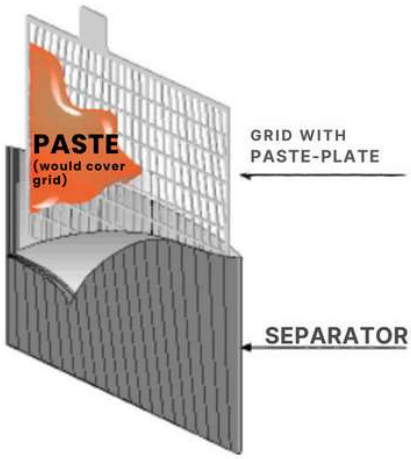
HOW IT IS MADE:
THE LEAD ACID BATTERY - PART 5
PASTE PREPARATION

The plates can perform their function correctly only if the supporting grids are wrapped with the right dosage of active material. It will be therefore necessary to prepare a mixture consisting of the following elements:
1. lead oxide;
2. additives (different types of them, depending on whether positive or negative active material is being produced);
3. water;
4. sulphuric acid.

To get the final result, feed these materials in the order mentioned. This follows the heat cycle from sulphating the materials. This process creates a mix with the correct composition and density. The mix surrounds the lead grids before it turns solid. This process forms strong compounds with low electrical resistance. These are the plate components: grid plus active material. Next, they absorb the electrolyte, which is diluted sulphuric acid. This happens before the charging phase begins.

A suitable mixer with blade type is used to mix the ingredients needed to make the paste.



Blade type mixer

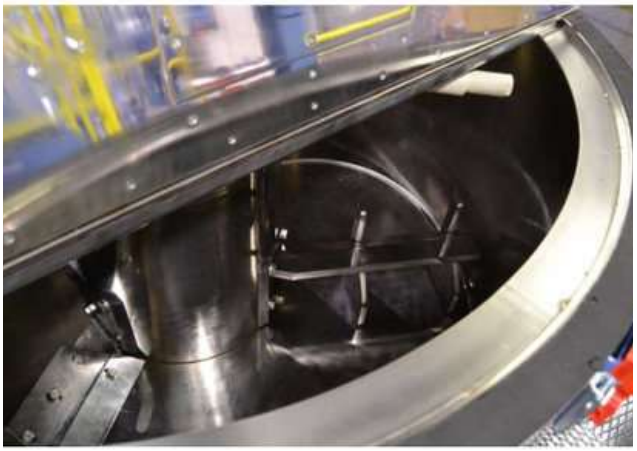
Blade type mixer: groups and operation
The machine consists of:
1. mixing system;
2. mixing tank;
3. cooling system.

Mixing Tank
This container is used to pour in the mixture components. These components are mixed during the exothermic reaction. This reaction happens because of the lead oxide sulphation.

To keep the temperature under control, cooling water flows on the bottom and sides of the tank.

Mixing system

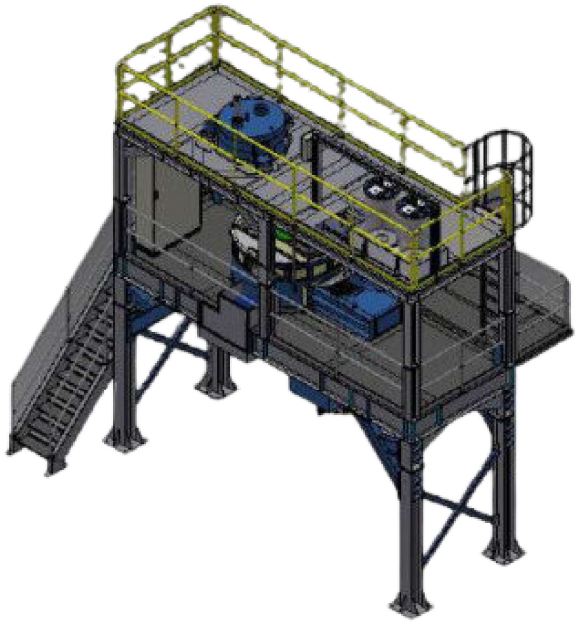
This system is installed on the tank's central axis and spins. It has three arms (blades) attached to its outer part. These arms are essential for mixing the mentioned components. One arm cleans the mixer's side wall. The other two arms stir the material. They move it in two directions: one arm moves it along the radial axis and the other along the tangential axis.



Mixing system

Cooling system

This equipment sits on top of the tank cover. It controls the airflow by managing how much liquid additive is added. It adjusts the ventilation based on the temperature of the material. The system decides when to add distilled water and sulphuric acid. It does this based on specific time cycles.



Reference

Batteries Step by Step: The Lead-Acid Battery

SOVEMA: Equipment for Lead Acid Batteries.