

HCl Synthesis: Improved overall performance with Micro Motion Zirconium Density Fork

RESULTS

- Significant savings in natural gas consumption
- Increased efficiency and burner control
- Consistent yields, reduced manufacturing costs



APPLICATION

A global company supplies HCl synthesis units, which produce up to 37% HCl acid. They combine pure chlorine gas (Cl_2) with hydrogen (H_2). This is then combusted to produce hydrogen chloride

$$\text{Cl}_2 + \text{H}_2 = 2\text{HCl}$$

The resulting hydrogen chloride gas is absorbed in deionized water resulting in chemically pure hydrochloric acid. The total world production expressed as HCl, is estimated at 20M tonnes per year, with 3M tonnes per year from direct synthesis and the rest is a secondary product from either organic or similar synthesis.

Conductivity sensors are used to measure the concentration of the synthesised acid.

CHALLENGE

The supplier of the HCl synthesis units reported that their conductivity sensors were unable to give the level of sensitivity necessary to efficiently control the combustion burners, resulting in inconsistent yields.

SOLUTION

The supplier of the synthesis units decided to switch to using vibrating fork technology to measure the acid concentration and purchased seven Micro Motion® Insertion Liquid Density and Concentration meters in Zirconium. According to the company, the higher accuracy concentration measurement leads to a more efficient burner control which ultimately gives their customers significant savings on natural gas consumption.

www.micromotion.com



Zirconium Fork Density Meter Installation



For more information:
www.MicroMotion.com/chemical
www.MicroMotion.com

