Electron Machine Corporation™
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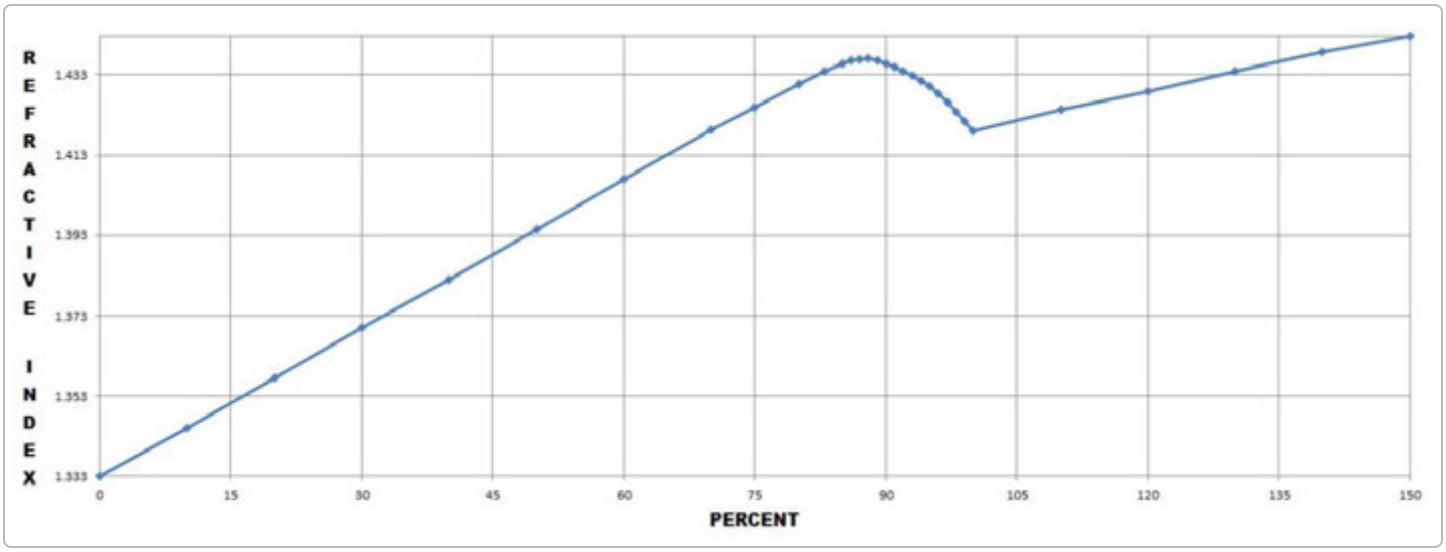
Controlling sulfuric acid concentration is a critical process variable in many of today's industrial applications. Accurate and repeatable measurement is key to maintaining safety and quality. Inline process refractometers provide that control.

Sulfuric Acid (Sulphuric Acid), H2SO4, is an extremely important commodity chemical, so much so that it is also used a barometer of national industrial strength. From fertilizers, oil refinement, chemical processing, mineral processing and wastewater treatment, Sulfuric Acid is a key substance. Most people associate Sulfuric Acid with Battery Acid, cleaning agents, or home use drain cleaner.

Measuring the Concentration of Sulfuric Acid (sometimes referred to as Concentration Density of Sulfuric Acid) is a critical part of the production process for all applications mentioned above. Although Sulfuric Acid Concentration can be created in excess of 100% (Fuming Sulfuric Acid [a.k.a. Oleum]), the greatest stable high concentration of H2SO4 is 98.3%, which is most stable for storage, called Concentrated Sulfuric Acid. As the concentration lowers, other names for the concentrations exist, including Tower Acid (78-80%), Chamber Acid [a.k.a. Fertilizer Acid] (62-70%), Battery Acid (29-32%), and Diluted Sulfuric Acid (<29%).

Sulfuric Acid is a prime candidate for concentration measurement through use of its Refractive Index. The Refractive Index (R.I.) for Sulfuric Acid becomes a ÒReverse CurveÓ for higher concentrations, meaning that up to approximately 88%, the R.I. Curve becomes more and more shallow as the concentration increases. From 88% and greater, the R.I. decreases.

This ends abruptly at 100% and then rises again as Oleum or Fuming Sulfuric Acid, but at a different slope than the lesser concentrate Sulfuric Acid. Please reference the following chart:



Electron Machine Corporation manufactures the MPR E-Scan; a rugged, dependable, accurate, and cost effective in-line refractometer. Capabilities include 4-20mA and 0-10VDC outputs, a variety of up to 8 internal relays for direct control of a variety of valves, alarms, and warning indicators, as well as the capability of saving up to 99 different recipes each with their own alarms, set-points and controls.

Based upon the refractive index (R.I.) of a given aqueous solution, the MPR E-Scan can determine the concentration of the solution and relay that value in real time for proactive process control.

Please contact Electron Machine Corporation (+1 352-669-3101) for more information, visit our website at www.electronmachine.com, or check out our many accounts on social media.