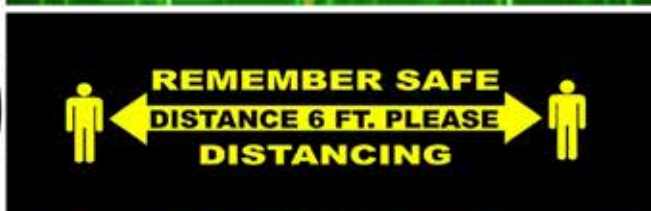


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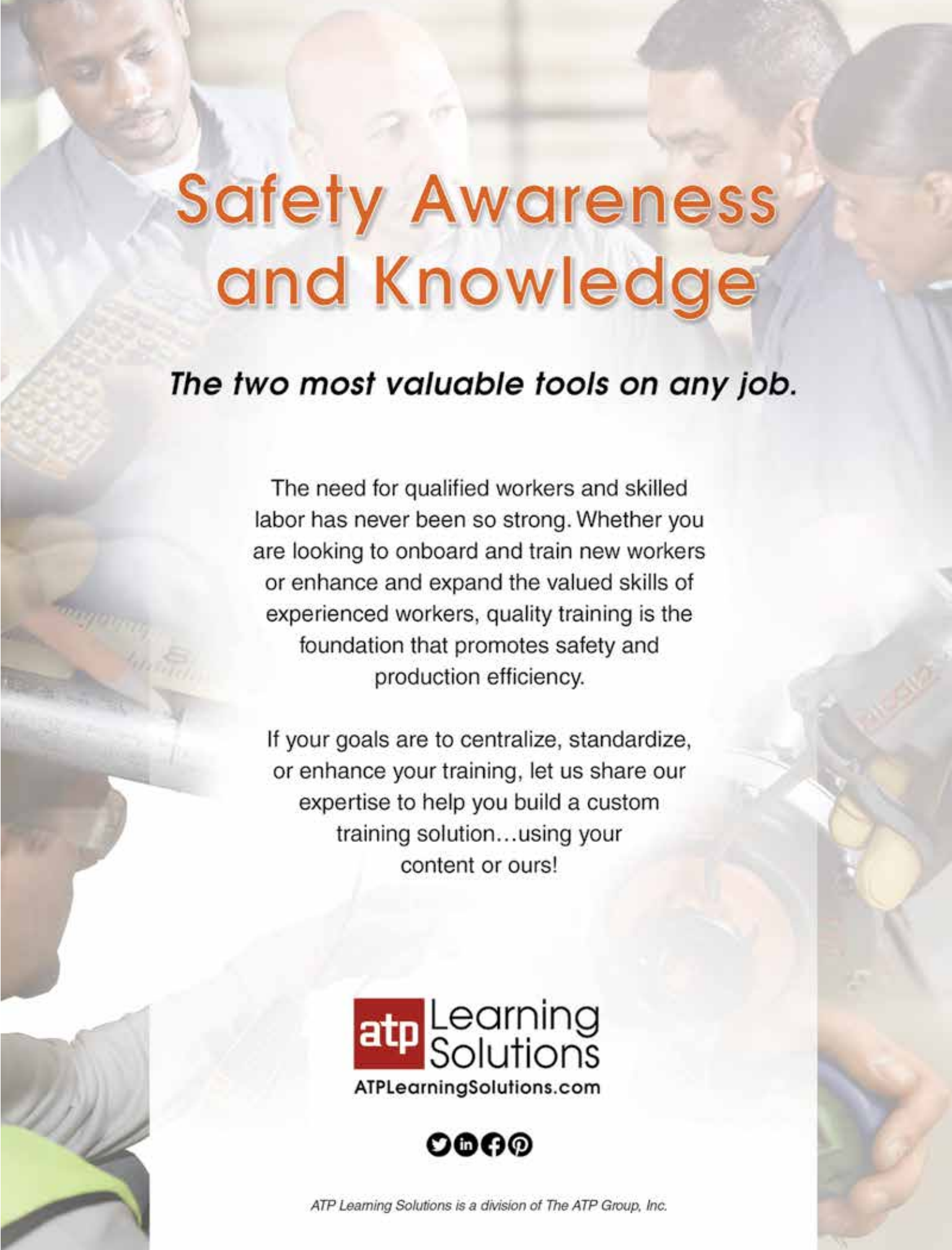
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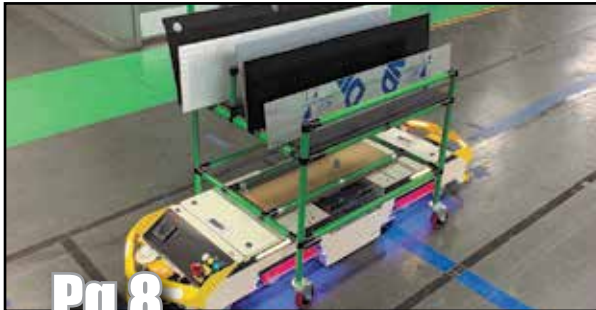
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Creform Low Profile Bi-Directional AGV with Kitting Cart Ideal for Presentation of Parts for Production Operations

AGV and kitting cart work well to support mixed model production or rapid product changeover.

Creform has introduced the model CA-B50100-BST NSI AGV with kitting cart that present a product kit for a specific assignment or multiple kits for small batch production and manufacturing efficiency. The model is bi-directional and provides great flexibility for movement along its guidepath as it can travel in both directions and when necessary, rotate in place. The dual drive wheels also give this AGV higher load capacity and the ability to travel laterally.

Both ends of the AGV are guided, as each of the dual drive wheels independently follows the magnetic guidepath. This high level of control reduces the amount of space the AGV requires when routing

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especially in turns or space restrictive areas. It can travel at speeds up to 50 m/min. and has an estimated towing capacity of 2,222 lb. (1,000 kg).

The Creform AGV provides for a 50-course programming capability using HMI screen located at one end of the AGV. This unit includes I/O monitoring, course programming, error messages and error log. It reads floor mounted RFID tags for position feedback as well as command tapes adjacent to the magnetic tape guideway.

The CA-B50100-BST NSI AGV measures 10" H x 20" W x 78" L (272 mm x 505 mm x 1986 mm) and has an electro-mechanical emergency and parking braking system with a minimum turning radius of 31.5 in. (800 mm) and 11.8 in. (300 mm) only in the lateral direction traveling at a slow speed. The AGV is powered by 24V batteries.

The unit meets safety CAT3 requirements, comes with 16-view laser scanners for obstacle detection, flashing lights, E-stops and an audible warning.

Optional equipment includes an opportunity charging system and an industrial radio to communicate with offboard devices such as Creform's AGV traffic management system.

The cart measures 28" W x 36" L x 55" T and is designed to hold up to 500 lb. (226 kg) capacity. It provides production associates the ability to get exactly what they need and no more. The cart features four 4 in. diameter swivel casters with urethane wheels for easy, stable and safe movement and can easily be moved manually or with

the AGV. The cart pictured is outfitted with a hitch plate to interface with the AGV. The AGV tunnels under cart from the rear and raises its tow pins. It can then tow the cart to its destination where the pin on the AGV is lowered and the cart is left behind. This cart also features an overhead sign holder to help identify cart.

Options can include feet, rather than wheels for stationary operations, label holders to identify positions, hooks and clipboards.

As with all Creform carts, higher capacity and custom cart sizes and configurations are possible with the Creform system of 28 mm, 32 mm and 42 mm plastic coated steel pipes and metal joints. They can be configured for ESD (anti-static) applications.

A wide variety of pipe color options are available and multiple colors can be implemented for department or product identification. The modular design of Creform carts allows the user to add only the accessories needed.

Creform System is used to create an array of material handling and efficiency enhancing devices and is a proven component in continuous improvement and lean manufacturing programs. The company partners with customers in developing and implementing these programs.

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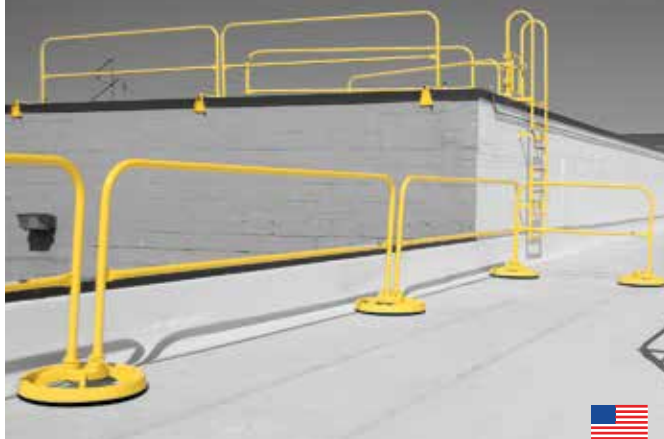
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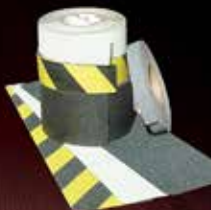
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Madison Chemical introduces MADISAN 75 (EPA #10324-81-110), a 4-chain quaternary surface sanitizer, disinfectant, mildewstat, and virucide for hard, non-porous and inanimate surfaces in various settings including industrial/manufacturing facilities, commercial entities, and more. MADISAN 75 kills the Human Coronavirus, Human Immunodeficiency Virus Type 1 (HIV-1), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) and a variety of animal viruses specified on the EPA registered label. MADISAN 75 appears on EPA List N: Disinfectants for Use Against SARS-CoV-2. It is ideal for a range of industries and applications, including industrial/manufacturing facilities, transportation, schools, restaurants, as well as hospitals and healthcare facilities, nursing homes, food and beverage processing, and more.

MADISAN 75 sanitizes hard, non-porous surfaces/objects at 3.5 oz. per 4.5 gallons of water (450 ppm active quat). It may be applied using a sponge, brush, cloth, mop, or by immersion or other applica-

tions specified on the EPA label. Treated surfaces must remain wet for 10 minutes. Allow the excess solution to drain and surface to air dry. Food contact surfaces must be thoroughly rinsed with potable water prior to use.

MADISAN 75 also reduces a wide variety of pathogenic bacteria, including listeria monocytogenes, Salmonella enterica, Staphylococcus aureus, Escherichia coli, and more.

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A Call to Keep Workers Safer When Transferring Flammable and Combustible Liquids

By Nancy Westcott, President of GoatThroat Pumps

Every day industrial workers transfer potentially hazardous chemicals, such as solvents, acetones, lubricants, cleansers, and acids, from large drums into smaller containers, or into machinery. Traditionally, such potentially flammable or combustible liquids have been tipped and poured. Today such spill-prone, VOC emitting methods are no longer considered acceptable, safe, or compliant – not when a fire or explosion can result.

In particular, younger workers, having seen the resulting physical injuries, chronic respiratory ailments, and even deaths endured by parents, grandparents and friends want much safer working conditions. Consequently, there is now a call for greater safety and regulatory oversight to protect vulnerable workers and their families as simply and efficiently as possible.

“It can be catastrophic to a company if toxic or highly flammable material is accidentally released at the point of use,” says Deborah Grubbe, PE, CEng, is founder of Operations and Safety Solutions, a consulting firm specializing in industrial safety.

“When tipping a heavy drum, it is extremely difficult to pour a liquid chemical and maintain control,” adds Grubbe. “Companies have to assume that if something can go

wrong during chemical transfer, it will, and take appropriate precautions to prevent what could be significant consequences. Because there is no such thing as a small fire in my business.”

Although the dangers of transferring flammable and combustible liquids are very real, protecting workers from harm can be relatively straightforward. This includes proper safety training, the use of personal protective equipment (PPE), and the use of engineering controls to prevent dangerous spills.

A Lethal Situation

During a manufacturing process on Nov 20, 2017 at Verla International’s cosmetics factory in New Windsor NY, an employee transferred hexamethyl disiloxane (flash point -6 °C / 21.2 °F) from a drum into another container and then wiped down the chemical drum. The friction from wiping created static electricity that caused the drum to become engulfed in flames within seconds. The resulting fire and explosions injured more than 125 people and killed one employee.

A video released by the Orange County Executive’s Office shows the worker wiping down the chemical tank, “causing static which is an ignition event.” “Seconds later, the tank becomes engulfed in flames, with parts of the man’s clothing catching on fire as he runs from the explosion,” according to the Poughkeepsie Journal, a local area newspaper.

Although the man sustained only minor injuries, many at the cosmetics factory were not so lucky.

With the potentially lethal consequences from the use of flammable/combustible liquids in so many industrial facilities, it is essential to understand the hazard.

Flammable and Combustible Liquid Hazards

In a flammable liquids fire, it is the vapors from the liquid that ignite, not the liquid. Fires and explosions are caused when the perfect combination of fuel and oxygen come in contact with heat or an ignition source. Based on their flash points, that being the lowest temperature at which liquids can form an ignitable mixture in air, flammable liquids are classified as either combustible or flammable.





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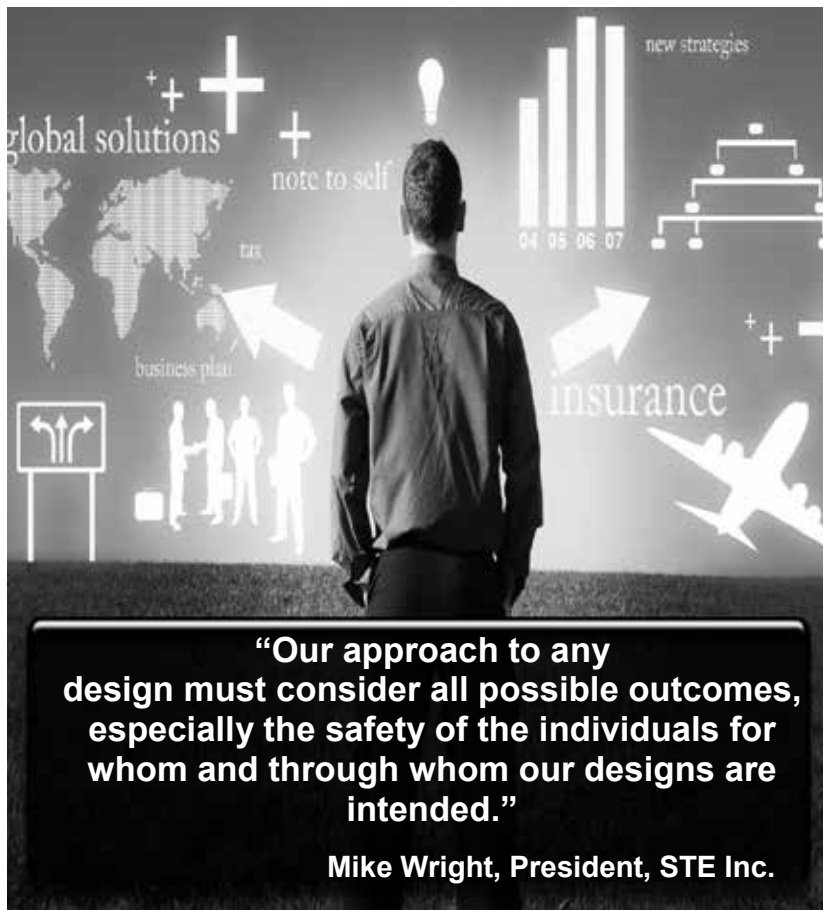
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Flammable liquids (those liquids with a flash point < 100 deg F) will ignite and burn easily at normal working temperatures where they can easily give off enough vapor to form burnable mixtures with air. As a result, they can be serious sources of a fire hazard. Flammable liquid fires burn very fast and frequently give off a lot of heat and often clouds of thick, black, toxic smoke.

Combustible liquids (those liquids with a flash point > 100 deg F) do not ignite so easily but if raised to temperatures above their flashpoint, they will also release enough vapor to form burnable mixtures with air. Hot combustible liquids can be as serious a fire hazard as flammable liquids.

Both combustible and flammable liquids can easily be ignited by a flame, hot surface, static electricity, or a spark generated by electricity or mechanical work. Highly volatile solvents are even more hazardous because any vapor (VOCs) released can reach ignition sources several feet away. The vapor trail can spread far from the liquid and can settle and collect in low areas like sumps, sewers, pits, trenches and basements. If ventilation is inadequate and the vapor trail contacts an ignition source, the fire produced can flash back (or travel back) to the liquid. Flash-back and fire can happen even if the liquid giving off the vapor and the ignition source are hundreds of feet or even

several floors apart.

The most obvious harm would be the danger of a fire or explosion. "If the vapor is ignited, the fire can quickly reach the bulk liquid. A flammable vapor and air mixture with a specific concentration can explode violently," according to information on the topic posted online by the Division of Research Safety by the University of Illinois at Urbana-Champaign.

Consequently, minimizing the dangers of handling flammable and combustible liquid chemicals requires proper training and equipment.

Safe Handling

Without proper ventilation, the handling of flammable substances has a good chance to create an explosive atmosphere. It is essential to work only in well-ventilated areas or have a local ventilation system that can sufficiently remove any flammable vapors to prevent an explosion risk.

Because two of the three primary elements for a fire or explosion usually exist in the atmosphere inside a vessel containing a flammable liquid (fuel and an oxidant, usually oxygen), it is also critical to eliminate external ignition

sources when handling such liquids. Sources of ignition can include static discharge, open flames, frictional heat, radiant heat, lightning, smoking, cutting, welding, and electrical/mechanical sparks.

Static Electricity Grounding

When transferring flammable liquids from large containers (>4 L), to a smaller container, the flow of the liquid can create static electricity which could result in a spark. Static electricity build-up is possible whether using a pump or simply pouring the liquid. If the bulk container and receiving vessel are both metal, it is important to bond the two by firmly attaching a metal bonding strap or wire to both containers as well as to ground, which can help to safely direct the static charge to ground.

When transferring Class 1, 2, or 3 flammable liquids with a flashpoint below 100°F (37.8°C), OSHA mandates that the containers must be grounded or bonded to prevent electrostatic discharge that could act as an ignition



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source. NFPA 30 Section 18.4.2.2 also requires a means to prevent static electricity during transfer/dispensing operations.

Engineering Controls

Beyond PPE and proper ventilation, it is absolutely critical for workers to use regulatory compliant, engineered controls to safely transfer flammable and combustible liquids at the jobsite. Most states and municipalities across the U.S. have adopted NFPA® 30 Flammable and Combustible Liquids Code and OSHA 29 CFR 1910.106, which address the handling, storage, and use of flammable liquids. With NFPA 30, material is classified as a Class 1 liquid (flammable) and Class 2 and 3 (combustible).

The codes account for safeguards to eliminate spills and leakage of Class 1, 2, and 3 liquids in the workplace. This begins with requirements surrounding the integrity of the container, but also extends to the pumps used to safely dispense flammable and combustible liquids.

Point of Use Containment

According to Gary Marcus of Justrite Manufacturing in an article posted on EHS Today's web site, "Drums stored vertically are fitted with pumps instead of faucets for dispensing. Use of a pump is generally considered safer and more accurate. Some local codes require pumps for all drums

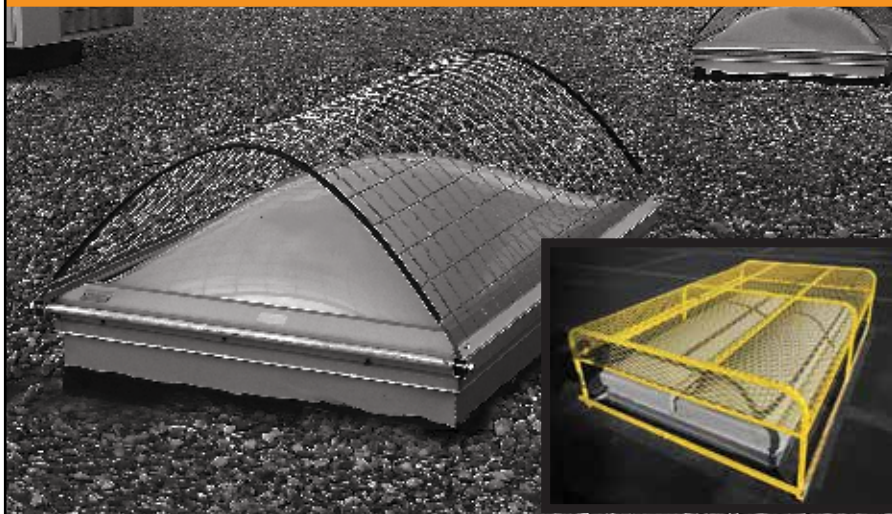
containing flammable liquids.

A fast-growing approach to flammable liquids storage is to keep as much liquid as possible close to the point of use because it is efficient and saves time. Workers can minimize their exposure to potential ignition sources if they replenish their solvent supply from a drum near their workstations, rather than from the solvent room a quarter-mile away. OSHA permits up to 60 gallons of Class I or Class II liquids and up to 120 gallons of Class III liquids to be stored in safety cabinets close to workstations." (<https://www.ehstoday.com/environment/article/21911354/your-guide-to-the-safe-handling-of-flammable-liquids>)

In most workplaces, supervisors and facility managers have been recommending rotary and hand suction pumps to transfer flammable liquids for decades. However, they are increasingly turning to sealed pump systems designed for class 1 and 2 flammable liquids, which are a more effective engineering control tool for protecting employees and operations.

Conventional piston and rotary hand pumps have some inherent vulnerabilities. These pumps are open systems that require one of the bungs holes to be open to the out-

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side atmosphere. The pumps dispense liquids from the containers using suction, so it requires that a bung be open to allow air to enter the containers to replace the liquid removed. Without this opening, either the container will collapse or the liquid will stop coming out.

Typically, there is also a small gap between the container opening (bung) and the pump dip tube that allows air to enter. This opening also allows some vapor release into the atmosphere when the pumps are unused and connected to the container. The gaps may allow an explosion to occur at a temperature near the flash-point. This can cause a high-velocity flame jet to vent near the bung, which could injure personnel near the container.

In addition, using the piston and rotary pumps to remove liquid from containers can allow some spillage since there is no flow control device. If a seal fails, liquid can also be sprayed from the pump and onto the user and the floor.

As a solution, the industry has developed sealed pump dispensing systems that enhances safety by eliminating spills and enables spill-free, environmentally safe transfer that prevent vapors from escaping the container.

These systems are made of groundable plastic and come complete with bonding and grounding wires. The spring actuation tap handle can be immediately closed to stop liquid flowing preventing any spills. The design of this sealed pump system also prevents liquid vapors from exiting the container when the pump is unused. These characteristics significantly reduce the chance of an ignition event. The combination of all these features ensure the pump meets both NFPA30-2015.18.4.4 standards and NFPA 77.

Now that the hazards of transferring flammable and combustible liquids are clearly recognized, proactive industrial facilities are beginning to protect their workers and their families by implementing safety training, PPE use, and sealed, grounded pumps. This will help their operations stay compliant, mitigate insurance risks while minimizing the risk of fire and explosion due to spills, vapors, and static shock.

For more info: call 866-639-4628 toll free; Phone 646-486-3636; E-mail info@goatthroat.com; Visit www.goatthroat.com; or write to Westcott Distribution, Inc. 60 Shell Avenue Milford, CT 06460.

Nancy Westcott is the President of GoatThroat Pumps, a Milford, Conn.- based manufacturer of industrial safety pumps and engineered chemical transfer solutions that keep companies in regulatory compliance.

The company has developed a sealed, hand-operated or pneumatic-operated pump system, the SCP Pump Series, that complies with NFPA30.18.4.4. so it can be used to safely dispense flammable and combustible liquids. The industrial, pail and drum pumps dispense liquids from containers up to 55 gallons in size by developing small pressures (less than 6 psig) on the vapor space over the fluid in the container. Custom configured pumps, fitting and accessories are fluid specific, meet compatibility requirements, and are designed as complete turnkey solutions to fit the users' exact transfer applications.

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