



## PLASTICOPPER ANTIMICROBIAL TECHNOLOGY.

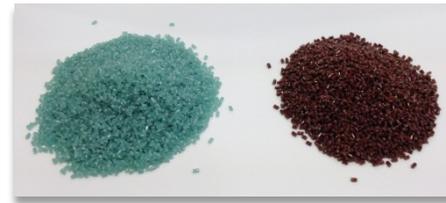
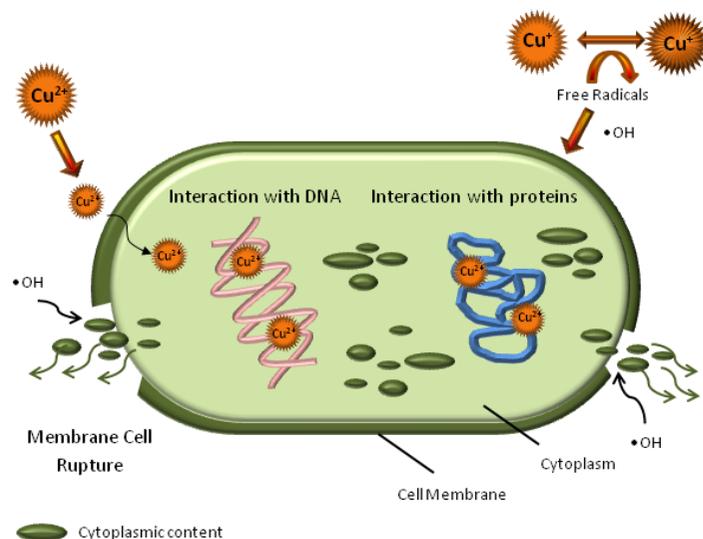
The antimicrobial properties of copper have been known for centuries, but only in the last decade new technological applications have been developed to replace traditional materials that can spread harmful microorganisms to health.

**PlastiCopper** provides antimicrobial solutions based on copper nanotechnology, which consists on additives that can be incorporated into different polymeric matrices, such as plastic materials, paints, resins, textiles, etc.

Thus, we have developed a technology that allows us to get different materials with antimicrobial and antifouling properties.

Copper ions released from our additives interact at different levels (DNA, protein, membrane) with the microorganisms' cells, causing their death.

### Mechanism of Action of Copper in a Bacterial Cell

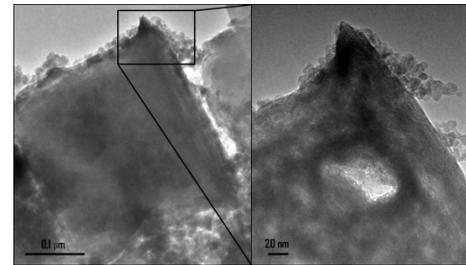


## Benefits

Benefits of using **PlastiCopper** Antimicrobial Additive:

- Controlled and extended release of the active agent.
- Copper exhibits greater efficacy against microorganisms not affected by other antimicrobial agents.
- Social value of copper in the Chilean population, as national product.
- Use of copper nanotechnology, which allows greater release of the active agent.

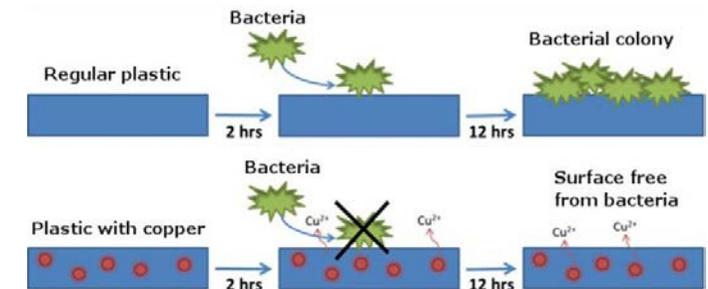
### Electron Microscopy of PlastiCopper Nanometric Additive



- It requires low percentages of additive for antimicrobial effect (<10% w/w).
- The original product keeps its properties: processability, mechanical strength and chemical resistance.
- It adapts to the normal production process.
- Different formulations (powder, masterbatch, dispersion) that adapt to the uses and costs of the final product.



## Traditional plastics and PlastiCopper Additive plastics



## Applications

Materials manufactured with **PlastiCopper** Additive gain antimicrobial properties that eliminate microorganisms and that can be used in the whole spectrum of applications where thermoplastic or polymeric matrices, including organic coatings, are used today. The work developed by **PlastiCopper** involves various incorporation techniques of the Additive on plastic materials, including: melt blending, dipping, extrusion and injection.

**Universidad de Chile patents, licensed exclusively to PlastiCopper:**

Applications in Chile: 2101-2013 y 2350-2012 (in process).  
PCT applications: PCT/IB2013/056768 and PCT/IB2014/063280.

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