

Silver News

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Global Silver Demand for 2022 Forecast to Reach All Time High

Silver Jewelry and Physical Investment Projected to Rise by 50 Million Ounces – Also to Record Highs

Silver Supply and Demand													Year on Year	
Million ounces	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2021	2022E	
Supply														
Mine Production	796	845	882	897	900	864	850	836	781	821	830	5%	1%	
Recycling	209	180	161	147	146	147	148	148	166	176	185	6%	5%	
Net Hedging Supply	0	0	11	2	0	0	0	15	8	0	0	na	na	
Net Official Sector Sales	4	2	1	1	1	1	1	1	1	2	2	28%	6%	
Total Supply	1,008	1,027	1,055	1,047	1,046	1,011	1,000	1,000	957	998	1,017	4%	2%	
Demand														
Industrial	445	449	439	441	474	503	499	501	472	511	539	8%	5%	
Photography	53	46	44	41	38	35	34	33	28	29	28	3%	-1%	
Jewelry	159	187	193	202	188	195	202	200	150	182	235	21%	29%	
Silverware	41	47	54	58	54	60	68	62	32	43	73	32%	72%	
Net Physical Investment	241	301	283	310	212	156	165	187	205	278	329	36%	18%	
Net Hedging Demand	40	29	0	0	12	1	8	0	0	4	5	na	42%	
Total Demand	979	1,058	1,012	1,053	978	949	975	983	887	1,046	1,210	18%	16%	
Market Balance	29	-31	43	-5	69	62	25	18	69	-48	-194	na	3	
Net Investment in ETPs	54	5	0	-17	54	7	-21	83	331	65	-110	-80%	na	
Market Balance less ETPs	-25	-36	43	12	15	55	46	-66	-262	-113	-84	-57%	-26%	
Silver Price (US\$/oz, London price)	31.15	23.79	19.08	15.68	17.14	17.05	15.71	16.21	20.55	25.14	21.00	22%	-16%	

Source: Metals Focus

“Industrial demand was on course to grow to 539 million ounces (Moz) mainly because of ongoing vehicle electrification, growing acceptance of 5G technologies and government commitments to green infrastructure.”

Demand for silver was expected to have reached a new high of 1.21 billion ounces in 2022, up 16 percent from the year before driven by increases in industrial use, jewelry and silverware offtake and physical investment.

This, and other key findings were reported at the Silver Institute’s Annual Silver Industry Dinner in New York City in November. Philip Newman, Managing Director at Metals Focus, and his colleague, Adam Webb, Director of Mine Supply, presented the Silver Institute’s Interim Silver Market Review at the event. [Metals Focus](#), a leading independent precious metals research consultancy, produces the Institute’s flagship publication, *World Silver Survey*.

Other highlights include:

- Industrial demand was on course to grow to 539 million ounces (Moz) mainly because of ongoing vehicle electrification, growing acceptance of 5G technologies and government commitments to green infrastructure.
- Physical silver investment (purchases of silver coins and bars) in 2022 was forecast to jump 18% to 329 Moz, a new record high. Support was due to investor fears of high inflation, the Russia-Ukraine war, recessionary concerns, and buying on price dips. The rise was boosted further by a near-doubling of Indian demand, with investors often taking advantage of lower rupee prices.
- Exchange-traded products, in contrast, were forecast to see the largest annual decline in holdings, totaling 110 Moz, due in part to silver’s higher volatility than gold, which has made it more vulnerable to profit-taking.

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- Silver jewelry and silverware were set to surge by 29% and 72% respectively to 235 Moz and 73 Moz in 2022. This has partly been driven by strong inventory replenishment ahead of the Indian festive and wedding season, following heavy stock depletion in 2021.
- The global silver market was forecast to record a second consecutive annual deficit in 2022. At 194 Moz, this will be a multi-decade high and four times the level seen in 2021.
- In 2022, mined silver production was expected to rise by 1% year-on-year to 830 Moz.

For further details [click here](#).

NASA Invents Silver Ion Engine to Propel Spacecraft

Once a satellite or other spacecraft is in space, it takes very little thrust to propel it. However, even though a tiny amount of propulsion power is needed, it must be highly controllable and precise, and that presents challenges to engineers.

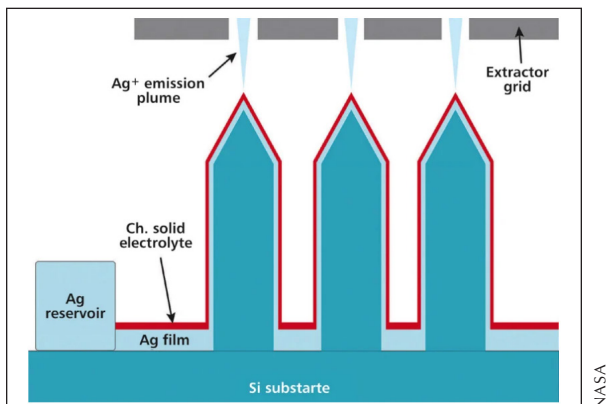
Space agencies often use chemicals such as hydrazine, a low-power, highly-toxic liquid propellant, or sometimes molten metal spewed from a nozzle to nudge spacecraft into position. The molten metal method, although it fits the criteria for measured and exact thrust pulsing, requires fuel to heat the metal and specially designed and intricate nozzle tip shapes.

Silver may provide an answer according to personnel at the [U.S. National Aeronautics and Space Administration's \(NASA\) Jet Propulsion Laboratory](#). Their system uses solid silver as the fuel source accompanied by an electrolyte composed of silver film. By varying electric voltage and current, metal ions are transported from the solid silver surface and expelled through an emitter tip. This ion propelled engine, although extremely low power, is enough to gently move a spacecraft into the desired direction.

The method does not use any toxic or unsafe chemicals, nor does it need a lot of electric power. Most important, electric currents and voltages in these "microthrusters" can be precisely controlled. This method of producing silver ions is not entirely new, though, as it is used to move electrons in low-power memory devices such as those used in computers.

A major advantage of this system is that the ion fuel is independent of the emitter tip shape. This reduces the requirement that all emitter tips on the spacecraft be exactly the same shape and size.

NASA is seeking licensees to commercialize this technology.



Silver ions from solid silver can power spacecraft once outside the earth's atmosphere.

Canadian Photographer Revives Silver-Based Photo Technique

Captures Images of the Rocky Mountains, Prints them in his Converted Bus Darkroom

A Canadian photographer is documenting landscapes of that country's Rocky Mountains but not with modern, digital imaging. Instead, former tour company operator Bill Hao is using a 19th century method known as 'collodion wet plate,' which relies on silver-based chemicals that he uses to process photos in his 50-seat bus converted into a mobile darkroom.

Hao has revived the more than 200-year-old method in concert with a camera that he built himself. Because of the camera's size, it must rest on three tripods for stability. Once Hao focuses on his subject, he coats a piece of glass with collodion, a flammable, thick solution of nitrocellulose suspended in ether and alcohol. The glass is dipped into silver nitrate which helps form a light sensitive layer. Keeping the glass in a dark container, he carries it back to the camera, clicks the shutter, and, under darkness again, brings it into his mobile lab where it is drenched in a developing chemical and fixer that halts it from being light sensitive, thus preserving the image. Finally, the glass is rinsed in water.

Interviewed by [Macleans magazine](#), Hao noted that he enjoys the hands-on aspect of the old printing process, but he wonders if the natural beauty of his subjects will outlast his silver-based photos. "My wet plate photos will last for at least 200 years. But will the beauty in the photos still be there?"



Bill Hao with one of his silver-based photos on glass.

BILL HAO/MACLEANS'S

Report Looks at Silver Jewelry Buying Habits by Generation

Millennial Females are Purchasing More Silver Jewelry than Other U.S. Demographic Groups

From the Silent Generation (born before 1945) to the Gen Z Generation (born 1996 to the mid-2000's), each demographic has its own approach to buying silver jewelry, and these habits are explored in a new Silver Institute Market Trend Report, *Trends in Silver Jewelry Purchases*.

The report offers an in-depth look at Millennials and their jewelry-spending habits and what motivates them to buy silver jewelry. For example, the Jewelers Collective found that in 2020, the most recent data available, the age group purchasing the most silver was females between 20-40 years old. The report also reviews silver jewelry trends and silver's status compared to gold jewelry purchases and concludes with a review of silver jewelry demand post COVID-19.

One key takeaway from the report, authored by [The Jewelers Collective](#), a jewelry trade magazine, is that even during the economic downturn of COVID-19, jewelry consumers were still shopping and giving gifts to family, friends, and themselves. The reported stated: "There is something about the emotional embodiment found in a gift of jewelry that is propelling a boom in sales since April 2020. It is believed that this rise is likely to continue due to the consumer's demand for quality and more meaningful items."

The report also suggests ways for jewelers to effectively reach various demographic groups as promotional tactics vary greatly for each generation. Silents for example, respond well to traditional marketing networks, whereas Millennials are reshaping the way that goods and services are being marketed by staying somewhat unresponsive to traditional advertising tactics.

The report concluded: "Branded fine jewelry is expected to be on the rise, with an annual growth rate of 8 to 12 percent from 2019 to 2025. This means that branded fine jewelry will grow approximately three times faster than the total market. Due to its price points and design capabilities, branded silver jewelry is presented with strong opportunities for growth."

A copy of the report can be accessed [here](#):

Sales by Age Group and Year												
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Under 20	13%	14%	17%	14%	11%	17%	15%	8%	14%	16%	9%	13%
20 – 40	63%	62%	57%	62%	58%	56%	58%	60%	47%	55%	63%	51%
41 – 50	18%	19%	22%	17%	22%	22%	20%	22%	24%	23%	15%	26%
51 – 60	6%	4%	4%	6%	7%	4%	6%	8%	13%	5%	8%	9%
Over 60	1%	1%	1%	1%	2%	1%	1%	2%	2%	1%	5%	1%

Silver Helps Save Kiwifruit Crops from Post-Harvest Rot

In another instance in which scientists have protected crops from natural bacteria rot by using silver nanoparticles (See: [Silver News, August 2022, Silver Helps Pomegranates Grow Stronger and Strawberries Last Longer](#)), researchers at the [Wuhan Botanical Garden of the Chinese Academy of Sciences](#) have shown that kiwifruit harvests can largely be saved with silver applications.

Kiwifruit is much prized for its flavor and high concentration of vitamin C, however, Chinese farmers are finding that their post-harvest fruits are plagued by a 30 to 50 percent loss from rot, amounting to more than 100,000 tons of losses annually, according to a report in the journal [Frontiers in Microbiology](#).

Four main pathogens are causing great losses, but silver nanoparticles applied post-harvest were found to reduce the effects of the bacteria and may be effective in additional fungal diseases, researchers said. "According to the findings, AgNPs (silver nanoparticles) are potentially suitable for use in the development of new antifungal agents for combating plant fungal diseases, including [directly consumed] horticultural crops," the study noted.

The researchers concluded: "It was also confirmed that AgNPs could significantly reduce the symptoms of kiwifruit rot without leaving any Ag⁺ (silver ions) residue on the peel and flesh of kiwifruit. Our findings contributed to a better understanding of the antifungal effect and molecular mechanisms of AgNPs against pathogens causing kiwifruit post-harvest rot, as well as a new perspective on the application of this novel antifungal alternative to fruit disease control."



More than 100,000 tons of Chinese-grown Kiwifruit could be saved from rot by silver nanoparticles.

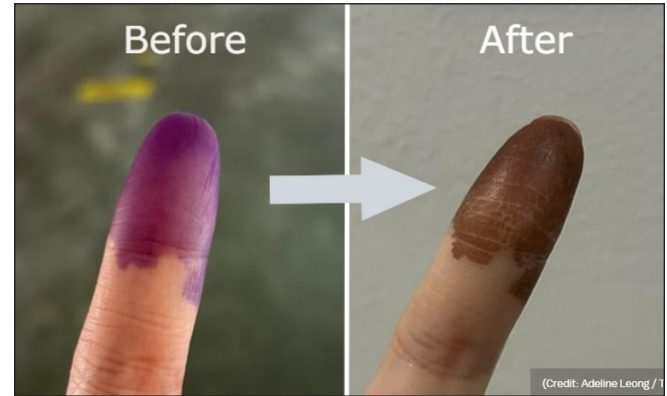
Silver Helps Keep Elections Honest

'Election ink' is used to dab the fingers of voters in many countries including India, Afghanistan and Peru as a way to mitigate election fraud. Without silver, however, this essentially foolproof system would not be possible for the more than 30 countries that currently use election ink or have done so in the past.

The key to this ink's success in identifying voters who have already cast their ballot is to make the ink impossible to wash off immediately but instead allow it to wear away after two to four days. It can last several weeks, however, if applied to a fingernail or cuticle area.

This indelible feature is accomplished by adding silver nitrate to the ink, because when exposed to light, the ink eventually turns brown in the sunlight as it penetrates the upper layer of skin. It is not harmful and cannot be washed or scrubbed off. The voter's finger dab disappears only when new skin replenishes the dead layer of skin.

Simple chemical reactions make this system possible. About a 10 to 20 percent solution of silver nitrate is added to the ink, which is usually a violet or blue color. Once placed on skin, the silver nitrate reacts with salt in perspiration and forms silver chloride. When exposed to sunlight, ultraviolet rays turn silver chloride into metallic silver which is absorbed by skin and turns brown.



'Election Ink' containing silver nitrate cannot be washed or scrubbed away and lasts several days.

Silver Makes Polyurethane Stronger, More Resilient, Less Likely to Harbor COVID-19

Polyurethane is the base for many paints and coatings, because it offers protection against moisture and dirt in industrial structures such as pipes and steel, but it's also found painted on residential structures such as decks and wooden furniture. Inside homes polyurethane is used as cushioning in carpet backing and furniture stuffing. Some synthetic fabrics such as those generally known as *spandex* are mostly composed of polyurethane (about 85%) because of the substance's ability to stretch without breaking.

Worldwide, more than 24.72 million metric tons of polyurethane [were produced](#) in 2021.

Now, U.K. scientists at the [University of Sussex](#) have made polyurethane even more useful by adding silver nanoparticles. Not only does this take advantage of silver's antibacterial properties, making it especially useful in hospital environments (door handles, tables, etc.) or on medical equipment, but they also found that adding silver nanoparticles actually increased the coating's strength and toughness. In a study published in the journal [Polymers](#), the U.K. research group noted: "The addition of silver nanoparticles increases the ultimate tensile strength, modulus of toughness and modulus of elasticity at the cost of a reduced elongation at break when compared to the pristine polyurethane."

Perhaps more importantly, they also found that the silver nanoparticles offered protection against SARS-CoV-2 or COVID-19. The researchers acknowledge that COVID-19 is not transmitted through touching an exposed surface, but the coating may prove useful in preventing the spread of future coronavirus variants where infection through contact may become a factor. "Though SARS-CoV-2 is now known to spread less through fomites (surfaces) than through direct aerosolized particles, this nanocomposite can be used to control transmission in the early stages of future pandemics before vaccines and therapeutic methods are developed."

Larry Kahaner
Editor

www.silverinstitute.org
[@SilverInstitute](#) on Twitter

THE
SILVERINSTITUTE

1400 I Street, NW, Suite 550
Washington, DC 20005
T 202.835 0185
F 202.835 0155