

PRIMARY ALUMINUM SMELTERS: New water-based graphite coating for anode stubs sealing

Fast drying, highly efficient with optimal conductivity and enhanced safety.

Obtaining aluminum by electrolysis is an industrial process in which alumina, from the extraction of bauxite, undergoes electrolysis which separates the aluminum from the oxygen contained in the alumina. This crucial electrolysis step is carried out in carbon-lined tanks serving as cathodes and graphite anodes that will be consumed during the manufacturing process.

The process is very energy-intensive: electrolysis requires a lot of electricity. Carbon anodes are consumed and need to be replaced regularly.

These anodes are attached to sealing stubs. Once the anode has been consumed, the stub, cleaned, will be resealed to a new anode and will start again for a cycle.

To protect the stub and allow it to be reused for many cycles, the end of the stub is first soaked in a graphite liquid, it is then dried, and the actual sealing operation is carried out by casting molten cast iron. During this operation, the stub and its graphite coating must be perfectly dry, otherwise during the pouring of the molten iron, cast iron projections can take place with dramatic consequences in terms of operator safety.

The graphite solution must therefore meet several criteria:

- To allow a homogeneous coating that is sufficiently protective of the sealing stub to allow its reuse
- Ensure perfect and complete drying in less than 1 minute to allow the sealing operation to be carried out safely
- To allow the optimal passage of current from the stub to the anode so as not to impact the already high electricity consumption

With its expertise in graphite products, CONDAT has developed an innovative product, the CONDACOAT 630 RFU, in collaboration with its customers.

Ready-to-use and applied by soaking the stubs, CONDACOAT 630 RFU is a dispersion of a graphite of specific particle size in an aqueous base.

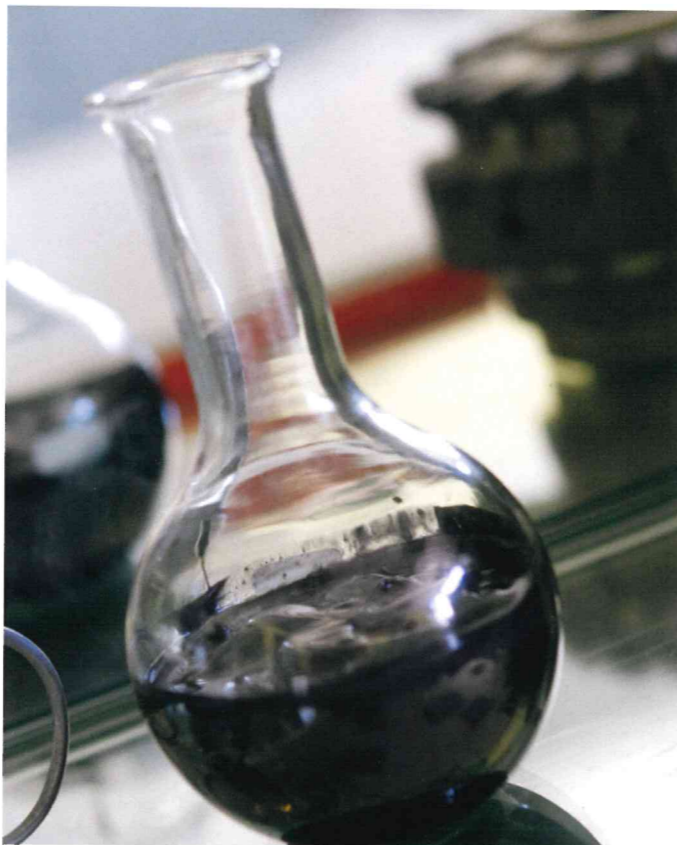
The dispersive system has been designed to allow for quick drying while producing homogeneous and adherent coating. Drying times are reduced whether with preheated stubs or after coating with gas burners. The sealing stage by liquid cast iron can then be carried out in complete safety, without splashes or smoke formation.

The anode, once sealed, is then sent to the electrolysis operations.

The conductimetry analyses carried out on the dry coating show no impact on the conductivity of the anode and therefore on the power consumption.

Finally, at the end of the cycle, the remains of the anode can be easily separated from the stub without impacting on its quality. The sealing system can then go back to the sealing workshop and the cycle can be repeated many times.

CONDACOAT 630 RFU is the ideal solution combining ease of use and efficiency that allows you to work safely while controlling the life of the stubs and their quality.



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High-tech lubricants dedicated to the aluminium industry:
Aluminium smelters, Rolling mills.

HFDU HYDRAULIC FLUIDS

- Auto-extinguishing fluids
- High oxidation resistance
- Safety of your staff and equipment



RELEASE AGENTS

- Sealing of anode & stubs
- Mold release fluid for vertical casting

TECHNICAL GREASES

Highly resistant to:

- Shocks and heavy loads
- Wet environment
- Corrosion



*average consumption reduction - **according to OECD 301 standard