

SUPPORTED BY



DISCOVER



# COPPER 3D

ANTIMICROBIAL INNOVATIONS

# NANOCLEAN MD<sup>1</sup>

ANTIMICROBIAL NANOCOMPOSITE



Biocompatible  
Skin Contact Approved  
Non-Cytotoxic

Produced by a ISO 9001/2015 company

# THE NEW STANDARD IN BIOMEDICAL 3D PRINTING

We are a Chilean company founded by professionals passionate about the impact that new technologies have on the quality of life of people. Copper3D uses the best Nano-Copper additive in the world, functionalized and improved to provide the best antimicrobial action against a wide range of microorganisms. (Learn more in [www.copper3d.com](http://www.copper3d.com)).

## FROM THE DEEPEST COPPER MINES IN CHILE



Biocompatible  
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## TO THE MOST SOFISTICATED AND HIGH END ANTIMICROBIAL PRODUCTS OF THE WORLD

**NANOCLEAN MD<sup>1</sup>** is an innovative Nanocomposite developed with a high quality PET-G and a patented, scientifically validated and highly effective Nano-Copper additive. This unique combination of technologies brings the following characteristics to our products:



Antimicrobial action has been scientifically validated eliminating more than 99.99% of fungi, viruses, bacteria and a wide range of microorganisms.



Clinically tested in prosthesis for amputees with excellent results. It's also a Medical Grade material and ideal for the manufacture of other medical applications where it's dangerous to have bacterial contamination, such as postoperative prostheses, wound dressing and surgical equipment.



Antimicrobial properties confirmed by two microbiology laboratories in Chile and USA. PLACTIVE™ is a FDA Registered Material and EU compliant (No. 10/2011 and No. 2023/2006). The manufacturer also has certification ISO 9001/2015 and is REACH compliant.



The Nano-Additive maintains all the mechanical properties of the material like hardness, flexibility, odor neutral, easy to print and Hydrophobic (Does not absorb water).



**NANOCLEAN MD<sup>1</sup>** it's also has a food contact clearance No. 1935/2004.



Non-toxic and environmentally friendly (100% recyclable material).

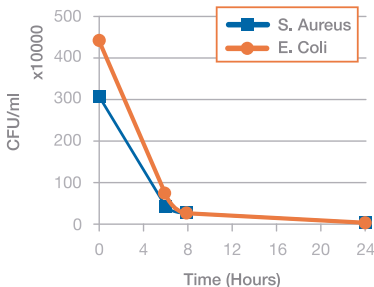


## NANOCLEAN MD<sup>1</sup> ANTIMICROBIAL ACTIVITY

This graphic shows the results of 2 studies conducted by microbiology laboratories in USA and Chile<sup>1,2</sup>.

Both studies confirm that the Colony Forming Units (CFU) of Staphylococcus aureus MRSA and Escherichia coli DH5  $\alpha$ , falls abruptly during the first 6 hours of exposure to **NANOCLEAN** (>95%), continuing the elimination of bacterial strains until reaching >98% elimination at 8 hours and >99.99% elimination at 24 hours.

### CFU REDUCTION NANOCLEAN MD<sup>1</sup>



**WE BELIEVE IN THE POWER OF INNOVATION TO RESHAPE THE FUTURE.**

1. SITU Biosciences Microbiology Laboratory, USA.

2. Microbiology Laboratory of Universidad Católica de Valparaíso, Chile.

# 3D PRINTER CONFIGURATION PARAMETERS WITH **NANOCLEAN MD<sup>1</sup>**

**PRINTING TEMP.** 190 - 210 °C

**PRINTING SPEED** 40 - 50 MM/SEG

**LAYER HEIGHT** ≥ 0.1 MM

**PRINT BED TEMP.** ± 60-80°C

## MATERIAL PROPERTIES OF **NANOCLEAN MD<sup>1</sup>**

Material properties		
Description	Testmethod	Typical value
Specific gravity	ISO 1183	1,27 g/cc
MFR 190°C/2,16 kg	ISO 1133	6,4 gr/10 min
Tensile strength at yield	ISO 527	50 Mpa
Strain at yield	ISO 527	6%
Strain at break	ISO 527	23%
Tensile Modulus	ISO 527	2020 MPa
Flexural modulus	ISO 178	2050 Mpa
Flexural strength	ISO 178	69 MPa
Impact strength - Charpy method 23°C	ISO 179	8,1 kJ/m2
Rockwell Hardness	ASTM D785	105
Moisture absorption	ISO 62	1104 ppm
Printing temp.	DF	240±10°C
Heat Deflection Temp	ASTM 648	70°C
Transparency	ASTM D1003	90%

**“Keep the package sealed until ready to use and reseal any unused material!”**

Recommended temperature for heated bed is ± 60-80°C. Adhesion is possible on different surfaces.

**NANOCLEAN MD<sup>1</sup>** can be used on all common desktop FDM or FFF technology 3D printers.

Storage: Cool and dry (15-25°C) and away from UV light. This enhances the shelf life significantly.

Copper 3D expects each customer or final user of its products to study the present document carefully and ask for appropriate expertise to learn about its correct uses.

Copper 3D declares that the client is made fully accountable for the ultimate use given to this product.

## BE A PART OF THIS NEW ECOSYSTEM AND JOIN THE ANTIMICROBIAL 3D PRINTING REVOLUTION!

Our Antimicrobial 3D Printing  
Ecosystem with great added  
value for ALL:

- Patients
- Hospitals
- Doctors
- Universities, R&D Centers
- Startups & Makers
- Big 3D Print Developers
- Resellers

**COPPER 3D**

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