

## ACID DILUTION PREPARATION & RETITRATION



The dilution plant has been projected and built for an easy and fast use and to get results of good precision. The dilution happens in a mixing tank where water and sulphuric acid are dosed. The dosage of these liquids is gotten in ponder way, through the software that prepares the quantity of water and acid with the density for defect, since in this phase of filling the feeding of the liquids is coarsely performed for decreasing its times. During the initial phase the temperature of the acid is constantly checked, while the acid re-circles by a centrifugal pump in heat exchanger with plates that it lowers the temperature of it. When the quantities of dosage of the density to produce have been reached, it performs the adjustment; making to circulate the acid through a refractometer (measurer of density to optic refraction) that verifies the density and commands the opening of valves of last dosing, obtaining an accurate precision (+/-2 points) of the density. To the obtainment of the requested density

within the values of temperature established, the mixture is sent to the store reservoir. To make this system of mixture preparation faster, the orders of production are managed by a PC containing the relative software of management, so that it is reduced to the least one the contemporaneities of application. All the operations of reading and command are managed instead by the PLC. All the store reservoirs have a analogical level sensor that allows to know how much acid is present in the reservoir and to optimize the times of production during the day. This dilution system allows to use also the acid recovered by the dumping machine.

Dilution plant is generally configured in the following way:

**Store section:** it is composed by a series of store tanks for concentrated acid, diluted acids and sweet water, connected to the dilution section by special pipes. Store tanks are completed of analogical level sensor, nozzle for sensor, sphere valve of interruption and threaded attacks for the sensor sealing. The store tanks are positioned in the proximities, in order with factory lay-out. In the case the store tanks are already existing, the dilution plant can be integrated installing on existing tanks the analogical sensors.



**Dilution section:** it has a mainframe made of stainless steel AISI 316L and a vertical dilution tank made of glass fibre of vinyl resin reinforced, complete with nozzles and min/max sensors. The dilution section has also a series of pumps, one for recirculation and distribution, one for water distribution and one for concentrated acid distribution. The measurement system of densities is optical refraction. A series of valves and transmitters for management and sending of

acid to store tanks complete the dilution section.

**Cooling section:** it is constituted by an heat exchanger and by cooling chiller (this last is optional).

**Technical features:** Productivity: 33TON per day of concentrated acid