

TIP #4 The Effects of Scale

Tips for pH Sensor Users

The effects of scale:

In flotation cells where the pH is high, scale can coat everything. Of course pH control is needed in order to get the best attachment of product to the Zanthate or other active chemicals and a high recovery float. But scale coating of the glass stops H⁺ ion contact between the pH glass and the process. With partial contact the pH reading becomes inaccurate or drifts, and recoveries plummet. Frequent labor intensive cleaning of pH sensors will remove these deposits, restore the pH glass surface, reference junction and thus the pH accuracy but at cost and subject to midnight shift phenomena.

Our findings on the better way to cut the cleaning load

There is a better way that cuts the cleaning load. IC Controls found that using the curved heavy body flutes of a 642 mining pH sensor plus the natural sharp rock abrasion present at the inlet of a flotation cell, a user can pick a point of optimum wear that abrades away the scale at the rate it forms. Long runs of some months duration have been achieved by this method. Units have run for many months and when removed for calibration exhibit clean glass and clean reference junction.

The robust Model 642

In pipe applications chunks of entrained matter in the flow can impact pH sensors shattering the glass. Whereas in a gutter the IC Controls 642 submersible mining sensor, with cushion mounted pH glass protected by heavy body flutes, can take a hit from an entrained 2x4 and survive! Actually they are really robust, one shipment was returned to us with dual tread marks squeezed into it by a heavy truck, we re-QC'd and they were all good! To address the flowing pipe need, IC Controls developed 642 option -23 that allows it to mount in a 2 inch flanged pipe "Tee", turning it into a robust mining flow sensor. The 2" flanged "Tee" provides 4 bolt holes that allow the user to position the flutes accurately to protect the pH glass from impact or scoop some slurry for abrasion cleaning. Developed from heavy wall CPVC pipe, the 642 pH glass is recessed in a protective pocket so it can be manhandled without breaking.

For your assistance we are enclosing a specification sheet on the 642 which describes other built in benefits.

**For further information on this or any IC Controls products
please check our website or contact us at 1-800-265-9161.**

Our most popular pH SENSORS include :

IC CONTROLS Model 642
Robust submersible mining sensor



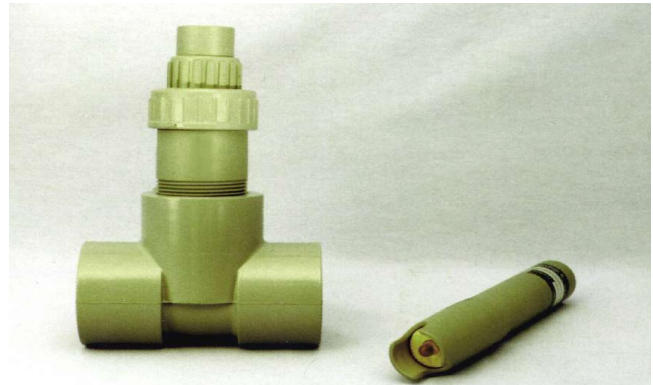
Mounts on 3/4" fnpt pipe (2/3 actual size)

IC CONTROLS Model 642
Optional flange mounting



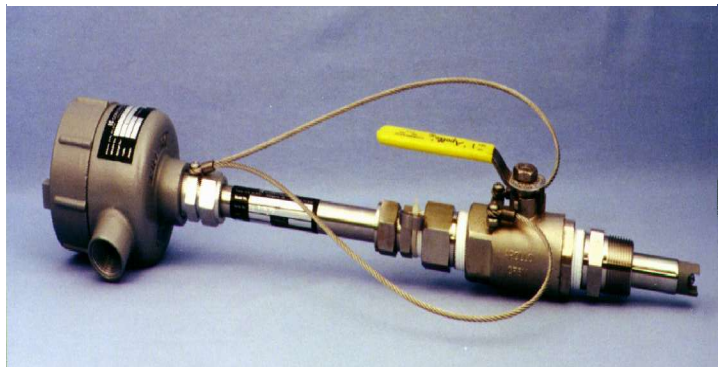
Mounts in 2" flanged pipe tee (1/3 actual size)

IC CONTROLS Model 625



Quick union in-line insertion (1.5" MNPT tee)

IC CONTROLS Model 605



Ball valve retractable cartridge pH sensor (1" MNPT)