

in the details

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Improving safety and productivity of metal cleaning and degreasing operations

Closed-Loop Solvent Handling System

ALI SHAH, PH.D.

Degreasing is an essential part of modern production processes, particularly in industries that fabricate or assemble metal parts, such as aircraft, appliances, automotive, electronics and railroad. It is widely used to remove oils and oil-borne soils such as chips, metal fines and fluxes, from objects that have been stamped, machined, welded, soldered, molded or die-cast. If those products require coating or other finishing, the finish cannot be applied until the surface is acceptably free of contamination. But thorough cleaning may also be essential for proper assembly or use of unfinished parts as well.

In most cases, cleaning with chlorinated solvents – including methylene chloride, perchloroethylene and trichloroethylene – is more effective than cleaning processes that use aqueous, hydrocarbon or fluorocarbon solvents, particularly for oils or greases. However, metal fabrication or assembly plants may pursue use of these alternative solvent chemistries to mitigate the potential risks of handling and using chlorinated solvents.

The Safecare system from Safechem, a wholly owned subsidiary of The Dow Chemical Company, is a closed-loop solvent handling solution designed to reduce the risk of solvent handling in industrial metal cleaning and degreasing operations. Available under the Safe-Tainer brand and used successfully in Europe for almost 20 years, the Safecare system is now available in the U.S. and Canada.

Improving Solvent Safety

The Safecare system allows operators to take advantage of the high-performance cleaning of chlorinated solvents while limiting worker exposure and the potential of spills or emissions into the environment. The system is designed to be used in combination with closed cleaning equipment, closing the solvent supply and recovery loop. Safechem offers chlorinated solvents supplied by Dow in conjunction with the system.

Like many chemicals used by industry, chlorinated solvents can pose a risk if not properly managed, but their use by industry for some 50 years has resulted in a broad knowledge base that allows for their safe use and handling. For example, as a supplier of the solvents, Dow has published a “Chlorinated



Now available in the U.S., this closed-loop solvent handling solution is designed to reduce the risk of solvent handling in industrial metal cleaning and degreasing operations.



One container holds fresh solvent and one holds used solvent. Each container is delivered with a standard drum inside. The steel container protects the drum, preventing damage or spills. Leak-free, dry-break couplings prevent spills and vapor emissions during solvent transfer to the cleaning system.

Solvents Product Stewardship” manual and also offers material safety data sheets (MSDS) to thoroughly educate users. The Safecare system goes a step beyond this essential education to provide solvent users with a closed-loop solvent delivery and

Cleaning Precision Worthy of Swiss Craftsmanship

The value of the Safecare system has been demonstrated by a wide range of users over the past two decades. One such customer is Victorinox, producer of the popular Swiss Army knives and other accessories.

The process of cleaning metal parts is critical for Victorinox. With a variety of precision tools and features built into the company's product, part tolerances are precise and high quality finishing is essential. The electroplating process used to produce the chrome finish on the company's knives requires very clean surfaces because even small amounts of oil or dirt can keep the coating from adhering properly to produce a uniform, blemish-free surface.

By using chlorinated solvents, Victorinox takes advantage of highly effective and efficient cleaning capabilities. Not only do surfaces meet the company's high standards for cleanliness, but the solvents remove grease and other contaminants more quickly than alternative materials to help maintain high levels of productivity.

In addition to the closed-loop solvent handling system, Victorinox also takes advantage of a wide range of supporting service elements available to system users. Included are solvent quality testing, stabilizers and additives, waste analysis and other technical support. This level of expertise is expected by companies like Victorinox whose brands are associated with precision and quality.

Victorinox began using the system in its Swiss production operations in 1994, utilizing Neu-Tri trichloroethylene from Dow in the system. Since that time, every tool on every Swiss Army Knife made by Victorinox has been cleaned using the closed-loop equipment and supporting services.

recovery solution that, in combination with closed cleaning equipment, helps them implement the best available solvent handling technology (BAT) in their workplace.

Virgin solvent is delivered to the customer in special double-walled and sealed containers. New solvent is transferred to cleaning equipment using special couplings, adapters, and other measures to virtually eliminate the risk of spills or emissions. Used solvent is transferred to equally secure recycling containers using similar safeguards. The containers are designed to meet road, rail and sea transport regulations, and solvent delivery and pick-up is handled by qualified chemical distribution and waste management firms in partnership with Safechem.

Responsible Use of Solvents

The availability of the system in North America enables metal fabricating and assembly operations to take advantage of the highly effective and productive cleaning capabilities of chlorinated solvents instead of compromising cleaning performance by using a less effective chemical technology. Although the system is specifically designed as a vehicle for supplying chlorinated solvents produced by Dow, industrial hygiene and regulatory compliance measures are an important part of any

metal cleaning and degreasing operation.

The solvents may pose a workplace or environmental risk, and their use may be subject to regulation. When combined with grease and other contaminant soils after use, the waste solvent may pose an even greater concern. Once contaminated with grease and oil, even water represents a waste management issue.

The Safecare system is an extension of the company's commitment to the principles of Responsible Care, which is the chemical industry's global voluntary initiative under which companies work together to continuously improve their health, safety and environmental performance and communicate with customers and other stakeholders about their products and processes.

Dow is also a partner in Chemaware, a knowledge platform that provides know-how and raises awareness on the safe and sustainable use of surface cleaning chemicals. The platform helps customers remain aware of changing industry requirements while sharing best practices for high quality industrial cleaning.

The Safecare system and the package of service and support that surrounds it are intended to address the total cleaning needs of metal cleaning and degreasing operations. Those needs include achieving surface cleaning as efficiently and cost-effectively as possible as well as managing the safe and responsible use of essential solvent cleaning chemicals to mitigate environmental health and safety risk and manage the overall cost of regulatory compliance. **PC**

ALI SHAH, PH.D. is business development leader at Safechem North America, a subsidiary of The Dow Chemical Company that offers a variety of services for both chlorinated and non-chlorinated solvents. Learn more by calling 877-376-8343 or visiting dowsafechem.com.

CHOOSING A NEW CLEANING PRODUCT BASED ON ENVIRONMENTAL, HEALTH AND SAFETY ISSUES

Performance is not the only selection criterion that needs to be addressed when looking for a new cleaning product. Read about five environmental indicators that determine a product's overall risk.

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