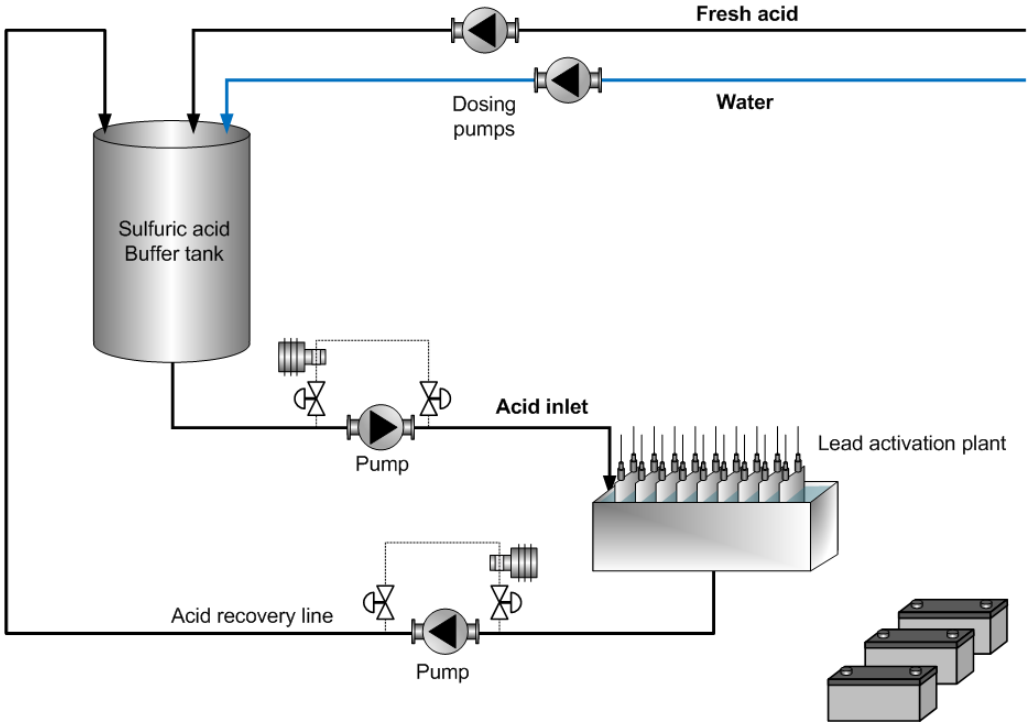

SULFURIC ACID H_2SO_4

Typical end products

Lead batteries for automobiles and electric vehicles

Introduction

Battery manufacturing is the process of producing lead-acid and gel batteries commonly used for automobiles and electric vehicles that need long service periods and durability. Such vehicles are e.g. sweepers, forklifts and cleaning machines.

Application

Sulfuric acid (H_2SO_4) activates the lead elements of the lead battery resulting in the power effect.

The correct effect can be obtained only with the right acid concentration. If the sulfuric acid concentration is too high, it causes corrosion of the lead.

Evaporation of the acid may occur due to the exothermic reaction, which means that the concentration is likely to change during processing.

Fresh acid is mixed with water in a buffer tank and the solution is then pumped into a lead activation plant.

After the activation plant the acid is recovered back to the buffer tank.

Installation

K-Patents Teflon Body Refractometer PR-23-M measures in-line the sulfuric acid concentration in the acid inlet and recovery lines. A typical mounting point is in a by-pass loop across the pump inlet and outlet.

Typical measurement range of sulfuric acid is 1030 - 1500 g/l (equivalent to 5-60 % by weight).

By measuring the sulfuric acid the correct power activation effect is reached and the potential acid concentration fluctuations are instantly revealed.

Instrumentation	Description
	Teflon Body Refractometer PR-23-M. A compact refractometer for chemically aggressive solutions and ultra-pure fine chemical processes. Connected to the process by a G1/2" female or a 1/2" NPT process connection. It has a built-in flow cell designed to keep all metal and other easily corroding parts from coming into contact with the process liquid.
Measurement range:	Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 % by weight.