

**Ошибка! Источник ссылки не найден.** **Electroplating** is a process that uses electrical current to reduce dissolved metal cations so that they form a coherent metal coating on an electrode. Electroplating is primarily used to change the surface properties of an object (e.g. abrasion and wear resistance, corrosion protection, lubricity, aesthetic qualities, etc.), but may also be used to build up thickness on undersized parts or to form objects by electroforming.

The process used in electroplating is called **electrodeposition**. It is analogous to a galvanic cell acting in reverse. The part to be plated is the cathode of the circuit. In one technique, the anode is made of the metal to be plated on the part. Both components are immersed in a solution called an electrolyte containing one or more dissolved metal salts as well as other ions that permit the flow of electricity. A power supply supplies a direct current to the anode, oxidizing the metal atoms that comprise it and allowing them to dissolve in the solution. At the cathode, the dissolved metal ions in the electrolyte solution are reduced at the interface between the solution and the cathode, such that they "plate out" onto the cathode. The rate at which the anode is dissolved is equal to the rate at which the cathode is plated, vis-a-vis the current flowing through the circuit. In this manner, the ions in the electrolyte bath are continuously replenished by the anode. Other electroplating processes may use a non-consumable anode such as lead or carbon. In these techniques, ions of the metal to be plated must be periodically replenished in the bath as they are drawn out of the solution. The most common form of electroplating is used for creating coins such as pennies, which are small zinc plates covered in a layer of copper

**Gold plating** is a method of depositing a thin layer of gold on the surface of glass or metal, most often copper or silver. Gold plating is often used in electronics, to provide a corrosion-resistant electrically conductive layer on copper, typically in electrical connectors and printed circuit boards. With direct gold-on-copper plating, the copper atoms have the tendency to diffuse through the gold layer, causing tarnishing of its surface and formation of an oxide/sulfide layer. Gold is unique with its yellow color. Also, gold is a precious metal, which means that it will not oxidize in air, so its electrical conductivity stays uniform over long periods of time. It is ideally suited for gold electroplating applications. Gold plating offers good corrosion resistance, good solderability, and it has very good wear resistance. Metals may also be coated with gold for ornamental purposes, using a number of different processes

**Silver plating** Ошибка! Источник ссылки не найден.

A silver-plated, For applications in electronics, silver is sometimes used for plating copper, as its electrical resistance is lower more so at higher frequencies due to the skin effect. Variable capacitors are considered of the highest quality when they have silver-plated plates. Metals may also be coated with silver for ornamental purposes & caulinary items

**Chrome plating** is a finishing treatment utilizing the electrolytic deposition of chromium. The most common form of chrome plating is the thin, decorative *bright chrome*, which is typically a 10- $\mu\text{m}$  layer over an underlying nickel plate. When plating on iron or steel, an underlying plating of copper allows the nickel to adhere. The pores (tiny holes) in the nickel and chromium layers also promote corrosion resistance. Bright chrome imparts a mirror-like finish to items such as metal furniture frames and automotive trim. Thicker deposits, up to 1000  $\mu\text{m}$ , are called *hard chrome* and are used in industrial equipment to reduce friction and wear.