Amkncrgrgtc ?l_jwqgq «
Asnpml Clf_lacb CMQ Qspd_acq

One of the colors under a jewelers lens @ 10X

Cupron Enhanced EOS Surfaces – Background Information

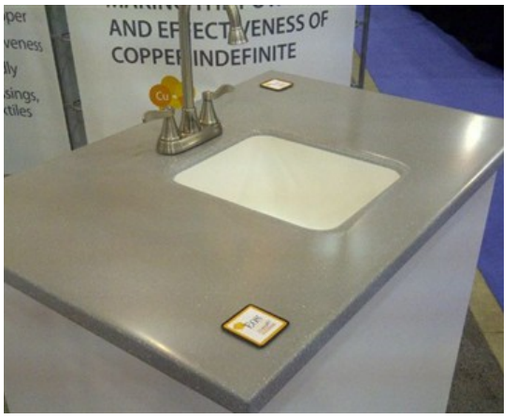
Product Overview (information found on EOS/Cupron/EPA web/documents)

Name
(Antimicrobial) Cupron Enhanced EOS Surfaces. Also shortened to EOScu.

Brand Trademark status
Unknown - No use of TM or ® on either EOS or Cupron websites. Cupron is also a trade name for Benzoin oxime (unrelated)

Introduced
Fall 2011 (Product or Cupron EOS partnership, other reference has production June 2013)

Cupron Manufactured by
Cupron Technologies
800 East Leigh Street
Richmond, VA 23219



One color on display at the Medical Expo in Chicago. The bowl in the picture is not enhanced with Cupron, but they plan on having a line of protected bowls for use with their sheets.

Production by EOS (cell casting):
Eos Surfaces, which makes countertops, recently opened a 32,000-square-foot manufacturing facility on 20th Street in Norfolk. The plant will primarily produce Cupron Enhanced Eos, which uses copper to kill bacteria within two hours of contact, the company said.

Product Offering

Formats (where did this information come from – should cite source)

Sheet: Provided for curved or shaped applications such as foot boards, bed rails, and other hard to form applications (not clear if this is provided by EOS or they are referring to fabrication)

Molded products including vanities with integral bowls, shower pans, and job-specific, customized products are available. (no product details available)

Composition (where did this information come from – should cite source)

16% Copper (I) Oxide (unknown delivery, could have sig % carrier) AKA Cuprous oxide, Cu_2O, Cuprite, Dicopper oxide, Red copper oxide, red in color

84% Other (standard EOS listed as acrylic/polyester, alumina trihydrate, and ~5% Calcium Carbonate suspected based on past EOS analyses)

Sheet Dimensions

(¼" & 3/8)" x 30" x 120" from webinar, unverified, std EOS is 3 cm x 30"x121".

Reference to multiple thicknesses Several 3rd party blogs mention availability in both 2cm and 3cm, however, that is unconfirmed.

Colors

Only 2 - Grey & Beige – both particulate colors. Statement that Cupron particles are visible

Statement "Actual color shade may vary slightly from above sample images and from color lot to color lot" Source http://cupron.eos-surfaces.com/workspace/uploads/contentDocuments/eoscu-product-brochure-nov- 2013.pdf

Cupron particulate visible in sheet (must be on surface to be active)

Distribution / Market

Wilsonart announced (12/18/2013) that it will be the exclusive distributor in 38 states. http://www.wilsonart.com/press/viewpressrelease.aspx?media=181

Additional distributors are Web-Don (Charlotte, N.C.), ISG (Sterling,Va.), Fessenden Hall (Pennsauken, N.J.), and Compi Distributors (Arnold, Mo.). (October 11, 2013 EOS press release).

Target Market Healthcare

Registration Status

Solid Surface is EPA registered Pesticide EPA Reg. No. 845427

Only known solid surface registered as pesticide; only other known surface category is a series (400+) of copper metal alloys.

Registrant

Cupron Technologies
800 East Leigh Street
Richmond, VA 23219

Cost of Registration

$1.5 million (http://cupron.eos-surfaces.com/the-story/news/sentara-leighs-new-copper-infused-surfaces-that-kill-bacteria-said-to-be-worlds-largest-clinical-trial/)

Registration offers Key Differentiator

EPA registration as pesticide allows "kill" statement.

Approved Label Statements (OCR from EPA conditional approval)

Label may contain 1 or more of the statements listed below in [ ] **Antimicrobial Cupron Enhanced EOS Surface**

- Laboratory testing has shown that when cleaned regularly:
  - [This surface continuously reduces bacterial* contamination, achieving 99.9% reduction within two hours of exposure.]
  - [This surface kills greater than 99.9% of Gram negative and Gram-positive bacteria* within two hours of exposure.]
  - [This surface kills greater than 99.9% of bacteria* within two hours and continues to kill 99% of bacteria* even after repeated contamination.]
  - [This surface helps inhibit the buildup and growth of bacteria* within two hours of exposure between routine cleaning and sanitizing steps.]

**Testing demonstrates effective antibacterial activity against Staphylococcus aureus (ATCC 6538), Enterobacter aerogenes (ATCC 13048), Methicillin-Resistant Staphylococcus aureus (MRS A, ATCC 33592), Escherichia coli 0157:H7 (ATCC 35150), and Pseudomonas aeruginosa (ATCC 15442).*

- The use of an Antimicrobial Cupron Enhanced EOS Surface is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those practices related to cleaning and disinfection of environmental surfaces. The Antimicrobial Cupron Enhanced EOS Surface has been shown to reduce microbial contamination but it does not necessarily prevent cross contamination. (Necessarily was crossed out in conditional approval and the conditional approval explicitly states it must be removed, but still appears on their website)

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- The directions in bracketed text may be included in an insert. If so there will be a statement to see the insert for additional directions for use of the product.

Proper Care and Use of Antimicrobial Cupron Enhanced EOS Surfaces:

- ***The use of Antimicrobial Cupron Enhanced Hard Surfaces does not replace standard infection control procedures and good hygienic practices. Antimicrobial Cupron Enhanced Hard Surfaces' must be cleaned and sanitized according to standard practice.***

  Health care facilities must maintain the product in accordance with infection control guidelines; users must continue to follow all current infection control practices, including those practices related to disinfection of environmental surfaces.

- Antimicrobial Cupron Enhanced EOS Surfaces may be subject to recontamination and the level of active bacteria at any particular time will depend on the frequency and timing of recontamination and cleanliness of the surface (among other factors). In order for the antimicrobial Cupron Enhanced EOS Surface to have proper antimicrobial effect, the product must be cleaned and maintained according to the directions included on this label.

This product must not be waxed, painted, lacquered, varnished, or otherwise coated.

- Routine cleaning to remove dirt and filth is necessary for good sanitation and to assure the effective antibacterial performance of the Antimicrobial Cupron Enhanced EOS Surface. Cleaning agents typically used for traditional touching surfaces are permissible; the appropriate cleaning agent depends on the type of soiling and the measure of sanitization required. [Normal tarnishing or wear of the Antimicrobial Cupron Enhanced EOS Surface will not impair the antibacterial effectiveness of the product].

This product must not be used on any direct food contact or food packaging uses.

- Antimicrobial Cupron Enhanced EOS Surfaces may be used in hospitals, other healthcare facilities, and various public, commercial and residential buildings for the non-food contact surfaces listed below.
- The following statement will appear on the label if the use involves potential exposure to outdoor conditions:
  - Surfaces that may be exposed to outdoor environmental conditions (e.g., handrails, shopping carts, child seats and ATM machines) are not representative of indoor laboratory conditions, and therefore, may impart reduced efficacy if not cleaned when visibly soiled.

DuPont Assessment of Cupron Enhanced EOS Surfaces as of June, 2014

Summary of Findings

- **Limited Aesthetics (2 particulate-based colors; gray and tan)**
- **High Cost**
  $50+/sqft to Fabricator (as of March, 2014)
- **Cannot be put in direct food contact applications**
- **No NSF listing**
- **Color stability - Reference to tarnishing of Cupron**
- **Customer acceptance of "pesticide" surface product.**
- **Cannot locate MSDS publically**
- **Physical Properties**
  May damage easily due reduced thickness
  Unknown changes to product performance due to high Cupron loading

Additional Potential Disadvantages:

Aesthetic Capability

Currently Cupron particles are visible, they could eventually do solid colors. lighter colors could be problem due to color of Copper (I) oxide present at high concentrations.

Flame Class

EOScu is an acrylic/polyester solid surface therefore smoke developed will be higher than for an acrylic solid surface. [fact]. If their ¼" product is used for internal wall surfacing, it may not comply with Class 1 (A) per ASTM E84. Stability

Color - Reference to tarnishing

Performance - Copper (I) oxide acid soluble; Copper (I) oxide degrades to Copper (II) oxide in moist air http://en.wikipedia.org/wiki/Cuprous_oxide

Fabrication Requirements

Reference to Certified EOScu fabricator installer
(http://cupron.eos-surfaces.com/how-it-works/faqs/)

"There will not be an extensive certification process, we will just have to educate you on the do's and don'ts of the material to keep its full anti-microbial properties active.)"
http://thefabricatornetwork.com/Forum/tabid/164/aft/259654/Default.aspx

Summary Points

How much are you willing to pay for "peace of mind"?

Cupron-enhanced EOS surfaces can claim (and therefore has proven) that 99.9% of "germs" will be killed within 2 hours. This is the same as any "sanitizer" cleaning product that has been registered with the EPA. However, EOS advises that:

"The use of an Antimicrobial Cupron Enhanced EOS Surface is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those practices related to cleaning and disinfection of environmental surfaces."

In fact, within their April 1, 2014 webinar titles "Demystifying the Antimicrobial Landscape", they acknowledge that organic residue left on the surface will dilute the efficacy of the products kill properties.

So, if the surface material itself is as effective at killing as a sanitizer (the least effective among, Sterilizers, Disinfectants, and Sanitizers, in order of strongest kill efficiency from a timing standpoint), but cleaning and disinfection of the surface is still recommended, how much protection do you gain?

Laminate	Corian® solid surface	Cupron-enhanced EOS Surface	
	X	X	Non-porous/easy clean
	X	X	With Proper cleaning Doesn't support growth of mold mildew and bacteria
		X	Kills germs in 2 hours

DUPONT
Corian.
SOLID SURFACE