

pH Measurement in Amine-Based Quench Water

Mettler-Toledo's Ingold InPro 4800 outperforms all in difficult quench tower application.

In many hydrocarbon processes, quenching with an amine solution is carried out. This process is very efficient in removing sour, sulfide containing, contaminants from the product stream. Control of the quench water pH is important to avoid corrosion and to optimize the washing process.

Background

For example, in the production of ethylene, ethane feedstock is cracked at high temperatures. The cracked ethylene mixture is cooled by direct quenching with water which is recirculated (Fig. 1). The condensed hydrocarbons and water are separated in an oil water separator at the bottom. To control the separation and to minimize corrosion, it is important to maintain the right pH level. Therefore neutralizing agents are injected in the system. These neutralizing agents are usually amines (such as diethanol amine DEA).

Efficient Control of Amine Injection

Via in-situ pH measurement, the amine feed is automated. Temperatures at the bottom of the quench tower of more than 80°C and heavy contamination with emulsified oil, make this application a real challenge. Furthermore, the high concentration of sulfides is really problematic to most pH electrodes as it poisons the silver based reference electrode. This poisoning causes drifting of the measurement value and directly influences the amine injection.

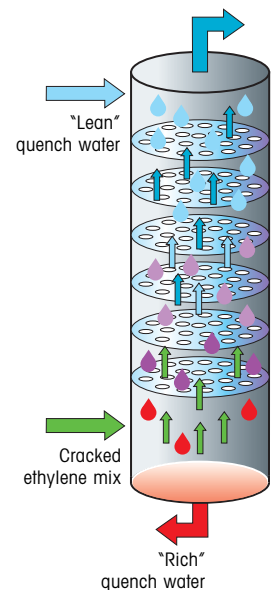


Fig. 1: Quench tower

tion. This again, leads to faulty corrosion control and inefficient oil/water separation. Correct pH measurement therefore, has a significant influence on the quench tower operation. Of course most operators are well aware of this and they have accepted the fact that this application simply requires very frequent replacement of the pH electrodes.

InPro 4800

The InPro 4800 gel-filled pH electrode has proven itself best in class in the toughest applications. Capable of withstanding high process pressures, high temperatures and harsh chemical environment, the InPro 4800 has surpassed all of

its competitors. The patented Silver Ion Trap guarantees 100% resistance to sulfide poisoning. Offering flawless measuring performance over up to three times the lifetime of competitive electrodes, the InPro 4800 contributes efficiently in con-

serving water and reducing corrosion. Equipped with **Intelligent Sensor Management (ISM)**, the InPro 4800 offers "Plug and Measure" and on board advanced diagnostics.

Mettler-Toledo's retractable sensor mounting assemblies allow for retrieving the sensor without interrupting the process. With fully automated EasyClean systems, electrodes can be cleaned, calibrated and inserted back into the process.



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Visit for more information

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