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PALLADIUM JEWELRY

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«Modern jewelry industry, in addition to the traditional using of alloys based on gold, silver and platinum, use the "new" material. Thus, one of the areas is the using of alloys based on palladium as an alternative to platinum and white gold» [1, p. 24].

Many people are familiar with the metals that are usually used to make jewelry – silver and gold. However, palladium, for some reason, remains undervalued. Palladium was first discovered by the English chemist William Hyde Wollaston in 1803. Slowly, people began to make jewelry and special laboratory glassware from it. It can also be added to various alloys to make thermostats. This metal is most often used in creating electrical equipment. Palladium, which looks like platinum with its silver-white color, has high wear resistance, which makes it an excellent material for jewelry. Palladium belongs to the platinum group of metals. This metal is lighter than platinum, which allows you to create voluminous jewelry with less weight, while maintaining high quality [2].

Palladium has been present in the jewelry industry for a long time. At the end of the 19th century, jewelers created jewelry from this metal. During World War II, when the platinum was needed for the military industry, palladium became a good substitute for it. But there are two factors that contributed to the disappearance of this metal from the market in the 2nd half of the 20th century: the complexity of production and the growing demand for gold jewelry [2].

Recently, palladium has been used in the jewelry industry not only as an additive to create "white gold". Jewelry made of palladium alloys not only has the properties of products made of platinum and gold, but also sometimes surpasses them.

Due to its high plastic properties, palladium and alloys based on it are used in the production of semi-finished products. Of particular interest is

the production of thin-section wire, which is later used in chain binding, which is the most labor-intensive technology [1].

It is impossible to buy products made of “pure” palladium. The metal is used only in an alloy with ruthenium and nickel. Otherwise, the product will not hold the given shape. The most common samples of palladium are 950, 850 and 500. It has gained such popularity because of its ability to increase in size if the fingers become thicker [3].

The advantages of palladium jewelry are as follows: high strength, resistance to mechanical damage, hypoallergenic, light weight, no darkening over time. The only disadvantage of palladium jewelry is the need to update the polishing in order to maintain the gloss of the surface [4].

Recent research shows that palladium strengthens and increases the melting range as a secondary component in alloys. Alloys where palladium is used as the main component contain copper and sometimes tin to produce durable alloys with relatively high corrosion resistance. Palladium is less biologically dangerous than other elements such as nickel or silver [5].

References

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