

# CHEMICAL & PETROCHEMICAL

CONTINUOUS IN-LINE MEASUREMENT OF VARIOUS INDUSTRIAL/CORROSIVE APPLICATIONS: FROM SMALL SPECIALIZED MANUFACTURERS TO LARGE MULTI-COMPLEX SITES

Maintain  
Safe  
Operation

Minimize  
Out Of  
Spec Product

Improve  
Product  
Consistency

Maximize  
Energy  
Efficiency

Reduce  
Equipment  
Damage



# LSC

LIQUID SOLIDS CONTROL, INC.

**MODEL 614**

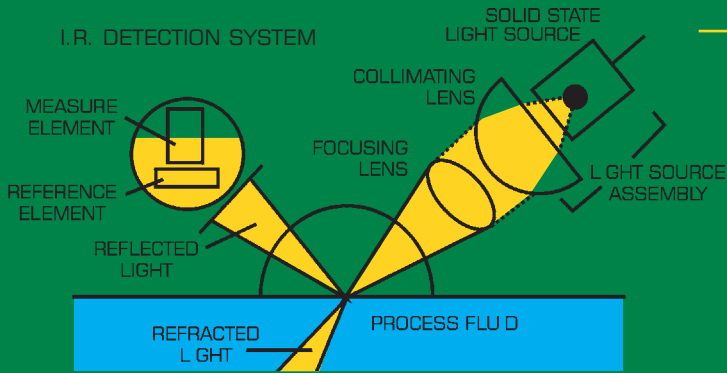
**Process  
Refractometer**

The fully computerized LSC Model 614 In-Line Process Refractometer is a two-piece optical/electrical instrument, which provides a continuous in-line concentration measurement in the most useful measurement terms, such as: **Refractive Index, % Concentration, % Solids, % by Weight or Other Engineering Units**. Process conditions such as entrained air, viscosity, suspended particles and crystals, color (whether opaque or transparent), will not interfere with the accuracy of the concentration measurement.

## PARTIAL LIST OF VARIOUS APPLICATIONS

Acetic Acid • Acetone • Acrylamide • Acrylic • Alcohols • Alum • Ammonium Bifluoride • Ammonium Hydroxide • Ammonium Sulfate • Aqueous Isopropyl Alcohol • Auto Primers/Paints • Barium Chloride • Borates • Boric Acid • Butadiene • Butyl Rubber/Isopentane • Calcium Chloride • Caprolactam • Caseinate • Caustic Soda • Chlorides • Chlorinated Paraffin • Chlorowax • Cumene • DEA • Detergent • DMA • DMF • Ethanol • Ethylene Glycol • Ferric Chloride • Finish Oil • Formaldehyde • Furfural • Glycerin • Glycerol • Hydrocarbons • Hydrochloric Acid • Hydrofluoric Acid • Hydrogen Peroxide • Isocyanate • Isoprene • Latex • Lead Nitrate • Lithium Chloride • Lube Oils • Magnesium Chloride • Metalub Melkool • Monomer • Nitric Acid • Peroxide • Phenol • Phenol Formaldehyde • Phosphoric Acid • Polymer Reaction • Polystyrene • Polyvinyl Chloride • Potassium Bicarbonate • Potassium Bromide • Potassium Carbonate • Potassium Chloride • Potassium Chromate • Potassium Ferricyanide • Potassium Hydroxide • Potassium Iodine • Potassium Nitrate • Potassium Thiocyanate • Procaine Hydrochloride • Proporal/H<sub>2</sub>O Azeotrope & Acetone • Propylene Glycol • Propylene In Glycol Ethylene • PVA • Raffinates • Salt Brines • Silver Nitrate • Soda Ash • Sodium Acetate • Sodium Bromide • Sodium Carbonate • Sodium Caseinate • Sodium Chloride • Sodium Cyanite • Sodium Formate • Sodium Hydroxide • Sodium Nitrate • Sodium Sulfate • Sodium Tartrate • Sodium Thiosulfate • Sodium Thiocyanate • Sodium/Water • Solvents • Strontium Chloride • Styrene/Butadiene • Styrene/Ethylbenzene • Sulfuric Acid • Tar Sand Oil • Teriitiare/Butyl/Toluene • Trichloroacetic Acid • Urea Formaldehyde • Vinyl Acetate/Ethylene • Xylenolin Toluene

# MAXIMIZE PROFITABILITY BY ENHANCING PRODUCTIVITY



## MEASUREMENT PRINCIPAL

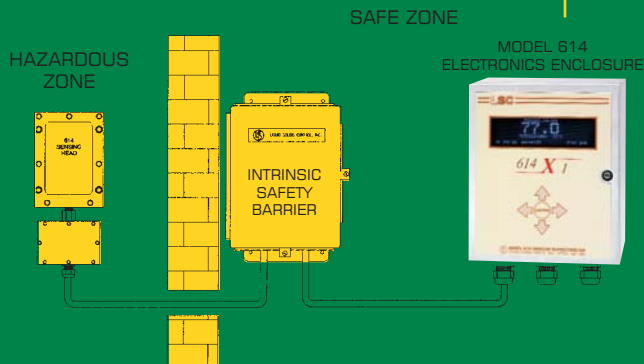
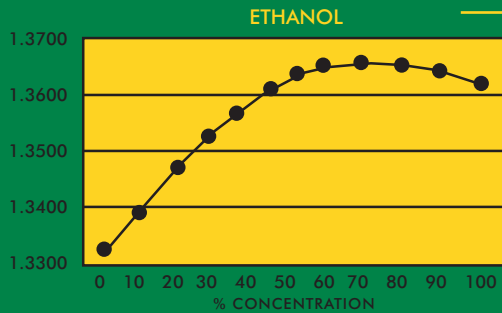
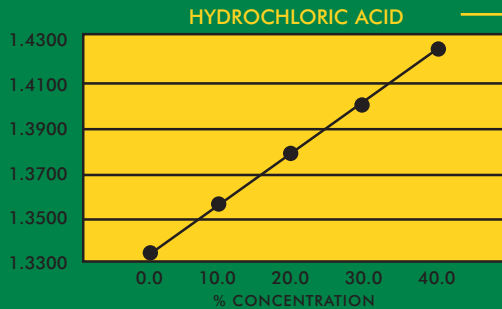
The LSC Process Refractometer utilizes the "critical angle" measurement technique, which is an interface measurement of refractive index. The critical angle is defined as; that specific angle of incidence where a light ray traveling through the sensing window either breaks through the interface (wetted surface) or reflects from that surface as if it were a mirror. The critical angle is a function of the optical density of the sensing window/prism and the optical density (refractive index) of the process fluid being measured.

## LINEAR & NON-LINEAR APPLICATIONS

There are hundreds of ideal applications for process refractometers within the chemical and petrochemical industries. Some process measurements are linear, and some are not. The Model 614 has the ability to linearize/shape, or reverse, any customer's product characteristics. This allows the process refractometer to track and produce accurate concentration measurements of products with a non-linear refractive index curve. Many linearized calibration tables may be stored and selected, as required. If desired, the measurement units, calibration, and correction points can selectively be changed at will, via the user friendly 5-button touch pad. The 4-20 mA output signal is automatically calibrated to the selected measurement range.

## INTRINSICALLY SAFE AND FULLY EXPLOSION PROOF OPTIONS

The LSC Model 614 Sensing Head (either the in-line style or insertion probe) can easily be operated in a hazardous area, being intrinsically safe to the highest level, through the use of intrinsic safety barriers. Our system's unique design allows for the sensing head to be located up to 1625 feet (500 meters) away from the electronic enclosure. This exclusive feature eliminates various cumbersome problems associated with distance limitations that can occur when using other process instruments. The flexibility of the Model 614 allows the user to locate the electronics enclosure in the most convenient "safe zone". However, for applications that demand a fully explosion-proof system, LSC Inc. does offer the Model 614 EP to support that classification.



### IN-LINE SENSING HEAD // INSERTION PROBE

"Sapphire" Sensing Window/Prism (Impervious To All Corrosion) • Automatic Temperature Compensation  
Various End Fittings & Flanges Are Available • "Smart" Prism Wash Technology

Our standard material is 316L Stainless Steel. We can supply our products in other various "exotic" materials such as: Hastelloy B/C, Tantalum, Alloy 20, Titanium, Kynar, Teflon, Monel, Nickel or others, as required by the customer.

**"LSC Model 614's Exclusive Five Year Warranty Affirms Its Reliability"**

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