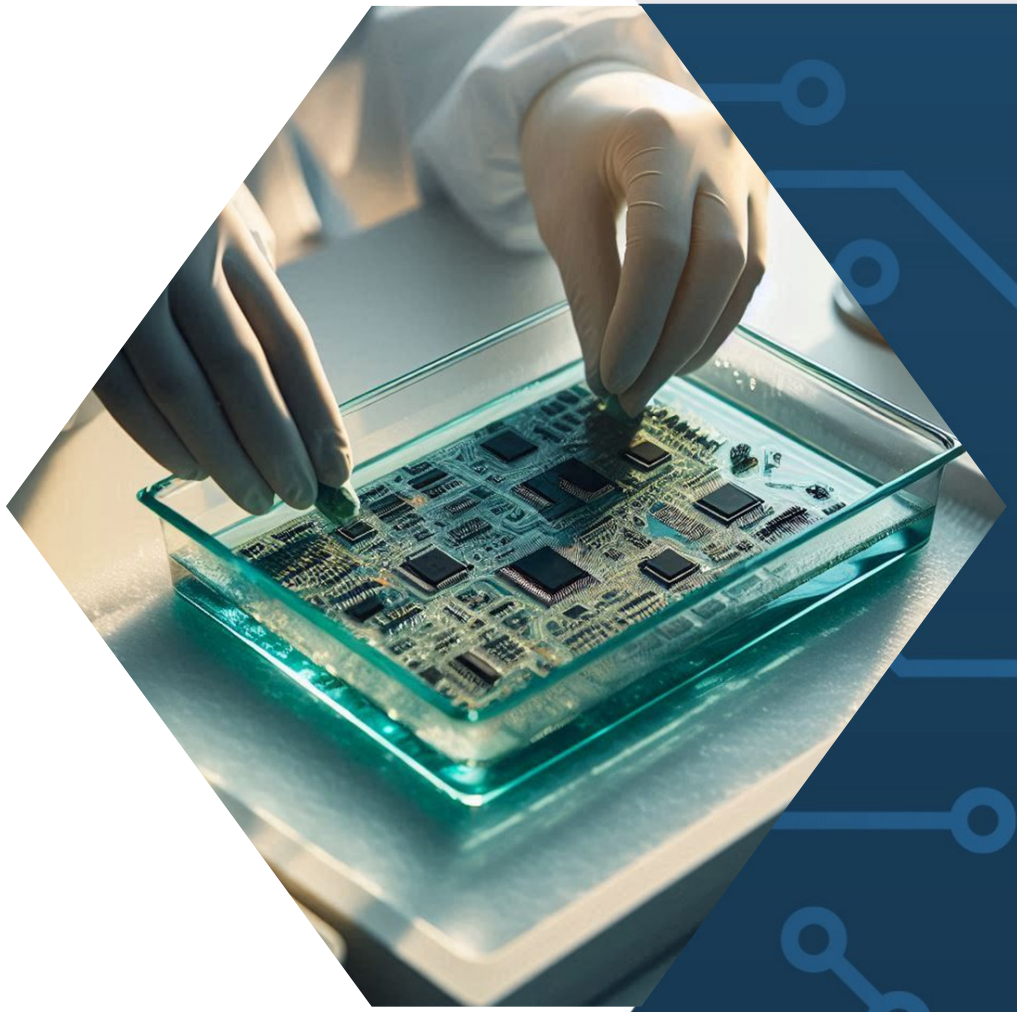
NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS



THE BETTER ALTERNATIVE TO CONFORMAL COATINGS

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

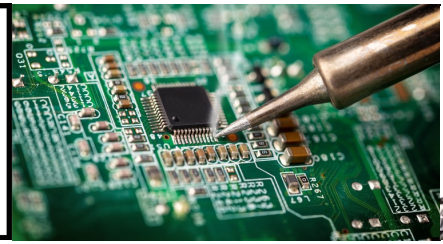
PROBLEM: OUTDATED COATINGS FOR ELECTRONICS

Conformal, Plasma, and Parylene coatings have these issues:

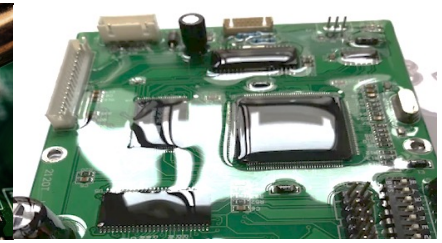
- Require Masking (Exposing Unprotected Areas)
- High Odors
- Difficult to Re-Work
- Clog Spray Heads
- High Capital Costs
- Timely and Labor Consuming
- No Water/Dust Rating on the Component

CONFORMAL/PARYLENE COATINGS DISADVANTAGES:

TOXIC ODORS

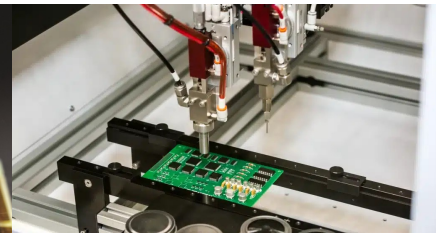


NOT REWORKABLE

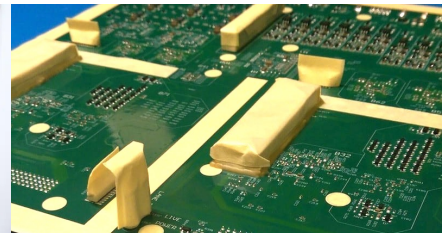


THICK COATINGS

SPRAY APPLICATION



EXPENSIVE MACHINES



REQUIRES MASKING

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

SOLUTION: NANOFLOWX COATINGS

Features

- No Masking Required
- Dip, Drain, Heat Cure Solution
- 360 Degree Protection including Connectors
- No Thermal Insulation Issues
- Allows Re-Workability
- Non-Flammable Coatings
- New VX3 100% Non-Fluorinated Option

CLICK LINK TO WATCH VIDEO

https://youtu.be/r90T_mHqF1E?si=HINwuDIpiVn41AT0

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

PRODUCT COMPARISON CHART

	V1	V2	V3	VX3 (Fluoro-Free)	V4
Application Time	5 Seconds	5 Seconds	5 Seconds	5 Seconds	5 Seconds
Cure Time	1-2 Min. Heat	1-5 Min. Heat	10 Min. Heat	10 Min. Heat	15 Min. Heat
IP Rating	IP65	IP68	IP68	IP68	IP68
Coating Thickness	100nm	500nm	2µm	4µm	5µm - 40µm
Requires Masking	No	No	No	No	Some
Reworkable	Yes	Yes	Yes	Yes	Yes
Salt Water Protection	No	Low	Medium	Medium	High
Salt Fog Testing	168 Hours	212 Hours	212 Hours	212 Hours	240 Hours
UV Trace	Optional	Optional	Optional	Optional	Optional
Fluorinated	Yes	Yes	Yes	No	Yes
Protects Connectors	Yes	Yes	Yes	Yes	Yes

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

VX3 NON-FLUORO COATING SOLUTION

NON-FLUORO COATING SOLUTION

Formulated in 2024, VX3 offers the same protection as our V3 using our breakthrough non-fluoro formula.

Comply with new EU non-fluoro regulations

- IP67 & IP68 Waterproof Rating
- 4 µm Coating Thickness
- UV Trace Available

CLICK LINK TO WATCH VIDEO

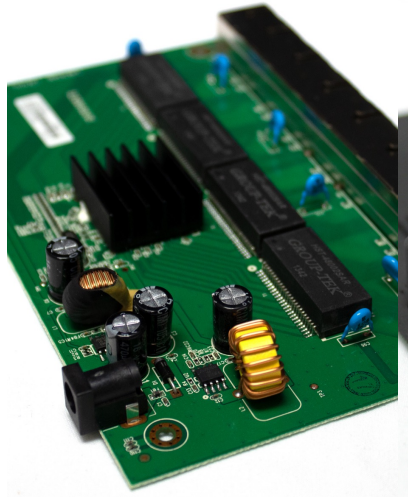
https://youtu.be/viBc7kLB7hI?si=rRoh7PfZjY5E5vD8

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

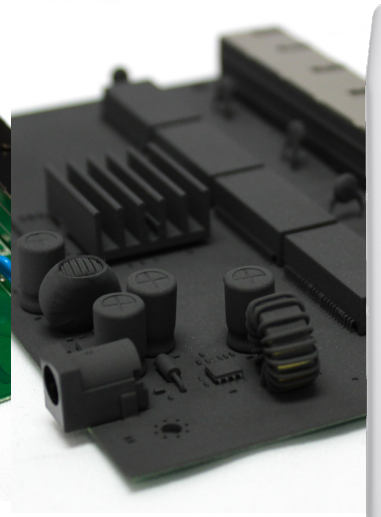
WEATHERIZED EMF/EMI SHIELDING

E-shield enhances protection against EMI in critical industries such as medical, military, and aerospace, ensuring reliable performance in any environment.

- Graphene Nanoplatelets
- Water Resistance
- Heat Dissipation
- Shielding Tested 30db @ 500 mhz to 5 Ghz
- Continued Development to 100 Ghz
- Use on low voltage PCB boards
- Use on the inside of enclosures
- Spray-on application



UNCOATED



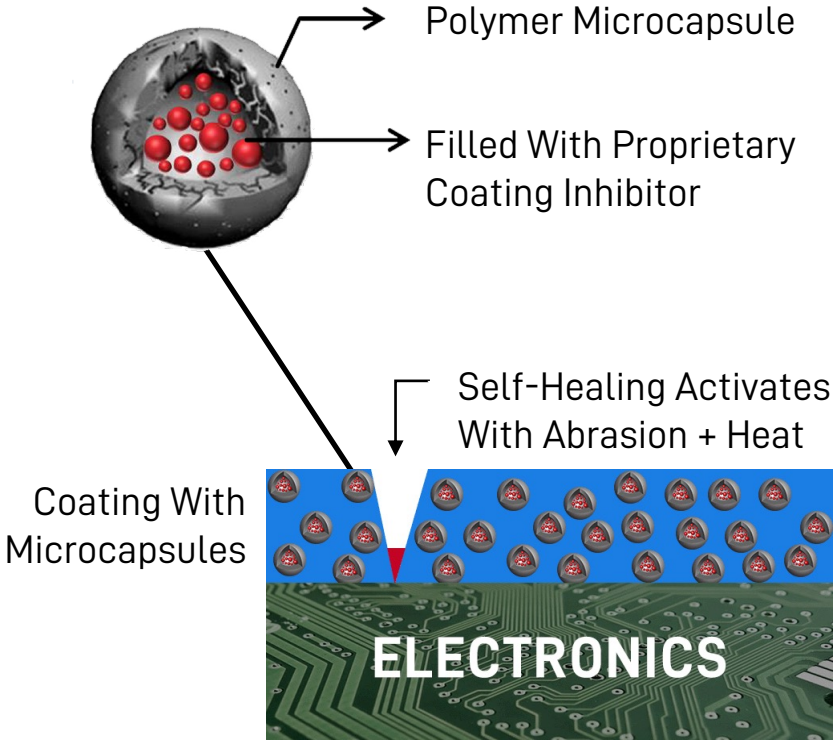
COATED

SCAN FOR VIDEO

WATCH EMI @ SOFIC VIDEO

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

WORLD's 1st SELF-HEALING TECHNOLOGY



INCREASE COATING DURABILITY

NanoFlowX™ advanced nanocoatings can be integrated with advanced microcapsules that feature self healing characteristics.

- 500nm microcapsules
- Permanently sealed microcapsules
- Proprietary technology

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

FULL COATING SPECIFICATIONS

Provides Full 360° Protection Against:

- Water
- Salt Water
- Corrosion
- Humidity
- Bacteria
- Dust
- Moisture
- Gases
- EMI/EMF

Tests Performed:

- IP68
- IP67
- UL94
- IPC-CC-830
- MIL-I-46058C
- ASTMG-21

SGS DEKRA intertek Total Quality. Assured.
TOUCHSTONE RESEARCH LABORATORY, LTD. Govmark UL94 TESTED
REACH COMPLIANCE RoHS COMPLIANT

Operating Temperature:

-80°F to 500°F (-62°C to 260°C)

Consumption Rate

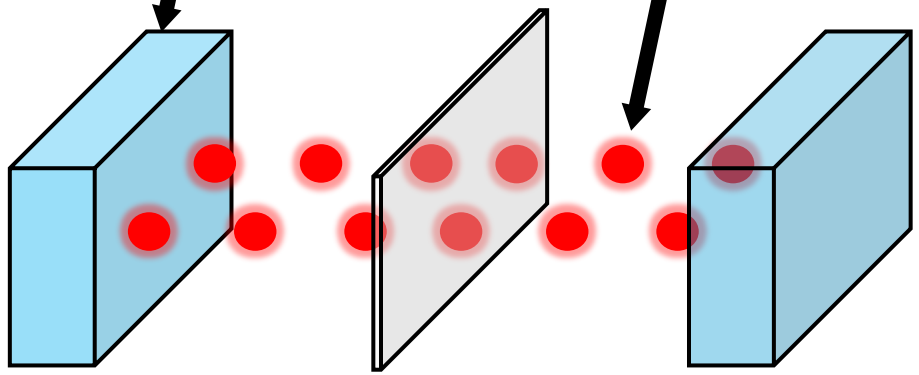
Square Area in Inches x 0.16 = ml/sq area
Eg: 2" x 2" = 4" x 0.16 = 0.64 ml

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

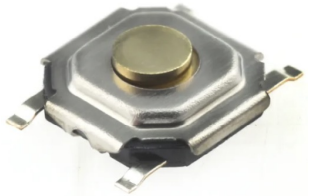
SAFE FOR CONNECTORS

1. Semi-conductive coating
   - V1-V2 – low voltage, coat any fine connectors
   - V3-V4 – higher voltage
2. Ultra-thin coating to allow electrons to pass
3. Coating changes surface tension to repel water, oil and dust providing up to an IP68 rating

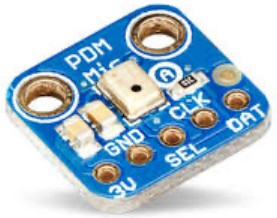
Allows electrons to pass through coating



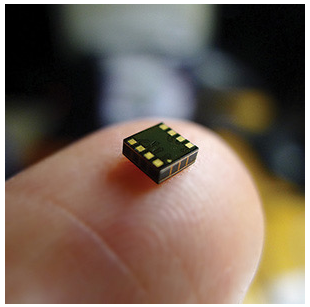
FEMALE PORT **COATING** **MALE PORT**



Mems Tact Switch



Mems Microphone



Mems Ultrasonic

SEE COATED MEDIA PLAYER CONNECTORS WORK

CLICK LINK TO WATCH VIDEO

https://youtu.be/2Tj0FwXk3U0?si=6GpUMbhTGW6JR3e3

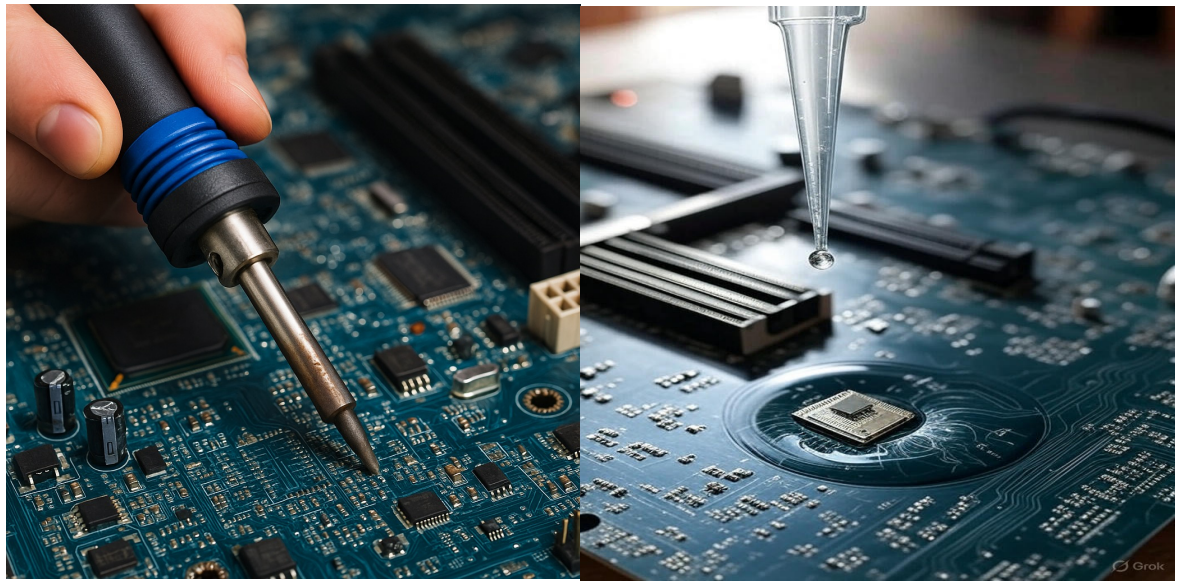
NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

NANOFLOWX™ 100% REWORKABLE COATINGS

Steps

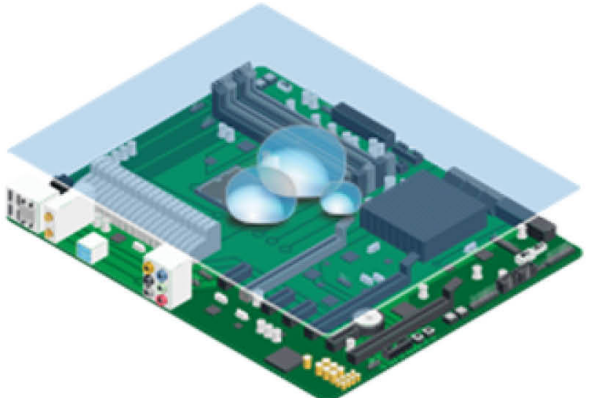
1. Desolder the component
2. Resolder the new component
3. Reapply ½ inch radius with NanoFlowX using a pipette
4. Heat cure with heat gun or curing oven

SOLDER – REPLACE – RECOAT



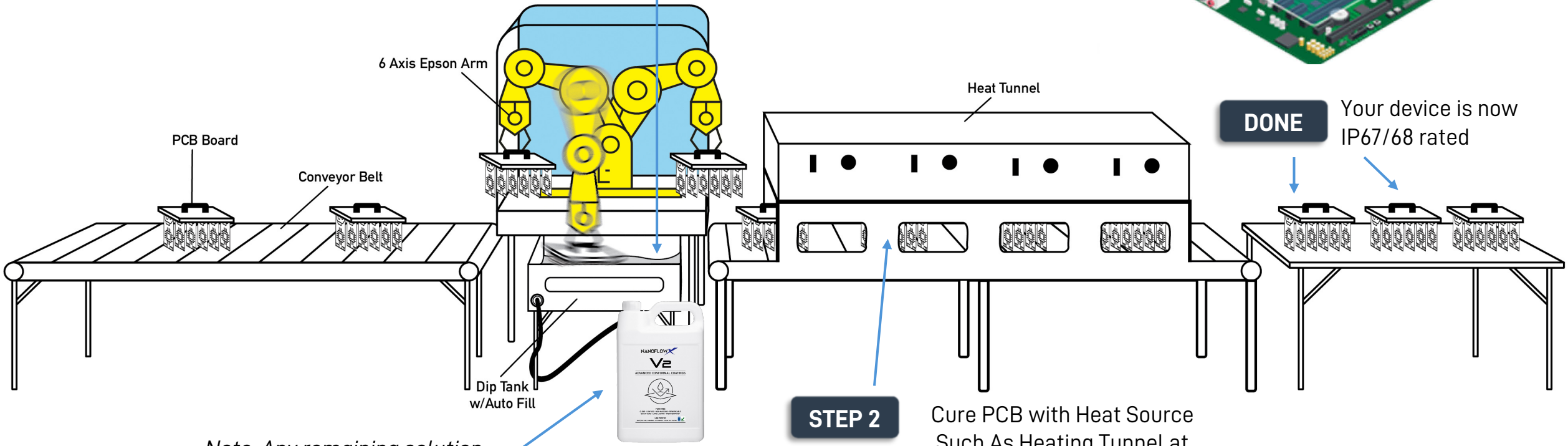
NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

AUTOMATED APPLICATION PROCESS



STEP 1

Submerge PCB board
into solution for 5 seconds



DONE

Your device is now
IP67/68 rated

STEP 2

Cure PCB with Heat Source
Such As Heating Tunnel at
176°F (80°C) For 5 Minutes.

Note: Any remaining solution can be filtered and poured back into original bottle.

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

NANOFLOWX™ VS OTHER COATINGS

	NANOFLOWX	CONFORMAL COATINGS	PARYLENE	VAPOR DEPOSITION
APPLICATION TIME	5 MIN.	7 HRS.	2-3 HRS.	4+ HRS
COST	$	$$$	$$$	$$$
NO MASKING	NONE	YES	YES	YES
REWORKABLE	YES	NO	NO	NO
PROTECTS CONNECTORS	YES	NO	NO	NO
IP68 TESTED	YES	NO	NO	IPX7/X8
THICKNESS	100nm - 40µm	50nm - 200µm	5-25µm	100-300nm

Summary: NanoFlowX™ is faster, easier to use, and more cost effective than outdated coating methods.

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

COATING COMPARISON

Material	Properties	Comments
NANOFLOW	**Ultra-thin Durable Coating** **Excellent Chemical Resistance** **Superhydrophobic/Oleophobic IP67/68 Rating** **Protect any Electronic Component**	**Easy to Rework** **Non-Masking Coating, Low Odor** **Lower Labor Cost** **Quick Application (5 sec dip/spray, 5-min heat cure)**
Epoxy	Good adhesion Excellent chemical resistance – thick coating Acceptable moisture barrier	Difficult to rework Needs compliant buffer, high odor, requires masking Not widely used
Urethane	Good adhesion High chemical resistance – thick coating Acceptable moisture barrier	Difficult to rework Widely used, high odor, requires masking Low cost
Acrylic	Acceptable adhesion Excellent chemical resistance – thick coating Acceptable moisture barrier	Easy to rework Widely used, high odor, requires masking Moderate cost
Silicone	Good adhesion Excellent chemical resistance – thick coating Acceptable moisture barrier	Possibility of rework Moderate usage, high odor, requires masking Moderate cost,
Parylene	Good adhesion Good chemical resistance Acceptable moisture barrier	Impossible to rework Rarely used, requires masking Extremely high cost, Time consuming, Specialist

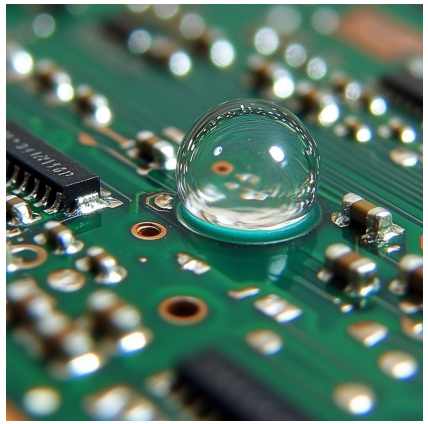
	NANOFLOW	ActNano	FavoredTech	HumiSeal	Aculon
Fluorinated	**No**	Yes	Yes	No	Yes
IP67/68 Tested	**Yes**	Yes all products	IP67 would be a Multi-hour coating process – like 3-6 hours depending on the voltage	No	Only up to IPX-8 protection for water. No dust protection
Coating Thickness	**100nm - 40µm**	10-30 Microns	10 nm – 1 µm	25-125 Microns	200nm-50µm
Durability	**10+ Years (depends on environment)**	20+ year (depends on abrasion)	Untouched is permanent but subject to abrasion like all coatings	10+ year (depends on abrasion)	Duration n/a but subject to abrasion like all coatings
Application	**Dip or Spray**	Spray	Vacuum plasma chemical vapor deposition	Spray	Dip or Spray
Heat Oven	**Required for mass scale**	Not required	$100,000 to $500,000+ per machine plus chemistry cost per batch	5 minute	No oven. 5-60 minutes at room temperature
Cure Dry Time	**1-15 min heat to 24 hour air cure**	Approximately 30 sec. per side, ambient temp	Process time is 20 minutes to 6 hours depending on variables	UV Cure 30 min. to 20 hours to 7 days	No cure
Masking	**No**	Yes	Masking can be required on sensitive components	Yes	No
High Voltage Performance	**Up to 1500V**	Yes (up to 12.1 kV@100 micron	Max 50V unless you wanted to run the process all day	n/a	n/a

	NANOFLOW	ActNano	FavoredTech	HumiSeal	Aculon
UV Trace	**Yes, all products**	Yes, all products	No	Yes	Yes
Protection Underneath Product	**Yes**	10nm - 30µm	Yes	No	No
One Time Process Costs	**$ 240 development kit for small volume to Dip tank + oven ($5K) if with robot ($40-50K for high speed production)**	Yes	$100,000 to $500,000+ per machine plus chemistry cost per batch and technician	Spray machine, reflow oven, technicians to mask	Spray machine, technicians to apply the coating
UL Certification	**No but, IPC830 and Mil-Spec compliant**	Yes	Unknown	Yes	Yes
Scalability	**Yes**	Yes – only spray machine needed	Very low – machine cost is prohibitive for large scale deployment or multi-location productions	Yes – spray machine	Yes
Operating Temperature (°C)	**-62°C to 260°C**	-40°C - 145°C	~25°C	-65°C to 125°C	-40°C to 80°C
Design Constraints	**None**	Viscoelastic properties	Vacuum pressure can damage any sealed parts like display modules or other multi-layer components	Odor, clogging spray heads, non-reworkable, no IP rating	No full IP rating. Apply to connectors varies across products.
Cost	**Low cost. Dip tray for submerging board and a heat source such as curing oven or tunnel**	Spray machine, coating two sides of the board, labor to flip the pcb board, heat cure time	Expensive and the equipment is extremely advanced.	Spray machine, coating two sides of the board, labor to flip the pcb board, heat cure time	Spray machine, coating two sides of the board, labor to flip the pcb board

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

SMART PROTECTION FOR ELECTRONICS

COATED PCB



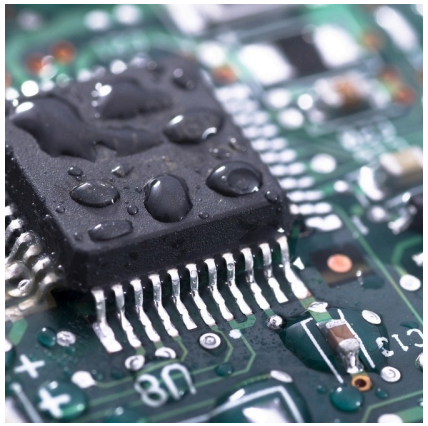
BENEFITS OF NANOFLOWX:

- Fast, DIY Solution
- No Masking Required
- No Negative Effects On Connectors
- Fully Reworkable
- Easy Way to Add IP Rating
- Reduce Maintenance Costs

CONS OF CONFORMAL COATINGS:

- Time-Consuming Application
- Requires Masking PCBs
- Interferes With Connectors
- Difficult Rework & Repair
- Limited Weather Protection
- Higher Cost in the Long Run

UNCOATED PCB



NANOFLOWX
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CASE STUDY

TABLET MADE WATERPROOF

CLICK LINK TO WATCH VIDEO

https://youtu.be/LS1HvqESMiQ?si=Rd49rOr0rvNIAA61

CHILDREN'S TABLET

Client who was a manufacture for children's tablet wanted to protect his device from water and dust causing failure within the tablet.

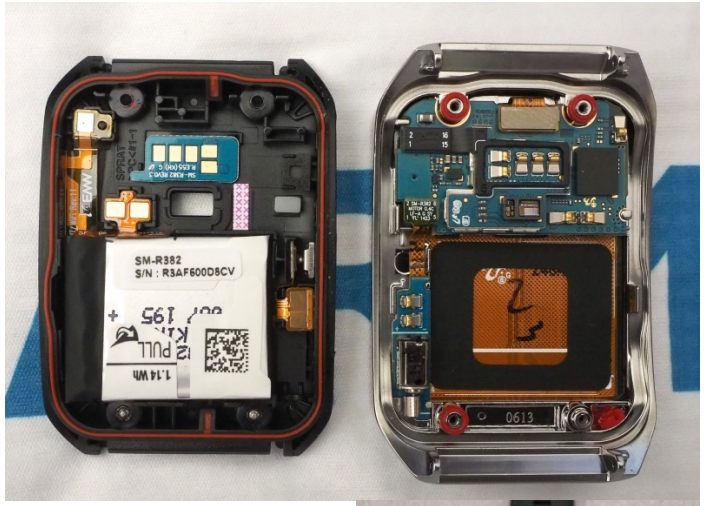
NanoFlowX™ coated PCB boards to meet IP68 standards. Client was happy to have durable protection from water and dust. Was able to meet his limited manufacturer warranty with customers.

Increase Durability to IP68

Save Costs on Warranty and Replacements

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

CASE STUDY



SMARTWATCH PROTECTION

Smartwatches currently are mainly protected from water submersion from simply gaskets. Over time gaskets shrink and crack. This allows for dust, moisture, and liquids to enter causing internal damage.

NanoFlowX™ can protect the PCB and sensitive components in smartwatches and increase their durability and reliability in providing additional protection to the internal components and battery from environmental damage.

Increase Durability to IP68

Save Costs on Warranty

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

CASE STUDY

DJI DRONE VS. WATER

CLICK LINK TO WATCH VIDEO

https://youtu.be/mYM_8xwnEaU?si=8JkW-lj-bE2yot7f

DJI DRONE MADE WATERPROOF

Drones, including DJI models, are not waterproof, making them vulnerable to moisture, rain, and water landings that can cause critical failures. Traditional coatings and gaskets degrade over time, exposing key components like batteries, PCBs, and connectors to damage.

NanoFlowX™ V2 was applied to a DJI drone to provide complete environmental protection without the need for bulky enclosures or unreliable gaskets. Unlike traditional conformal coatings, NanoFlowX™ offers a nano-thin waterproofing solution that shields internal electronics without affecting weight, connectors, or drone performance.

Increase Durability to IP68

Save Costs on Replacements

NANOFLOWX
INCREASE THE LIFESPAN OF ELECTRONICS

CASE STUDY

SALT SPRAY COMPARISON TEST vs PARYLENE

APPLIED ON USAF RUGGED SERVER

NanoFlowX™ is proven to be **3x** more durable than Parylene after 300+ hours of salt-fog chamber testing. It's cost-effective, easy to apply, and offers military-grade protection against moisture, corrosion, and extreme weather conditions.

Parylene

(1) Failure at just **100 hours** of testing
(2) Higher costs ($$$$$)
(3) Application process that takes hours
(4) Requires masking connection ports
(5) Non-reworkable after application
(6) Can't coat SSD hard drives/GPU cards, motherboard and power supply

NanoFlowX™

(1) Fully functional at **300 hours** of testing (no corrosion)
(2) Lower costs ($)
(3) Fast 2-step, 2-minute DIY coating
(4) No masking on any ports or connectors
(5) Fully reworkable after application
(6) Can coat SSD hard drives, Nvidia GPU cards, motherboard and power supply

Increase Durability and Reliability

Save Costs on Replacements

NANOFLOW
INCREASE THE LIFESPAN OF ELECTRONICS

PAST PERFORMANCE

AWARDS / ACHIEVEMENTS

- US DoD - AFWERX Phase 1 Contract (FA864919PA418)
- US DoD – AFWERX Phase 1 Contract (FA864922P0507)
- AFWERX Phase 2 Selected – Medical Equipment
- AFWERX Challenge Installation Resilience Selected 2020
- xTechSearch Army Part 1 Awardee

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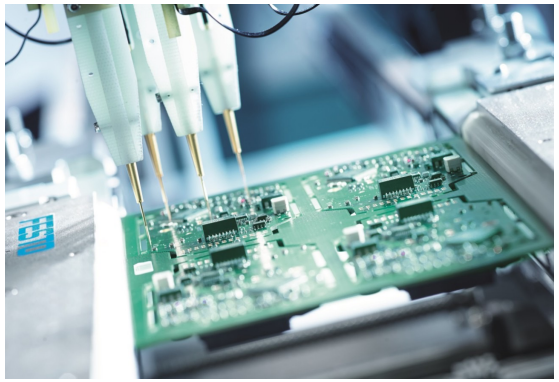
POSSIBLE APPLICATIONS



PCB MANUFACTURING

SOLAR PANELS

INVERTERS

DRONES

DEFENSE ELECTRONICS

CONSUMER ELECTRONICS

WIND TURBINES

MEDICAL DEVICES

NANOFLOW
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COMPANY AFFILIATIONS

SERCOM

FOXCONN

Quanta Computer

harman/kardon

SAMSUNG

Elbit Systems

MACNICA

TAIYO AMERICA

LOCKHEED MARTIN

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