



Novec™

Brand

A cheaper, safer way to clean cylinders for BOC

BOC's revolutionary new solution for cleaning used gas cylinder valves has not only led to optimal cleaning performance, but also has improved safety at the plant and reduced annual cleaning costs by as much as 60%.

When used oxygen cylinders are returned to BOC (an industrial, medical and special gases provider), it's imperative that any existing valve residue is removed and with it the risk of contamination. BOC's new, automated cleaning process uses 3M™ Novec™ 71DE Engineered Fluid with an ultrasonic vapour cleaning unit supplied by D&S Ultra Clean Ltd. The result is highly effective cleaning of all component parts.

The new process saw a traditional trichloroethylene (TCE) operation replaced by a more environmentally-friendly bath system, which is safer for workers, results in cleaner cylinders and lowers lifecycle costs. The switch from TCE was particularly important in the EU because it was highlighted as a Substance of Very High Concern under the REACH regulations with a sunset date of April 2016.

The change was initiated by BOC maintenance foreman Wayne Drew, who commented, "The new process is much healthier all round – for employees and the environment. In addition, while cost was not the primary driver for change, BOC has accrued significant savings since making the switch. As well as reducing vapor loss, it consumes a lot less energy and, in its first nine months of operation, used just over 30kg of Novec 71DE fluid compared to an estimated 300kg of TCE. It is also operationally efficient. The equipment requires less cooling time, which, in turn, enables faster throughput. Automating the process reduces the risk of human error."

The new solution satisfies all four elements of BOC's safety, health, environmental and quality – SHEQ – cleaning agenda. It is a productive alternative to TCE cleaning, and crucially, the new system eliminates the need for

workers to undergo health monitoring. Since its launch, it has been considered a best practice not only for BOC UK and Ireland but also for The Linde Group around the world.

Prior to making the switch, BOC quality analysts worked with 3M and D&S Ultra-Clean Ltd to conduct a thorough trial cleaning process, which included repeated testing of contaminated cylinders, an in-depth emission monitoring study and toxicity reports. Novec 71DE fluid was selected for its strong environmental profile. It is based on a segregated hydrofluoroether (HFE) formulation that has low Global Warming Potential, is non-ozone depleting and does not contain any hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) or hazardous air pollutants (HAPs).

In short:

A new gas cylinder valve-cleaning solution delivers multiple benefits for BOC: effective degreasing, improved health and safety and an up to 60% reduction in cleaning costs.



General precision cleaning image provided by 3M

3M™ Novec™ Engineered Fluids are designed to balance performance with favorable environmental and worker safety properties. They are available for a wide variety of applications, including heat transfer, cleaning, testing and lubricant deposition. Novec fluids offer excellent dielectric properties, a wide range of boiling points, good materials compatibility, low toxicity and non-flammability, low global warming potential and zero ozone depletion potential.

Smart. Safe. Sustainable.

The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all Novec products are designed in common to address the need for smart, safe and sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, protective coatings, immersion cooling, advanced insulation media replacement solutions and several specialty chemical applications.

3M™ Novec™ Engineered Fluids • 3M™ Novec™ Aerosol Cleaners • 3M™ Novec™ 1230 Fire Protection Fluid • 3M™ Novec™ Electronic Grade Coatings • 3M™ Novec™ Electronic Surfactants • 3M™ Novec™ Insulating Gases

Safety Data Sheet: Consult Safety Data Sheet before use.

Regulatory: For regulatory information about this product, contact your 3M representative.

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Electronics Materials Solutions Division

3M Center, Building 224-3N-11
St. Paul, MN 55144-1000 USA

Web 3M.com/NovecCleaning
Phone 1-800-810-8513

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