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Industrial Gases

PRAXAIR
Danbury, Conn.
www.praxair.com

Why would you pay for something that's free? Every breath we take is composed of hydrogen, oxygen, nitrogen, argon, along with carbon dioxide, and perhaps a host of trace elements we'd probably be better off without.

With that said, it says a lot about a company's innovation and engineering ability when it can take that free air and make $8.3 billion in 2006 by processing it into industrial, commercial, and healthcare products.

Praxair, www.praxair.com, a global company with U.S. offices in Danbury, Conn., has been creating specialty gases since 1907 when it became the first company in North America to commercialize cryogenic separation of oxygen. The cryogenic separation process begins with the intake of large volumes of air from the atmosphere. The air is compressed and purified before entering the cryogenic equipment package where it is cooled to about -300°F (-185°C) and then, relying on the different boiling points of the components, separated into its elements in the form of liquid oxygen, argon, and nitrogen. Other processes are used in producing pure hydrogen, acetylene, semiconductor processing gases, and other elemental and combination gases.

In Port Arthur and Texas City, Texas, Praxair hydrogen production plants, which use the steam/methane reforming system, are located within refineries; the end product is used for chemically removing sulfur from fuels.

Jason Solomon, control systems engineer, the Port Arthur plant, Praxair recalls, "Being spread thin and focused on day-to-day work, it was difficult for us to find time to keep our automation systems current with regard to vendor notifications. By current, we mean critical and non-critical firmware and software updates are downloaded and installed for our automation hardware and software; information about system idiosyncrasies, and operating problems detected by other users and the solutions developed by the vendor are read and acted upon, and that new design and configuration recommendations are noted."

In March 2006, an intelligent, electronically targeted, and push-distributed update and realtime service, called DeltaV Guardian Support, was incorporated into the

process automation systems at two locations. Guardian Support, from Emerson Process Management, www.emersonprocess.com, Austin, Texas, maintains a record of the "license plates" (details except process configurations) of the Texas hydrogen units'—a total of 25 workstations, 16 controllers, and 272 control modules. More than 700 devices fall under the new support system's umbrella.

Beyond delivering updates and notifications, the service is bidirectional, proactive, and incorporates a personalized customer help function. Help calls—by phone or over the Internet—are handled by a special quick-response team. Notifications containing critical updates are particularly desirable. Called Actionable KBAs (knowledgebase articles), they include download hyperlinks, instructions for hot-fixing or flashing to memory, precautions, and possible impacts on the automation. For Windows critical updates, only those tested and approved by the automation vendor are released. KBAs also warn about Windows updates not to install.

A second proactive notification, an Informational KBA, contains non-critical updates, control idiosyncrasies, and problems, reminders, etc. These messages provide the kind of information engineers can't keep in their heads or easily find in a file cabinet.

Component warranty and life-cycle dates and component version control data in tabular or matrix forms highlight components whose production/support categories are changing. Version control points out how upgrading one component affects others. The installation has eliminated four man-days per month searching for updates.

In addition, an Actionable KBA notified Solomon that a diagnostics tool, when locally troubleshooting a smart positioner, could reset the fieldbus module and shut down the plant. "We downloaded a firmware hot-fix and flashed it to all fieldbus cards," he says. "Before, it may have been weeks before we found the warning."

Several controllers feature redundant serial communications modules that relay data between safety shutdown systems and the process automation. An actionable KBA indicated it was possible for the backup module not to alarm under certain conditions, eliminating redundancy. Again, they downloaded and flashed a firmware hot-fix.

The service regularly requests snapshots of the systems be uploaded to it, to assure that information is current and that pertinent KBAs are issued. Such snapshots save time compared to error-prone physical system audits and hand-recording data.

START-IT judges are impressed with how Praxair applies leading-edge automation solutions to meet reporting requirements.

"Praxair is managing its IT-enabled business assets with cutting edge management style. The solutions from Emerson Process Systems are helping Praxair to achieve best in class management of smart assets."
—Dan Miklovic, Gartner

"Smart use of automation infrastructure to enable a knowledge-management strategy."
—Joe Barkai, Manufacturing Insights

"Praxair has improved its control system management and thus plant safety with Emerson Delta-V Guardian support. The automated nature of their alerts and proactive notifications addresses the common issue of extremely lean control, engineering staff, keeping systems current."
—Julie Fraser, Industry Directions