

**FEATURED PRODUCT**

**New Micro Bulk System For Laboratory Gases**

**Historically, ICP's (Inductively Coupled Plasma) and GC's (gas chromatographs) have been dependant on liquid dewars for nitrogen and argon and/or high-pressure gas cylinders.**

Although a standard 160-liter liquid dewar holds as much gaseous product as 15 to 18 high pressure bottles, lab technicians are still faced with the labor of changing out of empty cylinders, as well as putting up with the physical movement of cylinders from a storage location to the lab or use-point and possible contamination of source lines with each connection and disconnection.

**Chart Industries** now offers a *Micro-Bulk* gas supply system that:

- Eliminates the need for personnel to move heavy liquid argon dewars
- Frees up lab space by placement outside the lab (can be inside also with remotely located wallbox)
- Eliminates ICP downtime by being a 24/7 gas source
- Provides higher purity of gas with all stainless steel components and fill onsite technology
- Improves safety by eliminating movement of cylinders and asphyxiation concerns
- Offers accurate telemetry that monitors contents level remotely

This system, consisting of Chart's **ORCA** delivery truck and **Perma-Cyl** liquid cylinders, services the industrial gas needs of a wide range of smaller volume industrial gas customers by allowing continuous storage of industrial and laboratory liquid/gas on-site. Chart's virtual distribution system completes an entire fill operation in approximately three minutes.

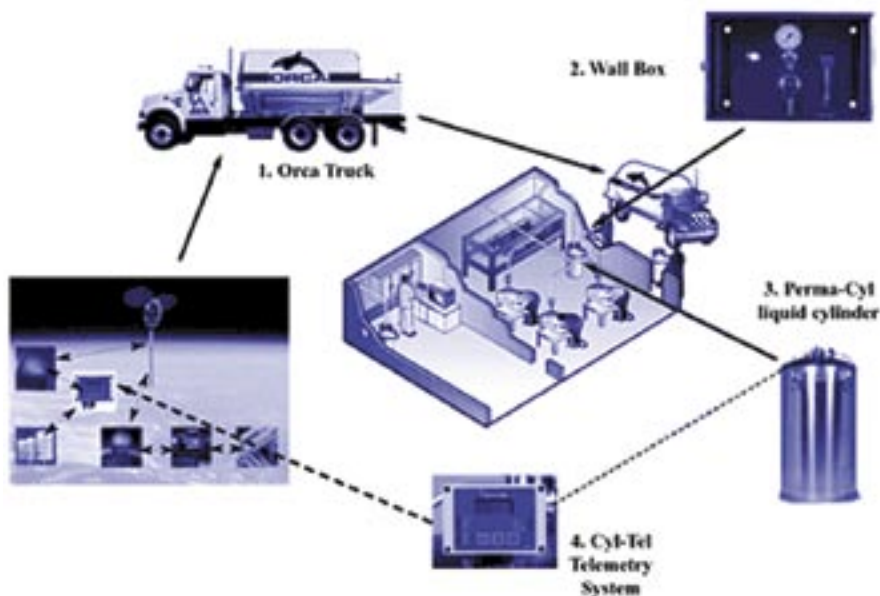
The system (see illustration) starts with an Orca truck (1) for quick and easy filling through a wall box (2) to a Perma-Cyl liquid cylinders (3). When the supply of high purity gas reaches a pre-determined low level, the **Cyl-Tel** Telemetry System (4) notifies the gas supplier, who returns with a truck and quickly refills the cylinders while keeping your processes online.

"Our savings in argon gas consumption on our two ICPs were so dramatic, that

it made economic sense for us to tap our GCs into our *Perma-Cyl* argon supply and eliminate additional cylinder handling," states **David Reitsma**, Operations Manager at **PACE Analytical**, a full service environmental laboratory with NELAP accreditation located in **Pittsburgh**. PACE's gas supplier is **Butler Gas**, also in Pittsburgh.

at the same time manage distribution costs and eliminate emergency deliveries."

**Solvay Fluorides**, located in **Catoosa, Oklahoma**, manufactures **NOCOLOK** premium brazing flux for the automotive industry. They use a **Perkin-Elmer** ICP-OES to analyze both the final product and the raw materials that are used to manufacture the flux as part of their



"Our system is a three-part program," says **Trey Smith**, Engineering and Marketing, Chart-Industries. "Its foundation is the Orca cryogenic delivery truck designed for the safe transport and fully automated delivery of liquid argon, liquid nitrogen, and liquid oxygen to the Perma-Cyl cylinders, which are dedicated to a single gas for purity. The third piece is a Cyl-Tel contents gauge—a digital differential pressure gauge that takes into account the product's saturation pressure and corresponding temperature to calculate the volume remaining to plus or minus two percent accuracy. The gauge can be programmed to our full line of telemetry packages for distributor monitoring and scheduling deliveries to maintain an uninterrupted gas supply and

Quality Control program.

"Safety was clearly an issue for our switching to **Victor Gas Supply's Cryo Express** program," says **Sara Seaman** Lab Director at Solvay. "The noise of safety valves popping and venting inside the lab created asphyxiation concerns. **Scott Ringer**, Cryo Express Manager at Victor, located the Perma-Cyl outside the lab confines. This move freed up valuable lab space and eliminated the need to schedule testing around the available gas supply. Best of all, when Victor comes to fill the Perma-Cyl. Our lab technicians do not have to work around the fill cycle, which is a very fast process."

"Solvay had previously used liquid dewars, which were moved in and out

of the laboratory, making it necessary to write a purchase order for each delivery, points out Ringler. "Solvay's administrative costs were reduced when all liquid argon deliveries to the Perma-Cyl were placed under an annual blanket purchase order."

Butler Welding heard similar praise on safety from Pace Analytical. "Dave's lab is on the third floor and they were forced to move liquid and high-pressure cylinders up and down the elevator and through hallways to the lab," says Ms. Ferrand. "Pace's lab technicians were concerned that the weight of the liquid cylinders, both full and empty, created a definite safety hazard."

Butler Welding heard similar praise on safety from Antech Labs. Dave's lab is on the third floor and they were forced to move liquid and high-pressure cylinders up and down the elevator and through hallways to the lab, says Ringler. His lab technicians were concerned that the weight created a potential safety hazard, as well as the concern attendant with the handling of a full liquid argon dewar.

"While liquid supply is best, the previous mode of supply of that liquid was not ideal for a laboratory. Chart's MicroBulk system provided us with a better way to deliver a UHP product and address safety concerns along the way," adds **Heather Ferrand** at Butler Gas. "PACE also experienced an incident when its laboratory ran out of product from a standard dewar and suffered considerable downtime to purge and bring his systems back on line. All in all, about half a day's time was lost. With accurate monitoring of the contents, we keep PACE on-line 24/7."

Another real concern is lab appearance and purity of product. Liquid cylinders are transported back and forth over the road and are subject to substantial abuse. Although the cylinders can withstand these challenges, their appearance often suffers. Also, the versatility of a liquid cylinder suggests that it may be in an industrial oxygen service one day and contain an argon supply during its next configuration.

Perma-Cyls are ordered product specific, which means that they often are installed in a pristine condition and shipped under an atmosphere of the service in which it is intended. This ensures that the recipient laboratory will have a new shiny gas supply that will be dedicated to a UHP product. While product filled into a liquid cylinder may experience multiple transfers and be subject to contamination, the ORCAs eliminate this potential when they are filled directly from the source air separation plant.

The systems allow a lab to concentrate on the processes that are its bread and butter by eliminating what has been perceived as a normal activity in the monitoring, moving, changing, and worry of what should be a maintenance free, uninterrupted gas supply. Laboratories around the world have benefited from the convenience of Micro-Bulk nitrogen, argon, and oxygen supply.

[www.chart-ind.com/icp](http://www.chart-ind.com/icp)

## Maximize your gas purity with liquid argon delivered on-site

**UHP** Perma-Cyl

Ultra-High Purity For ICP Applications

### ✓ Purity

Gas delivered direct from source along with Perma-Cyl® unit's stainless steel construction ensures a higher purity gas supply.

### ✓ Convenience

Permanently-installed tank filled on site, requiring no maintenance or change-outs.

### ✓ Savings

Minimal vented gas loss. Metered gas flow means that the laboratory receives exact billing and pays only for gas used.



**Eliminate your high pressure or liquid argon cylinders with Chart's ICP gas supply system.**

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