

# The future of Printed Circuit Boards in the Telecom industries:

Nano-coating for green PCB life cycle management



## NANO COATS

Nano-coating protects (y)our future

Nano-coating reduces carbon emissions, minimizes your maintenance costs and investments.

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# HIGHLIGHTS

Nano-coating reduces carbon emissions, minimizes your maintenance costs and investments. The technique that protects electronic components - such as PCB's - with super hydrophobic scales. The end of oxidation, corrosion and liquid damage.

## **Nano-coated printed circuit boards will change the future**

### **Lifecycle**

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Nano-coated PCB's are optimal protected against condensation - the end of oxidation and corrosion, the extension of their lifetime cycle.

### **Absence of need for air humidity control**

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Nano-coated PCB's don't need air humidity control - reduction of maintenance & costs of the climat control equipment.

### **Cost reductions in the hardware maintenance**

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Nano-coated PCB's will reduce your maintenance costs - less maintenance on the Printed Circuit Boards and less maintenance on the climate control devices.

### **Cost reduction due to less investments**

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The lifespan of Nano-coated PCB's will be extended; the reduced consumption of PCB's will lead to lower purchase costs. The reduction space leads to less housing investments.

### **Cost reduction electricity**

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Nano-coated PCB's will reduce the costs of electricity due to the absence of humidity control hardware.

### **Lower production costs PCB's**

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Nano-coated PCB's don't need expensive protection methods - no need of gold on PCB's or polluting materials.

### **Zero pollution processing**

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The production of Nano-coated PCB's is clean process without any pollution

### **Less environmental stress**

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Nano-coated PCB's make the Telecom business greener across multiple areas - environmentally-responsible; PCB's without polluting materials and energy-efficient; less equipment means less use of electricity.

# THE CHALLENGES

## **Exposure to nature**

Our infrastructure extends into all corners of the world we live in, and that brings new challenges to the equipment: water, ultraviolet light, wind, extreme temperature changes and corrosive elements complete the most horrendous scenario for every electronic component. The wear and tear to the high tech components that become smaller and more sensitive each year requires a different approach if we want to protect it to all of the above during its whole life span.

Nano-coating can help with this protection and extend the maintenance intervals for these demanding situations.

## Reduce Costs

Because down time equals money, this has every operations manager's full attention. When selecting a vendor for supplying equipment, the total cost of purchasing, usage and maintenance are taken into consideration. Consider what effect it would have if your products have an extended maintenance interval that is more than 50% longer than any of the closest rival. In return, it reduces the TCO with a minimum of 25%, and can run up to 50%, depending on the location and serviceability of the part. With declining average revenue per user in the high tech sector, cost must come down to keep the revenue on sustainable levels. This is where Nano-coating product line can help.

As research from independent technology researchers have shown, the usage of plasma-finishes on new service parts and refurbished parts results in significant longer life span of equipment and near-zero second repair rate. The resulting lower failure rate finally makes the downtime per node within the millisecond range per year. Next to cost of ownership being lower than any of your competitors, the service quality to the end customers will be extended significantly!

## Reduce our carbon footprint

Our challenge is the reduction of the environmental stress, the heart of the climate change problem. Nano-coated PCB's can make a contribution to reduce your carbon footprint. Telecom cabinets will be more energy efficient. PCB's don't need to make use of polluting materials. By less maintenance miles and the use of clean process without any pollution. A greener world by using smarter materials, smarter software or smarter design. Today's concerns over climate change and the environment has created a unique opportunity for businesses to be responsible corporate citizens and create smart solutions along with costs and energy efficiencies at the same time. NanoCoats views coping with climate change as an important part of its responsibility.

## ABOUT NANO-COATING

Plasma is known as the fourth state of matter. In low pressure plasma technology stable and effective plasma is created by an electromagnetic discharge of a gas at low pressure and low temperature.

The Nano-coating (100 nm typically) is resistant to acid and salt, elevated temperatures and liquid. Flexible coating applicable on both rigid and flexible board, to individual components, to finished or unfinished PCB's. Proven solder-through-capability and compatibility with existing solder pastes.

### **Some Technical Characteristics**

Nano-coatings are resistant to sweat, acid and salt

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Resistant to elevated temperatures, up to 200°C

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Coatings can withstand mechanical rubbing and washing

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Coatings protect electronic devices against liquid damage

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Nano-coatings show outstanding oxidation and corrosion resistance

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### **Application areas**

Plasma activation of composite materials prior to bonding and painting

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Plasma cleaning of printed circuit boards (PCB 's) prior to top coat or encapsulation

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Conformal Nano-coating of electronic circuitry to prevent oxidation and corrosion

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Plasma cleaning of specialty parts such as accelerometer sensors, piëzo elements, gyroscopes.

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Plasma cleaning of electronic connectors prior to encapsulation

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Hydrophobic Nano-coating into the core of aircraft insulation foams

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## YOUR PARTNERS

NanoCoats is the partner of Euro plasma. NanoCoats introduces the Nano-scaled technology for the Telecom Business.

Euro plasma is a Belgian company, worldwide leader in the application of low pressure plasma technology. NanoCoats is founded by DiffManagement, a company that specializes in Logistics Management for the Telecom Business. NanoCoats advises and supports Telecom organizations in the implementation of plasma processes for printed circuit boards (PCB's).

# REFERENCES

## **Nano-coating is a proven technology in several industries. Some references:**

- Rockwell Collins: hydrophilic treatment on bearing for satellite wheels, to improve lubrication.
- Rafael: super fine cleaning of military equipment
- Sagem: cleaning of gyroscope part, prior to gluing; project Ariane space rocket
- British Aerospace: cleaning of gyroscope part, prior to gluing
- Thales Alenia Etca Space: cleaning of connector housings prior to assembly/ gluing
- Thales Systèmes Aeroportes: cleaning of PCB 's prior to assembly in Airbus flight simulator
- ACB, Electronic Apparatus, Somacis, Fela and many others: cleaning and etching of specialized PCB 's
- Jehier, Airbus, and Boeing: hydrophobic Nano-coating of melamine foams.
- AKT, Germany; activation; flocking
- Faurecia; activation; flocking
- Amiens Injection, France; activation; technical plastic
- Fremach, Belgium; activation; car interior part
- Hella, Germany; cleaning; parylene covered hybrid
- Honda, Belgium; activation; dash board
- Hopkins, United Kingdom; cleaning; metal wire
- Hutchinson, France; activation; car bumper
- Kiekert, Germany; cleaning & activation; connector
- Maag, Germany; activation; flocking
- Magneti Marelli, France; activation; dashboard
- NiniX Technologies, Belgium; activation; plastic car part
- Plastivaloire, France; activation; car interior part
- Qualplast, United Kingdom; activation; flocking
- Saint-Gobain-Sekurit, Germany; etching; windshield
- Solvay Inergy, Belgium; activation; fuel tank
- Souriau, France; cleaning & activation; connector
- Structuplas, Belgium; etching; flocking
- Visteon, France; activation; car interior part
- Visteon, Spain; activation; arm rest
- WTX Automotive, France; coating; air inlet



# NANO COATS

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