 1.1

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## 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

### Biocompatibility

NANOCOAT200 dried film is biocompatible (not harmful to living tissue).

### 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%
Silicone Content	Silicone Free, does not contain silicone
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
Maximum Operating Temperature (of dried film)	175°C (347°F)
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	
NANOCOAT200-2-AERO	2%	No	~0.1µm
NANOCOAT200UV-2-AERO	2%	Yes	~0.1µm

## 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

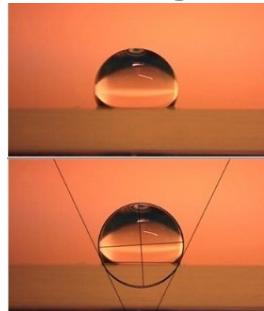
Film thickness at 2% polymer	~ 0.1µm
Film thickness at 4% polymer	~ 0.5 µm
Film thickness at 10% polymer	~ 1.0 µm

## Electrical Properties (Aluminum Plates)

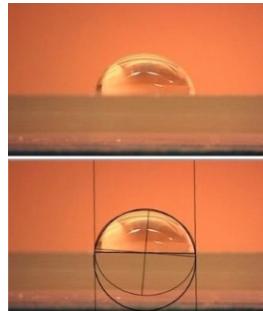
Coating Thickness	Surface Resistance (ohm)	Volume Resistance (ohm·m)
0.1 µm film	Conductive*	4 x 10^20
0.5 µm film	1 x 10^9	8 x 10^20
1.0 µm film	5 x 10^11	ND

\* 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