

Silver News

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- Silver Industrial Demand Reached a Record 680.5 Million Ounces in 2024
- Silver and Nickel May Hold Key to Producing Ethylene Oxide Without Toxic Chemicals
- Silver Nanoparticles Prevent Mold in Tomato Plants
- Silver Institute Adds Members
- Wearable Silver Network Could Help Patients Handle Pain
- Bayern Thaler Bullion Medal Introduced in Germany

Silver Industrial Demand Reached a Record 680.5 Million Ounces in 2024 Fourth Consecutive Structural Market Deficit Reported Last Year

Silver industrial demand rose 4 percent in 2024 to 680.5 million ounces (Moz), posting another record high for the fourth consecutive year, according to the *World Silver Survey 2025*, published by the Silver Institute on April 16. Overall, global silver demand exceeded silver supply resulting in a structural market deficit of 148.9 Moz in 2024, the fourth consecutive annual deficit. Notably, during 2021-2024, the combined deficit reached 678 Moz, the equivalent of 10 months of global mine supply in 2024.

Last year's record industrial demand mainly came from applications in the green economy, specifically electric and telecommunications grid infrastructure, electric vehicles and charging stations, photovoltaics and end uses stemming from artificial intelligence (AI), all of which drove growth in consumer electronics shipments. "This PV growth was led by China where newly-added capacity reached a record 278 gigawatts in 2024," noted the Survey, which was researched and produced for the Silver Institute by [Metals Focus](#), the London-based independent, precious metals consultancy.

Other findings include:

Silver Demand

Total silver demand fell by 3 percent to 1.16 billion ounces in 2024 primarily because of weakness in physical silver investment. Regionally, China accounted for the largest worldwide share of industrial demand with a 7 percent rise, while India was up 4 percent. In the West, industrial demand in Europe was generally weak (barring one-off gains in the UK), while US demand fell 6 percent last year.

Demand for brazing alloys rose by 3 percent, as "the automotive and aerospace industries, among others, underpinned growth in demand," the Survey noted. Jewelry fabrication also rose 3 percent.

Coin and bar demand fell 22 percent last year to a five-year low of 190.9 Moz. On the other hand, India recorded a 21 percent rise, due to bullish price expectations and the import duty cut.

Silver Supply

Global silver mine production was largely flat year-over-year, rising marginally by less than 1 percent to 819.7 Moz in 2024. Silver production from lead/zinc mines remained the dominant source of silver. Mexico remained the leading silver mine-producing country, followed by China, Peru, Bolivia, and Chile.

Recycling rose 6 percent in 2024, reaching 193.9 Moz. Industrial scrap saw the most significant increase in weight terms, mainly led by the processing of spent silver catalysts used to produce ethylene oxide.

Silver Price

Last year the silver price saw a 21 percent intra-year increase and an impressive 59 percent trough-to-peak rally, while the annual price average rose by over a fifth to its highest since 2012 to \$28.27 for 2024.

Outlook for Silver in 2025

The Survey suggested that total demand this year is projected to fall slightly to 1.15 billion ounces with industrial demand remaining flat, however coin and bar demand in some Western markets should experience a modest recovery. Total silver supply is forecast to increase by 1.5 percent led by higher mine production. Even so, the silver market is expected to remain in a structural market deficit marking the fifth consecutive year. As for the silver price, through the first quarter of 2025, the silver price rose 18 percent, hitting \$34 an ounce amid rising geopolitical and economic uncertainties in mid-March.

A complimentary PDF version of *World Silver Survey 2025* can be downloaded from the Silver Institute's website at www.silverinstitute.org. In North America, hard copies may be purchased from the Institute's website; for copies outside North America, please contact Metals Focus at www.metalsfocus.com.

World Silver Supply & Demand (million ounces)		
<i>(totals may not add due to rounding)</i>		
	2023	2024
Supply		
Mine Production	812.7	819.7
Recycling	183.5	193.9
Net Hedging Supply	-	-
Net Official Sector Sales	1.6	1.5
Total Supply	997.8	1,015.1
Demand		
Industrial (total)	657.1	680.5
Electrical & Electronics	444.4	460.5
...of which Photovoltaics	192.7	197.6
Brazing Alloys & Solders	50.2	51.6
Other Industrial	162.6	168.4
Photography	27.3	25.5
Jewelry	203.1	208.7
Silverware	55.1	54.2
Coin & Net Bar Demand	244.3	190.9
Net Hedging Demand	11.5	4.3
Total Demand	1,198.5	1,164.1
Silver Price (US\$/oz, London Price)	23.35	28.27

Source: Metals Focus

Industrial demand for silver hit another record high

Source: *World Silver Survey 2025*

Silver and Nickel May Hold Key to Producing Ethylene Oxide Without Toxic Chemicals

Ethylene oxide (EO) is one of the world's most widely-used chemicals. With an almost [US\\$40 billion global market](#), the chemical is vital in the manufacture of many products including plastics, textiles, disinfectants for medical equipment, antifreeze, adhesives and more.

Unfortunately, producing EO requires chlorine, a toxic chemical that emits tons of greenhouse gases into the atmosphere every year.

There may be some relief from these dangerous emissions. After more than six years of research, scientists have discovered that using a silver catalyst with small amounts of nickel eliminates the need for chlorine while keeping production high and reducing greenhouse gas emissions.

"If industry does try this out, and they find it to be useful and are able to commercialize it, the twin benefits are you can save a lot of carbon dioxide and a lot of money at the same time," said [Tulane University](#) chemical engineer Matthew Montemore, in a prepared statement. He was joined in his research by [Tufts University](#) chemistry professor Charles Sykes and [University of California Santa Barbara \(UCSB\)](#) chemical engineering professor Phillip Christopher. The team has filed patents for their process and is in discussions with commercial producers, according to team members.



Silver can help reduce the use of toxic chemicals used to produce ethylene oxide, here used to sterilize medical tools.

Photo source: *Lab Manager*

Silver Nanoparticles Prevent Mold in Tomato Plants

Fruits and vegetables can suffer from fungi that cause the plant to wither and die, leading to food insecurity and starvation in some parts of the world. Tomatoes, in particular, are prone to a fungus known as *Fusarium wilt* that can spread through crops, making them inedible.

There may be help in the form of silver nanoparticles, according to [studies](#) performed by a multinational group of researchers from Pakistan, the United States, and Saudi Arabia.

The scientists noted that previous studies have discussed various fungi-killing nanoparticles such as copper, titanium dioxide and silicon dioxide, but that "silver nanoparticles

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are attracting momentous attention from scientific groups and industry because of their immense potential. Silver nanoparticles are one of the extensively explored nanoagents because of their broad-spectrum anti-microbial properties and robust inhibition against agriculture pests and pathogens.” They added: “Approximately 650 various types of microorganisms are being targeted by silver, therefore it can be used in plant protection.”

Not only does silver protect against microbes, but it also enhances growth. “Silver nanoparticles are also considered novel growth stimulators in plants and reported to improve biomass, promote germination, intensify the pigment content, and boost growth and fruit quality,” the scientists noted.

In their own studies, the researchers reported that the antifungal potency of silver nanoparticles was found to be 80.9 percent to 95.4 percent depending on the size and concentration of the nanoparticles administered in the laboratory. Under real world conditions, results were equally positive: Greenhouse conditions saw reduced disease by 34 percent and 21.8 percent in fields.

They concluded: “... silver content in various parts of tomato plants reveals no adverse effect on plant yield. Current research indicates that silver nanoparticles may be an effective and sustainable product for managing diseases and increasing crop yields in agriculture.”



Silver can prevent mold in tomatoes

Silver Institute Adds Members

The Silver Institute has added three new member companies so far this year.

The new members are:

[Skeena Gold & Silver](#) (TSX:SKE and NYSE: SKE), headquartered in Vancouver, Canada, is a precious metals developer focused on advancing the Eskay Creek Gold-Silver Project, a past-producing mine in the Golden Triangle in British Columbia, Canada. Skeena hopes that Eskay Creek will be one of the world’s highest-grade and

lowest-cost open-pit precious metals mines with substantial silver by-product production.

[Silver Tiger Metals](#) (TSXV:SILVR and OTCQX:SLVTF), based in Halifax, Nova Scotia, is a Canadian company whose management has more than 25 years of experience discovering, financing, and building sizeable hydrothermal silver projects in Mexico. Silver Tiger’s 100 percent-owned, 28,414-hectare Historic El Tigre Mining District is in Sonora, Mexico.

[TCA S.p.A.](#) is based in Arezzo, Italy, and is a leading company in the recovery of precious metals from various industrial sectors. With three branches in Italy, the company has collaborated for years as a process partner for the Italian gold and silver industry and with worldwide industrial companies since 1977. TCA S.p.A is listed on the London Gold and Silver Good Delivery List with the London Bullion Market Association (LBMA) and the London Platinum, Palladium, and Rhodium Good Delivery Lists with the LPPM.

Since 2024, the Silver Institute has increased its membership by ten companies, with seven companies added to the Silver Institute last year.

Wearable Silver Network Could Help Patients Handle Pain

Indian scientists have developed a silver wire network on a stretchable material that can sense strain and accompanying pain and then respond with electrical pulses much like how nerves operate.

Their goal is to produce a wearable device that can help doctors detect stress and pain early before it becomes chronic or untreatable. In addition, by helping to detect pain and stress early, patients could learn to ‘habituate’ to the pain, thus reducing its effect.

Researchers from [Jawaharlal Nehru Centre for Advanced Scientific Research \(JNCASR\), Bengaluru](#), stretched the wearable material which produced tiny gaps, momentarily breaking the electrical circuit. In response, the silver filled in these gaps, reconnected the network and ‘remembered’ the incident. This stimulus and response is similar to how the human body reacts and adapts to pain.

According to a prepared statement from [India’s Ministry of Science & Technology](#), “the research published in the journal [Materials Horizons, Royal Society of Chemistry](#) could lead to more advanced health monitoring systems that ‘feel’ stress like the human body and adapt in real-time, giving feedback to doctors or users. Such technology could also improve robotic systems, helping machines become safer and more intuitive to work with humans.”

Bayern Thaler Bullion Medal Introduced in Germany

The [Bavarian State Mint](#), under the direction of the Bavarian Ministry of Finance, has produced two silver bullion medals. The medals are not official currency but pay homage to the currency known as the *Bavarian Thaler*, coins issued in the Kingdom of Bavaria from 1806 until 1837.

The English word ‘dollar’ is derived from the word thaler.

The *Bayern Thaler* (Bavarian Thaler) comes in 1-ounce and 1-kilogram sizes. (A gold version is produced in various weights ranging from 1/10-ounce to 1-kilogram.)

The medals show the widely-known [Neuschwanstein Castle](#), with a design that will change every year, according to the mint. The price will be based on the spot silver price plus a premium for design and uniqueness.

The mint did not produce a currency coin, because that would run afoul of EU rules that prohibit currency coins other than those based on the Euro.



The Bayern Thaler bullion medal comes in 1-ounce and 1-kilogram sizes.

Source: *Bavarian State Mint*

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