COPPER, GOLD & SILVER

KEYS TO AN ADVANCED TECH FUTURE

There is ever-growing demand for advanced technologies, especially those relevant to our energy future. Without minerals mining, however, these technologies cannot be developed. Metals like copper, silver and gold are all crucial to our tech future.

29 Cu COPPER

THE POWERHOUSE

Copper and copper alloy products are essential resources across the vital industries that keep our nation moving forward.

BUILDING SOCIETY: COPPER USE IN 2018

- 44% Building construction
- 19% Electrical and electronic products
- 19% Transportation equipment
- 11% Consumer and general products
- 6% Industrial machinery and equipment

ENABLING TECHNOLOGY

Copper is resistant to corrosion, ductile, malleable and the only solid metal to be registered by the EPA as an antimicrobial touch surface.

Copper can be recycled without losing strength.

The future of smart homes and energy-efficient buildings requires copper.

Smart-home systems currently use 38,000 tons of copper. This is expected to increase to 1.5 million tons of copper by 2030.

Copper is ideal for electrical connectors and electronic packaging industries.

Small diameter copper tubes are revolutionary in reducing the cost and size of flammable refrigerants for heat exchanges and systems, increasing energy-efficiency.

CREATING OUR ENERGY FUTURE

8 to 12x More Copper

Renewable power generators, on average, use 8 to 12 times more copper than traditional generators.

1.74 Million Tons in 2027

Electric vehicles will increase copper demand from 185 thousand tons in 2017 to 1.74 million tons in 2027.

ABUNDANT HERE IN THE US

Last year alone, U.S. mines produced 1.2 million tons of copper, with 48 million tons in reserves.

Arizona was the leading copper-producing state and was responsible for about 66% of domestic output, followed by Utah, New Mexico, Nevada, Montana, Michigan, and Missouri.

79 Au GOLD

THE BRIGHT FUTURE OF TECH

Gold may not be the first metal to come to mind when thinking of advanced technologies, but it is virtually irreplaceable in the industry.

ADVANCING TECHNOLOGY

40% of all gold usage in the U.S. is for electronics.

Gold has been used in nanotechnologies such as touch-sensitive screens and could be used to create stretchable electronics.

The future of gold could be wearable technology used for clinical-grade electrocardiograms and patient monitoring.

10%

A radioactive metal, **gold is used in medical applications for radiology.**

Approximately 10% of the world's total consumption **of gold output is used in dentistry, pharmacology, radiation therapy, plastic surgery, and cosmetology.**

CREATING OUR ENERGY FUTURE

Gold aids in the efficiency of solar cells, fuel cell catalysts and with repairing groundwater contaminations

Gold is used in solar panels to increase photovoltaic (PV) efficiency.

Gold is used **to make the circuit boards found in electric vehicles.**

ABUNDANT HERE IN THE US

210 tons

The U.S. produced 210 tons in 2018, with 3,000 tons in reserves.

$8.6 Billion

In 2018, domestic gold mine production was estimated to be about 210 tons, 11% less than in 2017, and the value was estimated to be about $8.6 billion.

33,000 Tons

An assessment of U.S. gold resources indicated 33 thousand tons of gold in identified (15,000 tons) and undiscovered (18,000 tons) resources.

47 Ag SILVER

THE SWISS ARMY KNIFE OF METALS

Like copper and gold, there's a good chance you use silver every day. This metal's properties make it ideal for a plethora of applications that drive progress and keep us safe.

MODERNIZING OLD AND NEW TECH

Silver is used across a wide variety of industries to make products like:

- Antimicrobial Bandages
- Pharmaceuticals
- Batteries
- Clothing
- Catalytic Converters in Automobiles
- Mirrors

Due to its unique properties, silver is also used in water purification, brazing and soldering, and wood treatment.

Water filters rely on silver colloid to help prevent bacteria buildup.

Silver-coated quartz tiles are used in NASA spacecraft to protect against radiation.

CREATING OUR ENERGY FUTURE

Silver is used in photovoltaic cells, which alone are responsible for 7% of global silver demand.

2019

Solar energy will require approximately 820 million ounces of silver through 2030.

2030

Silver comprises 90% of crystalline silicon photovoltaic cells.

Superconducting wires lined with silver can carry 140 times more electricity than copper wires, at less than 1% the weight.

ABUNDANT HERE IN THE US

In 2018, U.S. mines produced approximately 900 tons of silver and 25,000 tons of reserves with an estimated value of $440 million.

Alaska is the country's leading silver-producing state, followed by Nevada.

CONCLUSION

As we continue to build our modern world, it's crucial that we acknowledge our need for timely access to minerals and metals. Copper, gold and silver are essential to fully realizing our technology-driven future. Fortunately, the U.S. is a mineral-rich nation that is capable of helping meet our resource demands.

- 2019
- 2023 — The global wind power capacity is expected to increase by 82%.
- 2025 — Over the next 5 years, total installed solar capacity will more than double.
- 2030 — Over 27 million electric vehicles are projected to be in operation by 2030.

YET, REDUNDANT AND UNNECESSARY U.S. POLICIES ARE HINDERING PROGRESS.

The process to obtain a mining permit in the U.S. can take up to a decade, discouraging investment in U.S. resources. Further, these protracted delays are preventing our industries from accessing the minerals and metals they need to meet demand in time.

The U.S. is more than 50% import-reliant on 31 of 35 critical minerals.

The U.S. is 100 percent import-reliant on 14 of these 31 minerals.

IT'S TIME WE TAKE A STAND TO SECURE AMERICA'S TECHNOLOGY AND ENERGY FUTURE.

Visit
MineralsMakeLife.org
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