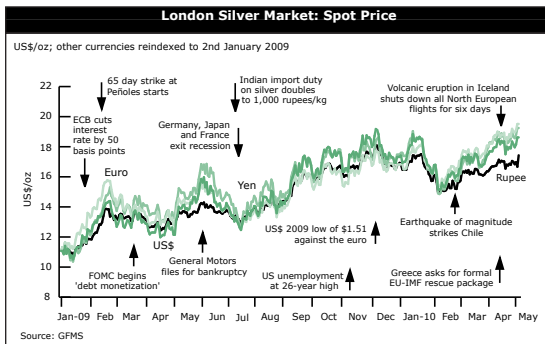


# Silver News

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- Natural Silver Particles More Effective
- First Silver Mining ETF Launched
- Hospital Scrubs Kill Germs
- Anti-bacterial Airline Trays
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## 2009 Was a Sterling Year for Silver Second Highest Average Price Since 1980



Strong gains in investment, a recovery in industrial demand and the gold rally were the prime drivers of the 53 percent intra-year rise.

Strong demand by investors and a recovery in industrial demand during 2009 resulted in a robust performance for silver prices, according to *World Silver Survey 2010* released in May by The Silver Institute. Indeed, silver has continued to make gains as the European sovereign debt crises continues.

“Silver’s status as a precious metal was unequivocally reaffirmed last year by investors who purchased it not only as a speculative commodity-play on economic recovery but also as a safe haven asset, particularly at a time when the global financial crisis was raging,” the Survey noted.

Silver posted an average price of \$14.67 in 2009, the second highest average since the high reached in 1980.

Flat supply is expected in 2010, and solid gains in fabrication demand are anticipated, which should continue to buoy prices this year, according to the Survey.

Much of 2009’s strength in investment can be attributed to soaring demand for silver exchange traded funds (ETFs) as well as physical retail investment. This occurred on the heels of 2008’s previous record ETF inflow of 265.3 million ounces of silver. Total ETF holdings rose by 132.5 million ounces over the course of 2009, ending the year at 397.8 million ounces as new funds entered the marketplace from Australia and the United States. (See related story in this issue: *First Silver Mining Exchange Traded Fund Launched.*)

Coins and medals fabrication rose by 21 percent to post a new record of 78.7 million ounces, driven by a jump in retail demand principally in the United States, although western European demand was also stronger in 2009. In the United States, the increase in bullion coin sales was also accompanied by a surge in bar demand. Demand for the US Silver Eagle bullion coin reached record highs in 2009, with over 28 million Eagles sold. Over the 1986-2008 period, US Eagle minting averaged 7.7 million ounces annually.

The World Silver Survey was independently researched and compiled by London-based GFMS Limited and has been published by The Silver Institute since 1990. Eighteen companies and organizations from North and South America, Europe, Australia and Asia sponsored the Survey.

Copies of the *World Silver Survey 2009* are available from The Silver Institute for US\$225 and can be ordered from [www.silverinstitute.org](http://www.silverinstitute.org). For orders outside the US, go to GFMS at [www.gfms.co.uk](http://www.gfms.co.uk).

# Naturally-Produced Silver Particles May Be Better For Killing Bacteria

Scientists at Oak Ridge National Laboratory and the University of Tennessee have found that silver nanoparticles produced from bacteria have better anti-bacterial properties than those produced from synthesized chemicals.

Advantages of the bacteria-produced nanoparticles include more consistent sizes and properties at room temperature and pressure, unlike the chemical route equivalents, according to the June, 2010 edition of *Chemistry World*, published by The Royal Society of Chemistry.

A team led by Mitchel Doktycz incubated the *Shewanella oneidensis* bacteria with silver nitrate solution to produce uniform-sized silver nanoparticles. The team then compared these nanoparticles to those produced by chemically-synthesized nanoparticles and found that the biogenic nanoparticles had the higher toxicity levels. The reason for the better germ fighting power is not yet clear, but Doktycz suggests that an as-yet-unknown particle found to coat the surface of the naturally produced silver particles may play a role. "These coatings, it turns out, can have quite an effect on their apparent toxicity," says Doktycz. He and his team may not know the true reason until they learn more about the unknown coating.

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## First Silver Mining Exchange Traded Fund Launched

In April, Global X Funds ([www.globalxfunds.com](http://www.globalxfunds.com)) launched the Global X Silver Miners Exchange Traded Fund, or ETF, which is the only such fund targeting silver miners, according to company officials.

With ticker symbol SIL, the ETF tracks the Solactive Global Silver Miners Index, comprised of the world's largest and most liquid silver mining companies. The majority of holdings are Canadian-based companies but it also includes companies based in the US, Mexico, Peru, and Russia. As of March 31, 2010, the largest index components were Fresnillo, Industrias Penoles, Silver Wheaton, and Pan American Silver.

Company officials noted that silver demand should remain strong as a result of both investment interest and increased use in the consumer and industrial sectors. Fifty-four percent of silver demand is industrial, and, according to BMO Capital Markets, silver industrial demand is expected to rise 19 percent this year. "SIL and COPX (the fund's copper mining ETF launched on the same day) provide investors with efficient and targeted exposure to silver and copper mining companies, respectively. Both metals are essential for the global economy and may see growing demand as the economic recovery continues," said Bruno del Ama, CEO of Global X Funds.



Hospital scrubs have become stylish and healthier with the addition of silver imbedded in the fabric.

## Hospital Scrubs Kill Germs

Hospital scrubs are part of a US \$1 billion-a-year medical apparel industry, with producers continually introducing new products that not only look stylish but enhance worker safety in an effort to differentiate themselves from competitors.

Performance Scrubs ([www.performancescrubs.com](http://www.performancescrubs.com)), which recently opened in Brentwood, Tennessee, offers moisture-wicking, stain-resistant material that imbeds silver ions into the fabric to control odor and restrict the spread of bacteria. Company officials say the clothing is easy to clean and more durable than other anti-microbial scrubs.

Anti-bacterial scrubs come in men's and women's sizes and styles.

# Place Your Anti-Bacterial Tray Tables in Their Upright and Locked Position

Advertisers have sought for years to offer ads on airplanes where they have a captive audience. Now, they will have figured out a way that may sit well with flyers.

With Care Covers, ([www.carecoverwrap.com](http://www.carecoverwrap.com)) a tray table is covered with a clear laminating film that releases silver ions to prevent the growth of bacteria, yet allows the ad underneath to be viewed. National advertisers pay for the production and application of these laminates.

U.S. Airways is expected to be one of the first US carriers to offer the tray table ads and will roll it out by year's end. Verizon will be one of the first companies to place ads, followed by Sony, Zicam, Panasonic, Advil and Johnson & Johnson.

The idea came from flyers who are concerned about germs in public spaces, especially during the swine flu scare, when people were reluctant to be in confined areas or touch objects available to many other hands.

In another application of anti-bacterial laminates, Sterifold ([www.tarifoldusa.com](http://www.tarifoldusa.com)) offers a range of antimicrobial document display and protection products including laminated display books, file folders and self-adhesive foils that are treated with Agion silver ions. This application would be used for items such as invitation samples, baseball card books, sales brochures and photo albums. As with the tray table ads, the silver-treated pages are a way for companies to encourage customers to look through their sample books without concern for germs carried on the pages.



Flyers will soon see ads under laminated tray tables. Silver will keep them germ free.

BRAND CONNECTIONS GLOBAL

# Singapore Sun Checked by Silver

By Samuel Etris, Senior Technical Consultant to The Silver Institute

The US\$8 billion Marina Bay Sands Hotel in Singapore is protected from the sun's heat by silver-coated glass. Its three 55-story towers, 2,500 rooms, 1,000 casino gaming tables, and 45,000-guest capacity convention center are protected by architectural glass that reduces solar heat by 75 percent and ultraviolet transmission by 95 percent.

The hotel's spectacular glass envelope is bombarded by intense tropical sun and an ultraviolet onslaught double that of North America. With comfort and protection of guests and room furnishings crucial, the solution was to use LoE<sup>2</sup> (Low-Emissivity) and LoE<sup>3</sup> window glass in direct sun. LoE types of glass are coated with microscopically thin silver layers, which reflect radiant heat while permitting the passage of visible light. In hot weather, LoE-type glass reflects away unwanted solar heat. In colder weather it reflects radiant heat back inside. LoE<sup>2</sup> glass contains two silver layers while LoE<sup>3</sup> glass contains three silver layers and offers greater cooling and heating abilities.



MARINA BAY SANDS

Silver-coated glass keeps the Marina Bay Sands Hotel in Singapore protected from the strong Southeast Asian sun.

The unique reflective property of silver was tapped by a US Department of Energy and National Science Foundation contract at the Massachusetts Institute of Technology in the mid-1970s to develop an energy-saving window glass. The solution was a near invisible coating of silver with special additional materials to prevent it from having the appearance of a mirror. Cardinal Corporation ([www.cardinalcorp.com](http://www.cardinalcorp.com)) perfected the process to create a double coating of silver, called LoE<sup>2</sup>, and has now-perfected a triple silver coating, called LoE<sup>3</sup>. This later complex coating rejects three-quarters of the solar energy and all but five percent of ultraviolet light while blocking only 35 percent of visible light, allowing a person to readily see through the glass without solar glare.

With the cost of heating and cooling a significant factor in building maintenance, use of thermal insulation and thermal insulating glass has become an essential element of building design. Commercial glass consumption movement toward the most effective insulating glass has escalated and the consumption of LoE<sup>3</sup> glass in 2009 reached over 100,000,000 square feet in the US, consuming around 3.5 metric tons of silver.

# Markets for Silver in Disease Prevention Continue to Grow

By Jeffrey Ellis, Senior Technology Consultant to The Silver Institute

With increasing uses of silver in many forms including sprays, gels and coatings, the use of silver as an antimicrobial agent continues to grow not only in hospitals and other patient treatment centers, but also in public areas such as restaurants, airports and institutional buildings. Silver continues to be applied to appliances, especially those used for food storage and laundering.

These applications have received a major boost from the Center for Medicare and Medicaid Services, which has published regulations stating that it will no longer pay for hospital-acquired infections or for other conditions that it deems preventable. As a result, silver -- usually as a component of coatings -- is now used in wall coverings, sinks, flooring, climate control ducts and on bed rails. It is also now used on stethoscopes, pens, clipboards, catheters, endotracheal tubes and on other portable items. Silver is also embedded in textiles such as gowns, masks and wound care products.

Silver is extremely efficient at controlling microorganisms. Generally, values in parts per million by weight are effective and if fungi and mold control is desired, effective concentrations of 200-300 parts per million are usually economical. Silver also has the advantages of being long lasting, benign to humans and other mammals, and because of its reactivity, especially to sulfur, has no harmful effects in real-world environments. The development of technologies using nanosize silver particles has also greatly improved the efficiency of use of the metal.

Part of the recent growth in use of silver has arisen in developing countries from the use of nanosilver in ceramic and textile matrices to kill and prevent the proliferation of microorganisms in stored local water supplies. These still have the drawback that they do not remove toxic minerals, such as those based on arsenic, but the control of microorganisms represents a major improvement in the health of people in these areas. Silver, sometimes in combination with copper, is also often used for water treatment in industrialized countries, especially where the use of chlorine may not be suitable.

Despite the many benefits and useful applications of nanosilver that have been demonstrated globally, the nanosilver products industry has faced adverse media coverage about the environmental and health effects of nanosilver. Data collected over many years, when silver was used extensively for photography, indicate that in the real world, silver in all forms -- ionic, colloidal, nano, or metallic -- will react with sulfur and other substances in the environment and form silver sulfide and other innocuous silver compounds, and is not a threat to any life form. The Silver Institute and Silver Nanotechnology Working Group, a group of silver nanotechnology companies, will continue to collect and disseminate data on silver nanotechnology in order to advance the science and public understanding of the beneficial uses of silver nanoparticles in a wide-range of consumer and industrial products.

## Silver Prices 1979-2010

2010	High	Low	Average
May	19.64	17.49	18.41
Apr	18.42	17.67	18.11
Mar	17.50	16.45	17.09
Feb	16.74	14.82	15.90
Jan	18.78	16.18	17.71

2009	High	Low	Average
Dec	19.30	17.02	17.69
Nov	18.77	16.43	17.86
Oct	17.89	16.17	17.17
Sept	17.41	15.04	16.50
Aug	14.98	13.87	14.40
July	13.99	12.64	13.38
June	15.95	13.57	14.62
May	15.60	12.48	14.11
Apr	13.02	11.79	12.50
Mar	13.86	11.95	13.09
Feb	14.49	12.30	13.41
Jan	12.56	10.42	11.39

Year	High	Low	Average
2009	19.30	10.42	14.68
2008	20.69	8.79	14.97
2007	15.50	11.47	13.38
2006	14.85	8.82	11.62
2005	9.00	6.43	7.32
2004	8.21	5.51	6.67
2003	5.98	4.35	4.89
2002	5.11	4.22	4.60
2001	4.81	4.03	4.36
2000	5.55	4.56	4.97
1999	5.76	4.87	5.22
1998	7.26	4.62	5.51
1997	6.34	4.16	4.88
1996	5.82	4.68	5.18
1995	6.10	4.38	5.19
1994	5.78	4.57	5.28
1993	5.44	3.52	4.30
1992	4.32	3.63	3.94
1991	4.55	3.51	4.03
1990	5.35	3.94	4.82
1989	6.20	5.02	5.47
1988	8.06	6.01	6.53
1987	11.25	5.35	6.99
1986	6.32	4.85	5.49
1985	6.89	5.48	6.14
1984	10.17	6.25	8.15
1983	14.74	8.38	11.46
1982	11.30	4.81	7.93
1981	16.53	7.97	10.53
1980	50.35	10.20	20.66
1979	35.00	5.93	11.20

(COMEX settle)

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