

SUPPORTED BY



DISCOVER



# COPPER 3D

ANTIBACTERIAL INNOVATIONS

## MD<sup>1</sup> Flex

ANTIBACTERIAL NANOCOMPOSITE



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 antibacterial action against a wide range of microorganisms. (Learn more in [www.copper3d.com](http://www.copper3d.com)).

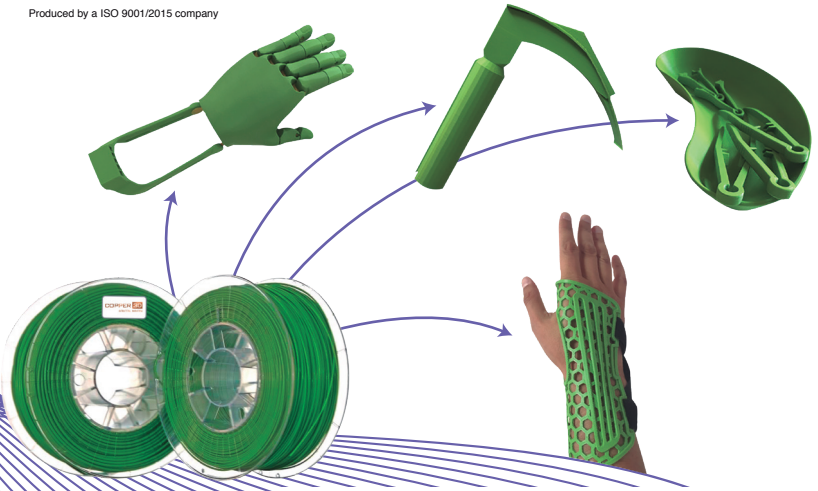
FROM THE DEEPEST COPPER MINES IN CHILE



No. 1039/11  
No. 1930/2004  
No. 2023/2006



Produced by a ISO 9001/2015 company



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

MD<sup>1</sup> **Flex** is an innovative Nanocomposite developed with a high quality TPU98A and a patented, scientifically validated and highly effective Nano-Copper additive. This unique combination of technologies brings the following characteristics to our products:



Antibacterial 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 ideal for the manufacture of other medical applications where it's dangerous to have bacterial contamination, such as postoperative prostheses, wound dressing and orthopedic insoles.



Antibacterial 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 TPU98A material like strong & flexibility, high heat resistance (138°C), 450% elongation at break and easy to print at vel. >75mm/s.



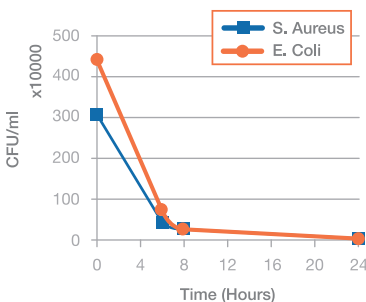
MD<sup>1</sup> **Flex** it's also has a food contact clearance No. 1935/2004.

## MD<sup>1</sup> FLEX ANTIBACTERIAL 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 α, falls abruptly during the first 6 hours of exposure to MD<sup>1</sup> **Flex** (>95%), continuing the elimination of bacterial strains until reaching >98% elimination at 8 hours and >99.99% elimination at 24 hours.

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



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 MD<sup>1</sup> FLEX

**PRINTING TEMP.** 235±10°C

**PRINTING SPEED** >75mm/seg.

**LAYER HEIGHT** ≥ 0.1mm

**PRINT BED TEMP.** 0°-60°C

## MATERIAL PROPERTIES OF MD<sup>1</sup> FLEX

Material properties		
Description	Testmethod	Typical value
Specific gravity	ISO 1183	1,16 g/cc
Tensile Strength at Yield	ISO 527 1/2	50 Mpa
Elongation-Strain at Break	ISO 527 1/2	450%
Tensile (E) modulus	ISO 527	150 MPa
Impact Strength Charpy method 23°C	ISO 179	NB
Shore Hardness	ISO 7619-1	98A
Printing temperature	DF	235±10°C
Melting temp.	ISO 294	225°C
Glass transition (Tg)	DSC	-16°C
Vicat softening temperature	ASTM D 1525	138°C

**"Keep the package sealed until ready to use and reseal any unused material"**

- MD<sup>1</sup> Flex does not require a heated bed to stick well though you can set it to 0-60°C for extra reassurance.
- MD<sup>1</sup> Flex works superb with a direct drive feeder, or newer types of Bowden FDM or FFF technology 3D printers.
- By changing the infill/amount of walls you can create the perception of a higher/lower shore than 98A.
- Storage: Cool and dry (15-25°C) and away from UV light. This enhances the shelf life significantly.

Copper 3D expects each customer or 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 ANTIBACTERIAL 3D PRINTING REVOLUTION!

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

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



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