

The industrial uses of gold and silver

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The Industrial Uses of Gold and Silver Metals such as gold and silver have been considered precious throughout history for their rarity and aesthetic appeal. These elements are important in modern industry as technological advances expand the applications and uses of their unique physical properties. The uses of these two metals are found in almost every field of interest. From medical to aerospace technology, the applications of these substances provide another reason for their desirability. The evolution of technology has increased its demand for gold's physical properties.

One of the key differences between gold and silver is its resistance to tarnishing. Even though silver and copper are better conductors, gold's defiance against environmental effects makes it a perfect for electronics where consistent performance over time is desired. Melting other metals with gold forms a gold-based alloy which is extremely heat resistant but can still act as a conductor. These alloys are then used in electronics that operate under intensely high temperatures, such as toasters (World Gold Council, 2012). One significant area where gold is consumed for its reliability is the military.

The military uses gold in the form of connectors where the reliability of its electronics is an important factor because using gold connectors can mean the difference between life and death. This is why every tank, helicopter, fight jet, and other military hardware has gold in some form or another. The medical field has also recognized the gold's reliable characteristics. Most, if not all of the life support electronics are plated with gold as its conductor. One medical application of gold that is not related to electronics is the treatment of a condition called Lagophthalmos.

A person with this condition has the inability to fully close their eyes. By implanting tiny amounts of gold in the upper eyelid, the extra weight allows them to completely close their eyes. Gold is used because it has excellent biocompatibility unlike many other metals which have a toxicity level harmful to humans (Goodman, 2002). Gold is not the only metal with medical applications. Silver has valuable anti-bacterial characteristics and unlike other metals with anti-microbial properties, it is not harmful to humans (Daima, 2011 pg. 1).

Before antibiotics were invented, silver was been used as a weapon against diseases during World War I. One of the best features about silver is the fact that bacteria cannot adapt to it like they do with antibiotics. Today, silver is added to medical instruments such as bandages and scalpels. Some hospitals have even gone to the extent of coating door knobs, flooring, and files with silver to create a more sanitary environment. Silver was also recently proven to promote the growth of new cells, making wounds heal faster (The Silver Institute, 2012).

Even though it is not as corrosion-resistant as gold, it is highly valued in the electronics industry as super conductor. This means silver-based batteries are also super capacitors, lasting much longer than other batteries. Another unique property that silver has is its ability to reflect heat and radiation. Many of today's office buildings have silver coated windows. This application of silver reflects up to 95% of the Sun's rays, reducing the cost of cooling during hot summer days (The Silver Institute, 2012).