

Safety of Using Copper Oxide in Medical Devices and Consumer Products

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Copper oxide products have been tested in 9 clinical trials and in several non-clinical studies and have been found to be non-irritating, non-sensitizing, and safe to use, with not even one adverse reaction recorded, both when in contact with intact and broken skin.

Copper is an essential trace element needed by humans, which plays a key role in many physiological processes in different tissues and has been shown to be involved in angiogenesis and in wound healing. Copper has very potent antibacterial, antifungal, antiviral, and acaricidal properties.

- **Methods**

The current manuscript reviews the safety aspects of the use of copper oxide in products that come in contact with open and closed skin. Sixty-one articles are referenced.

- **Results**

A novel durable platform technology has been developed, which embeds copper oxide particles into polymeric materials.

Following a recent thorough and extensive analysis the USA EPA has allowed the use of copper and copper compounds in many applications- such as pesticide on crops, herbicide, wood preservation, and for direct aquatic applications.

Embedding copper oxide particles into polymeric materials endows them with potent broad-spectrum anti-microbial, anti-mite properties, and in some applications has a direct effect on physiological processes.

Current or potential uses of this technology in health-related applications include:

- a) Hospital sheets, patient robes, patient pajamas, and nurse clothing, from copper-oxide impregnated biocidal textiles, to reduce the bioburden and nosocomial infections
- b) Acaricidal mattresses, quilts, carpets, and pillows that may improve the quality of life of those suffering from dust-mite related allergies
- d) Copper-impregnated socks for reducing the risk of skin pathologies, especially in diabetic patients with compromised blood supply to the extremities
- e) Antiviral and antibacterial copper-impregnated personal protective equipment (PPE), such as protective respiratory masks
- f) Copper oxide containing wound dressings for the reduction of dressing and wound contamination and enhancement of wound repair

“Copper is a naturally occurring metal that is efficiently regulated in the human system and current available literature and studies do not indicate any systemic toxicity associated with copper exposure”

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