

UPDATE ON PAST BREAKTHROUGH WINNERS

DolpHin pH Sensor

When Eastman Chemical Company was looking for a durable sensor that could withstand the rigors of highly corrosive solutions and high operating temperatures, they found Foxboro® DolpHin™ pH sensors to be a breakthrough solution. In addition to significantly reducing equipment and related maintenance costs, the DolpHin sensors improved pH reading accuracy, which optimized the efficiency of their scrubber operation.

This is not the first time that DolpHin pH sensors were recognized as a breakthrough product. In 2002, when the Foxboro Measurements and Instruments Division of Invensys Process Systems introduced the DolpHin line, Processing magazine selected DolpHin as a Breakthrough Product of the Year. Each year Processing evaluates many new products and recognizes the best products for their contribution as outstanding developments that improve process operations. The DolpHin line has since gained widespread acceptance in demanding applications, such as Eastman Chemical's.

Eastman Chemical Company turned to Invensys – specifically to its line of DolpHin™ pH sensors – to provide these solutions for a gas scrubber at the company's Longview, Texas, manufacturing complex. Eastman Chemical Company's Texas operations manufacture and ship 8.8 million pounds per day of chemicals and plastics to customers worldwide.

At the Longview facility, the gas scrubber uses water and caustic in a 20 percent sodium hydroxide solution to remove hydrochloric acid from flue gas before venting.

To meet company standards and federal environmental requirements, acid gas content in vented emissions must remain within acceptable levels. Reliable measurement of pH level in the caustic solution is critical for effective scrubbing, regulatory compliance and reduced caustic chemical consumption costs.

To monitor pH levels, the scrubber uses a two-probe, redundant system. Scrubber conditions present significant challenges, including exposure to liquid caustic at a nominal operating temperature of 185 degrees F and pH of up to 10.5. Existing pH sensors thus had to be replaced frequently, often within two weeks of installation and even as frequently as three times per week.

Because the sensors could not withstand the environment, readings were not accurate so operators had to add caustic. This drove up use of this costly material and gave higher pH values. In turn, higher pH etched the sensor glass, leading to inaccurate performance and faster failure. This resulted in high manufacturing and maintenance costs.

Determining that other options were inadequate, Eastman Chemical engineers tested new Foxboro brand DolpHin high-temperature pH sensors from Invensys. They proved to be the ideal solution.

These sensors are designed specifically for challenging process applications that span the entire pH scale, exhibit strong chemical concentrations and high solids, run at high temperatures and cycle from high to low temperatures.

Their unique, patent-pending pH glass formulation provides superior measurement stability and accuracy, plus longer service life in high-temperature applications up to 250 degrees F. The pH glass also increases response speed up to five times and provides longer duty cycles than conventional sensors.

A DolpHin sensor's innovative reference electrode construction includes an ion barrier to protect and stabilize the reference potential in harsh conditions. Its electrodes are packaged in a rugged mechanical housing that facilitates installation, removal, cleaning and calibration,



reducing maintenance time and costs.

Eastman reports most impressive results. The DolpHin sensors' pH glass formulation increased sensor life to six months – a dramatic improvement over previous products that operated properly for three to four weeks a

best. This longevity reduced equipment and related maintenance/replacement costs eightfold.

"With the Foxboro DolpHin pH sensors, Eastman's equipment and maintenance costs are eight times lower than with the previous sensors, and the efficiency of our scrubber operation was optimized," says Wyatt Partney, senior control systems technician at Longview. "In fact, the DolpHin sensors were so successful in solving the problems of high costs, reliable pH measurement and process optimization for our scrubbers that we implemented them in a number of other demanding applications, as well."

Besides significantly reducing equipment and related maintenance costs, the DolpHin sensors provide more accurate pH readings, ensuring that operators can use online pH measurements to optimize efficiency of scrubber operations. And since inaccurate pH level measurement no longer causes operators to continuously add sodium hydroxide scrubbing solution, DolpHin sensors have slashed caustic use levels by a remarkable 50 percent.

For more information, contact Invensys Foxboro at 508-543-8750 or go to www.foxboro.com

Circle 5



FLANGE & VALVE SAFETY SHIELDS

PREVENT HAZARDOUS SPRAYOUTS OF DANGEROUS CHEMICALS

- Protect Workers & Equipment • Resists Acids, Alkalies and Most Chemicals
- Over-lap Design Prevents Lateral Blowouts

METALS	PLASTICS	"SEE-THRU"
 <ul style="list-style-type: none"> • Galvanized Steel • 304" Stainless • 316" Stainless 	 <ul style="list-style-type: none"> • Teflon • Polypropylene • Polyethylene • Polyvinyl Chloride 	 <ul style="list-style-type: none"> • View-Gard® Shields, PPL (View) Shields, and PVC Clear Shields Permit Easy Inspection of Pipe Joints • Adapted with a Port for Fugitive Emissions

Specialized Shields For all Valve Styles & Expansion Joints
Suited for all Chemicals, Temperatures & Pressures
All Sizes – Standard & Custom

"ONLY THE BEST IS ALWAYS SAFE"


RAMCO® MANUFACTURING CO., INC.
 365 Carnegie Avenue • Kenilworth, NJ 07033
 Tel: 908-245-4500 • Fax: 908-245-3142
 Website: www.ramco-safetyshields.com • E-Mail: into@ramco-safetyshields.com

Circle 236

Automated Control Technology™ IS HERE!



Reynolds Industries introduces: Automated Control Technology™. Reynolds A.C.T.™ automatically controls the processing cycle to meet your mixing demands.

Reynolds A.C.T.™ can help you:

- Reduce waste
- Minimize human error
- Increase productivity
- Improve profitability

For more information call 803-548-4301 or visit www.reynoldsmixers.com



ACT now and Get Reynolds in the Mix!

© Copyright 2004 Reynolds Industries, Inc.

Circle 237