

Liquid Nano Coating

ORDERABLE PART NUMBERS

NanoCoat3000-2-1GAL	NanoCoat3000-2-3.5GAL	NanoCoat3000-2-5GAL
NanoCoat3000-4-1GAL	NanoCoat3000-4-3.5GAL	NanoCoat3000-4-5GAL
NanoCoat3000-10-1GAL	NanoCoat3000-10-3.5GAL	NanoCoat3000-10-5GAL
NanoCoat3000UV-2-1GAL	NanoCoat3000UV-2-3.5GAL	NanoCoat3000UV-2-5GAL
NanoCoat3000UV-4-1GAL	NanoCoat3000UV-4-3.5GAL	NanoCoat3000UV-4-5GAL
NanoCoat3000UV-10-1GAL	NanoCoat3000UV-10-3.5GAL	NanoCoat3000UV-10-5GAL
NanoCoat3000-Thinner-1GAL	NanoCoat3000-Thinner-3.5GAL	NanoCoat3000-Thinner-5GAL

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

PROPERTIES OF NANO COAT

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)

PROPERTIES OF NANO COAT FILMS

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

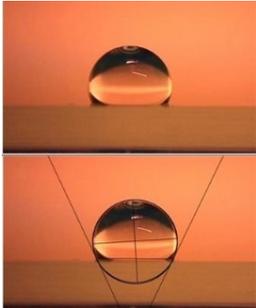
Film thickness at 2% polymer	~ 0.1µm
Film thickness at 4% polymer	~ 0.5 µm
Film thickness at 10% polymer	~ 1.0 µm

ELECTRICAL PROPERTIES (Aluminum Plates)

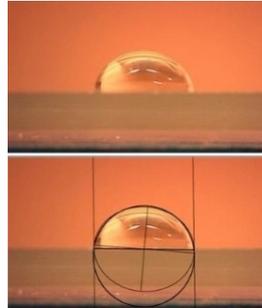
Coating Thickness	Surface Resistance (Ω)	Volume Resistance (Ωm)
0.1 µm film	Conductive*	4 x 10 ²⁰
0.5 µm film	1 x 10 ⁹	8 x 10 ²⁰
1.0 µm film	5 x 10 ¹¹	ND

* 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

PACKAGING, STORAGE & SHELF LIFE

Container Sizes	1 gallon jug (5 kg) 3.5 gallon jug (17.5 kg) 5 gallon jug (25 kg)
Storage Requirements	Storage at room temperature is recommended, for maximum shelf life, do not exceed 35°C
Shelf Life	2 Years @ <35°C

HEALTH AND SAFETY

Please refer to the Safety Data Sheet (SDS) before use. Safety data sheets can be found at www.hmtsolder.com

This data is based on information that the manufacturer believes to be reliable and offered in good faith. In no event will HMT be responsible for special, incidental and consequential damages. The user is responsible to the Administrative Authorities (regulations for the protection of the Environment) for the conformity of their installation.