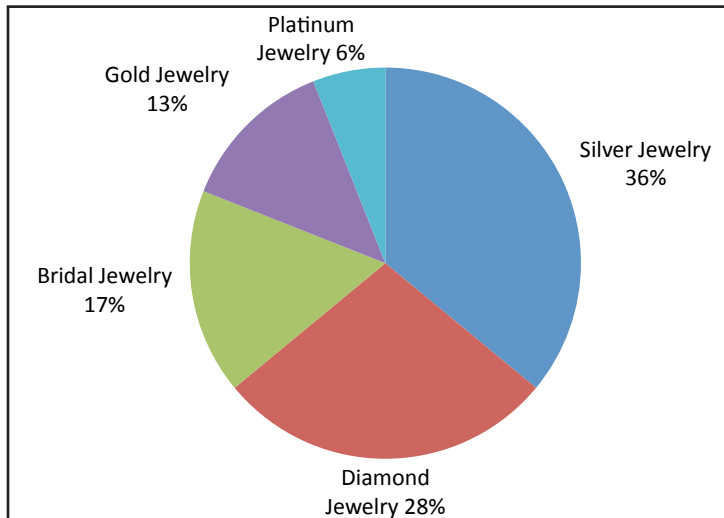


# Silver News

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## Silver Jewelry Retailers Report Increased Sales in 2013 Expect Continued Robust Sales



Categories yielding best margins during holiday season (percent rated as "best")

*“A large majority of retailers, 92%, said that they are optimistic that the current silver boom will continue for the next several years.”*

Seventy-three percent of silver jewelry retailers reported increased sales last year, according to *Silver Jewelry Buying Trends*, a survey conducted by trade publication *National Jeweler* on behalf of the Silver Institute’s Silver Promotion Service (SPS). The survey also found that 66% of the jewelry retailers reported an increase in 2013 holiday season sales of silver jewelry compared to 2012.

A large majority of retailers, 92%, said that they are optimistic that the current silver boom will continue for the next several years.

SPS Director Michael Barlerin said: “While we already had anecdotal information from our program participants that 2013 had been an exceptional year for them, it was gratifying to see the quantifiable results from the survey. Additionally, the five consecutive year-over-year results are perhaps the most compelling I have ever seen.”

Other highlights of the survey include:

- The following merchandise categories gave retailers the best maintained margins during the holiday season (percent rated as “best”)

Silver Jewelry – 36%  
 Diamond Jewelry – 8%  
 Bridal Jewelry – 17%  
 Gold Jewelry – 13%  
 Platinum – 6%

- The age group buying the most silver jewelry is 20 to 40 years old, according to 58% of retailers. The 41 to 50 age group was second.
- Retailers said their silver jewelry sales, as a percentage of their overall jewelry sales, were on average 33% of their unit volume and 29% of their dollar volume;
- Retailers report that the strongest selling opportunity with silver is for women buying silver for themselves.

The survey was conducted online from February 4 to February 24, 2014.

[Get the \*Silver Jewelry Buying Trends\* report here.](#)

# Tata Improves its Non-Electric, Silver-Based Water Purifier

As a follow-up to its popular Tata Swach non-electric, silver-based water purifier (See *Silver News*, February, 2012, [Tata's's Inexpensive Nanosilver Water Filters Reach a Half-Million Sold](#)), [Tata Chemicals, Ltd.](#) has introduced the Tata Swach Silver Boost, which adds a water storage capacity of 14 liters, auto-shut off mechanism and direct-tap-fill. The Swach Silver Boost can produce 3 to 4 liters per hour of drinking water depending upon the initial water quality.

In touting the Swach Silver Boost, company officials noted that while chlorine disinfection is the most commonly used technology for water purification, it only provides protection from bacteria and virus, and does not protect from *Cryptosporidium* which can cause substantial weight loss, nausea and even malnutrition. Other water purification technologies that only use membrane purification do not provide protection against virus which may cause harmful diseases like Polio, Hepatitis A and Hepatitis E.

“Over and above protection from water-borne diseases like diarrhea, dysentery, jaundice and cholera, the Tata Swach Silver Boost combines the power of MF [Ultra/Microfiltration] membrane with silver nanotechnology to make water microbiologically safe from virus, bacteria and parasites/cyst along with safety from algae, fungi, rust, metal particles and turbidity. It provides double protection from bacteria through Tata Swach Bulb and Tata Swach MF membrane,” said Ashvini Hiran, COO, Consumer Product Business, Tata Chemicals, in a prepared statement.

Purification takes place when water is dropped through the Bulb, which consists of carbon from burnt rice husks and nanosilver, which can remove microbes including cholera, E-Coli and the rotavirus. The MF membrane is the final stage of purification and removes bacteria, cysts, protozoa, algae, fungi, rust, metal particles, Giardia and turbidity.

The Tata Swach Silver Boost will retail for about \$US45.00.



The non-electric, silver-based Swach Silver Boost can produce 3 to 4 liters per hour of drinking water.

# Call for Research Projects On Antimicrobial Clothing for Healthcare Professionals

Noble Biomaterials, Inc., manufacturer of silver-based [X-STATIC](#) Antimicrobial Technology, has announced a call for research proposals about the need for bacterial management in clothing worn by people working in healthcare environments.

The solicitation follows recently-released [recommendations](#) from the Society for Healthcare Epidemiology of America (SHEA) that looked at the issue of healthcare personnel apparel worn in hospital environments. Among many issues, the report discussed the psychological importance to patients of uniform apparel rules for healthcare providers as well as concerns about bacteria carried by clothing. The report suggests that areas for future study include “[Evaluation of ] the impact of antimicrobial fabrics on the bacterial burden of HCP [hospital care personnel] attire, horizontal transmission of pathogens, and HAIs [healthcare associated infections]. Concomitantly, a cost-benefit analysis should be conducted to determine the financial merit of this approach.”

In announcing the call for papers, Karin Mueller, Vice President of Marketing at Noble said: “Our vision to be the premier provider of bacterial management solutions for healthcare includes supporting the industry to generate the evidence-based practice it needs. We expect our infection prevention partners to hold us to that standard and we’re equipped to meet and exceed those expectations.”

She noted that there are numerous studies proving that healthcare fabrics such as privacy curtains, lab coats, scrubs and linens are contaminated with dangerous bacteria and that contamination occurs quickly after laundering. “However, the SHEA Expert guidance describes certain research gaps needed to drive facilities to address this issue.”

Noble pledges to support the role attire and additional healthcare fabrics play in the transmission of pathogens and their impact on healthcare associated infections as well as the impact of antimicrobial fabrics on the level of bacteria associated with those fabrics and a cost/benefit analysis of using these as a permanent solution.

Researchers and others interested in submitting proposals may do so at [research@x-static.com](mailto:research@x-static.com).

X-STATIC is an EPA registered, silver based antimicrobial solution shown to reduce 99.9% of bacteria on the surface of fabrics within one hour, according to Scranton, Pennsylvania-based Noble. The product is used in clothing worn by Olympic athletes, military forces, NASA astronauts and is also found in many consumer brands.

# Silver Institute Video Reaches Out to Spanish-Speaking Markets

*Silver: The Element of Change*, a video produced last year by the Silver Institute, is now available with Spanish subtitles. The video, which won a 2013 Bronze [Telly Award](#), examines the many ways in which silver has changed the course of people's lives, including its role as a natural bactericide, the exploration of the New World by Spaniards seeking silver, and the role of silver in the financial portfolios of modern investors.

This seven-minute video also highlights the fact that less than 30 percent of silver is obtained through primary mining, but instead comes from the mining of other metals such as gold and copper. Viewers also learn that over half of all available silver is used in industrial processes, demonstrating that silver is versatile and is used in everything from electrical conductors, solar panels, cell phones, jewelry, silverware and coins.

Pan American Silver Corp., a member of the Silver Institute, helped to support production of the Spanish subtitle version.



Click on the image to watch the video.

# Silver and Gold Smart Tags Tell When Food, Beverages, Medicine Have Spoiled

Chinese scientists have developed 'smart tags' composed of silver and gold microscopic-sized rods that can stick to containers and change color when food has gone bad.

The tags, each about the size of a corn kernel, mimic the time and temperature conditions under which specific foods would deteriorate and indicate possible spoilage by changing color. The tags work without opening the package or touching the food inside.

The tags were tested on milk that was exposed to different temperatures and bacteria until spoilage occurred. This data allowed researchers to synchronize the tags to show when the milk was unfit to drink. The tags, which cost less than a cent each, can also be customized to work on canned goods and even medicines still inside their containers.



Click on the image to see how the smart tags work.

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“We successfully synchronized, at multiple temperatures, the chemical evolution process in the smart tag with microbial growth processes in the milk,” lead researcher Chao Zhang, a scientist at Peking University in Beijing, said in a statement. “If a product was left out too long or stored improperly — even if customers, grocery-store owners and manufacturers can’t tell the difference without opening it and smelling it — the tag still gives a reliable indication of the quality of the product.”

The silver and gold nanorods tags contain vitamin C, acetic and lactic acids, and agar, which react with nanorods to change their color. The gold nanorods are naturally red. Over time, the other compounds such as silver leave deposits, forming a silver shell layer that alters the shape and composition of the gold nanorods, a process that changes their color. “Therefore, as the silver layer thickens over time, the tag color evolves from the initial red to orange, yellow, green and even blue and violet,” Zhang explained.

The tags were introduced at the American Chemical Society's National Meeting in Dallas on March 17.

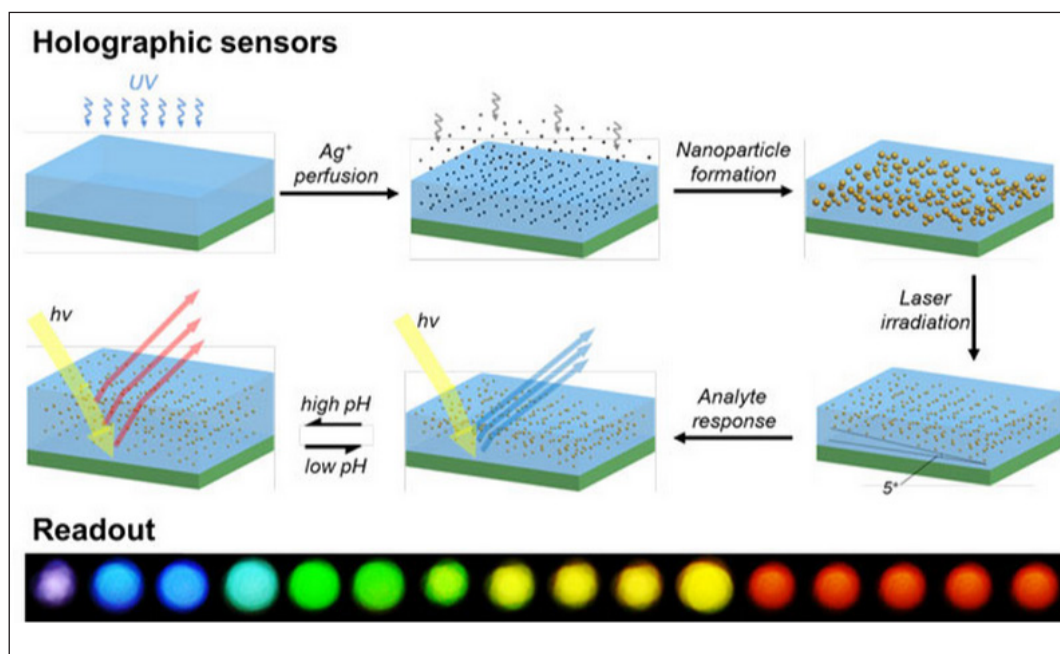
# Silver-Laced Holographic Sensors Allow Cheap, Fast Medical Testing

Calling their inventions ‘smart holograms,’ researchers at the University of Cambridge have figured out that by imbedding silver particles in hydrogels – highly-absorbent materials used in products ranging from contact lenses to disposable diapers – and hitting them with a laser, that the metal particles form 3-D holograms in a fraction of a second. In the presence of various chemicals, the hydrogels either swell or contract, forcing the holograms to change color based on which compound has been introduced.

This means that the silver-laced hydrogels could be used for a slew of medical and environmental tests to check for compounds such as glucose, alcohol, hormones, drugs, bacteria and pollutants. Researchers suggest that the smart holograms hold the promise of detecting diabetes, drug use, cardiac abnormalities, infections and hormonal imbalances. An added benefit is that the holograms are constructed in less than a second, making these sensors suitable for mass production.

“Currently, a lot of medical testing is performed on large, expensive equipment,” said Ali Yetsien, a Phd. student in the Department of Chemical Engineering & Biotechnology who is leading the research. “While these sorts of inexpensive, portable tests aren’t meant to replace a doctor, holograms could enable people to easily monitor their own health, and could be useful for early diagnosis, which is critical for so many conditions.”

He added that the sensors are faster, easier and cheaper to produce than current technologies, about 10 cents each, which make them practical in developing economies where tests, such as those to detect abnormal amounts of glucose, would otherwise be too expensive. He added that the holographic process is reversible, allowing the hydrogel to be used many times before it must be discarded.



Silver particles help change the color of holograms that can be used for medical testing.

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# Ask The Silver Institute: Where Does Silver Come From?

Silver is a metallic element and found everywhere on earth, even in sea water.

Silver is sometimes found as native silver, and rarely as nuggets, but is most often found combined chemically with other elements such as sulfur, arsenic, antimony and chlorine. Silver is mostly mined as a by-product of mining operations for copper, lead-zinc and gold.

Most of the world's silver comes from mines in Mexico, followed by China, Peru, Australia and Russia.

Silver is separated from other elements by three processes: electrolysis, cyanidation and also amalgamation. Most silver comes from the electrolytic refining of copper, in which electricity is used to separate silver atoms after the copper and silver have been crushed and mixed with water to produce a slurry. When charged electrodes are placed in the slurry, silver particles are attracted to the positive pole (the anode) and copper is attracted to the negative pole (the cathode). The silver particles are then smelted to produce larger pieces of silver. In cyanidation, crushed ore is treated with cyanide, which dissolves the silver and allows it to be collected. The silver is then further refined by electrolysis. In the amalgamation process, crushed ore is passed over copper plates coated with mercury. Mercury combines with the silver to form an amalgam, which is washed and then retorted to eliminate the mercury, and finally refined by electrolysis. Mercury amalgamation was common in the 1800s but is rarely used today.

Scrap also yields a great deal of silver, reclaimed from electronic devices, jewelry, flatware and dentistry, as well as silver from photographic processes. The refining technique employed depends upon whether the scrap is in a pure state or in alloy form — mixed with other metals or elements. If the silver is combined with other metals, such as nickel for jewelry, acids are used to dissolve the other metal. Once separated, the silver is melted and used again.



Silver is most often found in combination with other elements such as sulfur in the form of Argentite.

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## Upcoming Events

The 2014 *World Silver Survey* will be released on May 14 at a New York City event and the following day in Mexico City. The annual *World Silver Survey* is the authoritative publication on the silver market. The 2014 edition will report on all aspects of the 2013 silver market, providing comprehensive detail on demand, supply, investment, and price action. Thomson Reuters GFMS will produce the *World Silver Survey 2014* on behalf of the Silver Institute, which has been publishing the Survey since 1990. Thomson Reuters GFMS is recognized as the world's leading precious metals markets consultancy.

An audiocast will be available for the New York Event on the 14<sup>th</sup>. To register, please see the Silver Institute's website at [www.silverinstitute.org](http://www.silverinstitute.org)

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