



## Disinfectant Market Rises on Health Concerns

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Disinfectant and anti-microbial chemical demand will increase 3.6%/year, to \$1.2 billion in 2013, according to a study by market research firm Freedonia Group (Cleveland). Growth will be driven by consumer fears of pathogens in food and around the home, as well as by an expected rebound in production of coatings, plastics, and other key end-products, the study says. These factors are driving investments of several market suppliers, including biotechnology firm Pure Bioscience (San Diego).



Silver Lining: SDC is said to offer better residual protection than colloidal silver-based products.

Pure Bioscience says it has developed a silver-based molecule for preservatives and biocides that harnesses the antimicrobial properties of silver and improves kill time and residual protection. The technology is based on a proprietary antimicrobial molecule, silver dihydrogen citrate (SDC). The company brought a 3-million gal/year SDC plant online at San Diego last year.

“This complex is stable enough to be extremely stable as far as shelf life, but weak enough that it is extremely bioavailable,” says Mike Krall, Pure Bioscience CEO. SDC is the only stabilized ion-based product on the market, Krall says. Many competing silver-based antimicrobial products are based on colloidal silver, which have a short lifespan and offer little residual protection after application, he says.

SDC works faster than other antimicrobial products because it attracts bacteria that recognize the citric acid portion of the molecule as food, says Dolana Blount, director/regulatory affairs, Microbiology, at Pure Bioscience. “Citric acid acts like a Trojan horse. Once inside, the silver works by disrupting the bacteria’s DNA and intracellular proteins.”

SDC can also replace the biocide triclosan, Krall says. Triclosan is said to be a hormone-disrupting chemical found in many cosmetic, perfume, and personal care products. Environmentalists say triclosan poses a risk to marine life.

Ciba Specialty Chemicals announced earlier this year that it is phasing out triclosan in certain applications including clothing, textiles, and “assorted household items.” The company also announced an agreement last December to market and sell Pure Bioscience’s SDC antimicrobial as a preservative and biocide.

The deal is indicative of a broader industry move to phase out triclosan in favor of greener formulations, Krall says. Ciba, which BASF has recently acquired, provides generic formulations that contain SDC for deodorants, anti-perspirants, soaps, lotions, shampoos, mouthwash, and toothpastes, he says. Ciba runs the toxicity and efficacy data on these products for customers, he adds.

Pure Bioscience reported a second-quarter loss of \$2.2 million, compared with a loss of \$1.5 million in the same year-ago quarter. Sales increased 86%, to \$284,800. The loss reflects “the varied needs of Pure Bioscience’s distributors during the early phases of market launches and the unpredictable timelines of regulatory approvals for new distributors,” the company says.

Meanwhile, microbial product suppliers are battling the recession. Arch Chemicals, which brought a zinc Omadine plant at Suzhou, China online last year, says its Personal Care and Industrial Biocides segment posted sales down 15%, to \$68 million. The company cites decreased demand for biocides in building products and metalworking fluids.

However, Arch tells *CW* that it is capitalizing on new global regulations that call for the phase-out and replacement of “older, problematic” molecules, such as tributyl tins. Omadine biocides have captured more than half of the global market for tributyl tin in marine paints, Arch says. The company also says it is benefitting from consumer demand for products that destroy or prevent the growth of mold, mildew, bacteria, and fungus. Sales of industrial biocides are expanding into end-use applications for plastics and textiles, including shoe components and sports helmets, Arch says.

Dow Chemical says results in its biocides business declined primarily due to lower volume in North American oil and gas applications. Dow, which recently acquired Rohm and Haas (R&H), has formed Dow Microbial Control, which combines both the Dow and R&H biocides businesses.