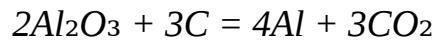
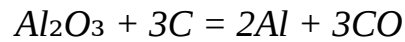
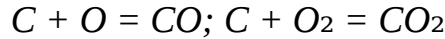


The generalized electrolysis equation is as follows: 2 types of electrodes are used: self-firing and fired (continuous).



The refining of aluminium

Refining is carried out in order to purify Al from impurities and dissolved gases. The selected batch of aluminum is chlorinated in a vacuum ladle, hydrogen and metals are converted to chlorides and mechanically separated from Al:



Absolutely pure aluminum is obtained by subsequent zone melting of the metal in an inert gas or vacuum. It has high electrical conductivity at cryogenic temperatures. Production of aluminum is completed with its purification up to 99.99%.

Recycling of secondary raw materials

A quarter of the total demand for aluminum is met by recycling of raw materials. Shaped casting is poured from recycled products.

Aluminum combines such exceptional properties as low density, low electrical and thermal resistance, high plasticity, corrosion resistance, high mechanical strength, which ensures its wide application, both as a metal and as an alloy.

Pure aluminum due to its plasticity has found application in the production of foil, widely used for the production of electrolytic capacitors and packaging materials for food products (tea, dairy products, confectionery). Due to the low cost and high conductivity, aluminum has almost completely replaced copper from the production of conductor products (installation and winding wires, cables, busbars, etc.).

In the metallurgical industry, aluminum is used as a reducing agent in the production of a number of metals (for example, chromium, calcium, manganese) by aluminothermic methods, for deoxidation of steel, welding of steel parts.

The dominant part of the total world production of aluminum (about 83 %) is made up of deformed alloys, including about 43% for the production of sheets, more than 18% for pressed semi-finished products, and 7% for the production of wire and foil. In addition, about 15% of primary aluminum is used for shaped casting and about 1% is spent on the production of powders.

The main uses of aluminum:

- transport (aircraft structures, engines, pipes, ship hulls, railcar finishing) - 18-21%;
- construction (hangars, structural parts of buildings, frames, storage, chemical products - 24-30%);
- electrical industry (cables, busbars, capacitors, rectifiers - 12-14%);
- machine and instrumentation (motors, cylinder blocks, pumps, crankcases, film and photo equipment; control and measuring equipment - 5-7%);
- containers and packaging materials (food foil, containers for canning and storage of products - 14-17%);
- household items (dishes, cutlery - 7-10%);