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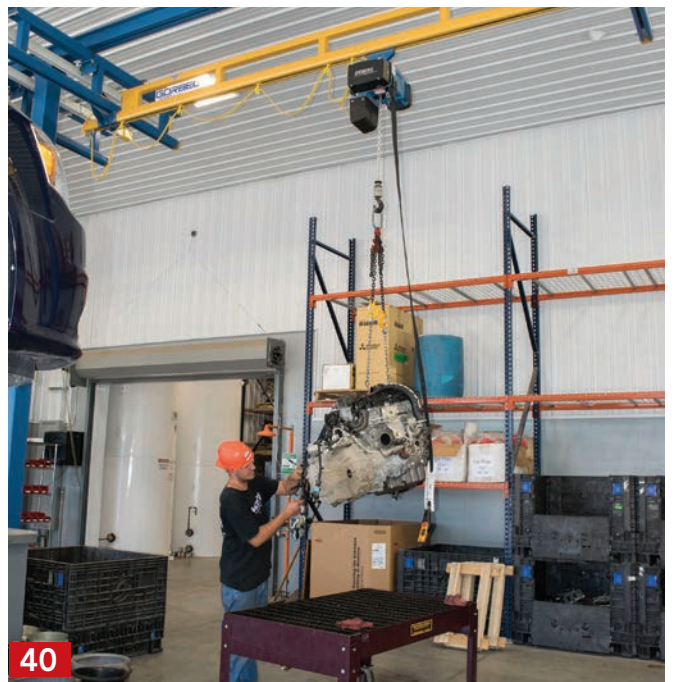
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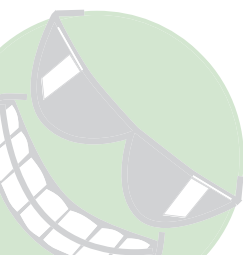
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As I watched a young man use a power mower to cut a neighbor's grass while *not* wearing hearing protection, I wondered how much hearing loss he was likely to experience over the course of his job. Could one summer's worth of long work days using loud equipment do serious – and permanent – damage? And why take the chance that it could?

While young people are notoriously unaware of being vulnerable in any way – at 19 or 20, didn't *you* think you would live forever? – they are not the only ones who take safety for granted. People of all ages and in many situations indulge in the *it will never happen to me* delusion. A shard of something sharp will never penetrate my eye while I'm not wearing safety goggles. It will be ok for me to put this ladder on a surface that is not level. My hands will never get chemical burns because I was in too much of a hurry to don chemical resistant gloves before performing a task involving hazardous materials.

The man I saw worked for a small, mom-and-pop operation. Are these more likely to skip using safety equipment than larger companies? Whenever I see roofers working at height with no fall protection, I cringe. Is cost at the root of the decision to forgo safety, or something else? A desire to not have to bother with additional equipment? A belief that one's strength, or agility, or balance, or quick reaction time will prevent incidents or injuries?

And while *Workplace Material Handling & Safety* focuses on the workplace, safety at home is just as important. We are in the midst of summer, which means the weather is providing us with ample opportunities to get all of those outdoor tasks done. These often involve power tools, loud noises, chemicals, ladders and other potentially risky things. For many of us, our indoor to-do list is pretty robust as well, and can be hazardous. I was removing a small amount of paint from some trim in my kitchen, where it didn't belong – the result of a sloppy paint job. I did wear gloves, and I thought my glasses were sufficient to protect my eyes. I thought that right up until a glob of paint remover fell and landed close to my right eye. I immediately washed the substance from my skin. Then, before I resumed my project, I went and got safety *goggles* and put them on.

Let's make sure that as we remove paint, mow our lawns, climb ladders, cut firewood using a chainsaw, build decks, kill weeds with toxic chemicals or use a power drill to put together birdhouses, that we pay as much attention to safety at home as we do at work. When you climb that ladder to wash a window or clear debris from a gutter, use the proper techniques to ensure that you climb safely back down when you're finished with your task, instead of falling. Put on safety glasses or goggles whenever you use certain types of power equipment. Gloves designed to protect against specific hazards are available for home use just as they are for on-the-job applications; don't use cloth gardening gloves when you really need nitrile gloves with a good grip.

Let's stay safe at work *and* at home.

## Maureen Paraventi

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## A RDG Media, Inc. Publication

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# Investing in Automation as Frozen Food Retail Heats Up

By: **Grant Beringer**, Contributor

Frozen food has become much more popular at home with market growth being accelerated by online shopping and home delivery services. Consumers are preferring frozen food as a better solution for convenience, value and long-term preservation of foods retaining wholesome vitamins and antioxidants. The improving quality of frozen food, the popularity of ready meals and a growing range of vegetarian and vegan options are also helping to drive up demand.

Producers and retailers whose operations have been able to respond most effectively to rising and fluctuating demand are best placed to capitalize on the market trends of demand for smaller packs, larger overall order sizes, a broader product range and increasing home delivery. Warehouses and distribution centers need to adapt with automated storage and retrieval systems that can accommodate these changes while also fulfilling more orders faster than ever before.

## UTILIZING AUTOMATED STORAGE AND RETRIEVAL SYSTEMS

Today's robotic and data-driven automation systems, such as automated storage and retrieval systems, can address the challenges and even be used to extend the life and productivity of older warehouses. The technologies available today can be configured to adapt to existing building limitations and deliver increased storage capacity and higher throughput.

They feature modular designs that experienced integrators can leverage to deploy automation in phases that enable continued service to customers through established manual processes while the automation is being deployed.

When it comes to automated storage and retrieval systems, there are a variety of options available. The following are the most common and proven options.

- **Stacker crane systems** are a cost-effective and reliable approach to enabling high-bay warehouse designs. They enable vertical storage up to 45 meters and allow aisle widths to be reduced by eliminating the need for forklifts. Certain high bay warehouse pallet stacker cranes have up to 20 % lower energy consumption and perform well in temperatures as low as -30°C.
- **Pallet shuttles** in deep-freeze and chilled temperature warehouses can store pallet loads in the highest density configurations at heights up to 45 meters. High density in deep freeze applications is key to ensuring low energy consumption due to cubic meter savings. Pallet shuttle systems employ carriers on each storage level in place of stacker cranes in aisles to enable storage 20+ pallets deep and can be ideal for automating brownfield frozen food storage facilities as the technology can be installed in existing buildings.
- **Shuttle systems for storage of small loads** are designed applications where high throughput and excellent availability are essential, such as with retail and e-commerce applications for returns handling, replenishment or buffer for order consolidation. The shuttles offer double to quadruple deep storage of totes, trays and cartons and are suitable for deep-freeze environments.

These automated storage and retrieval systems can help make temperature-controlled warehouses more efficient, flexible and responsive to changing consumers demands. With the retail and distribution sectors feeling the effects of today's labor shortages as fiercely as any, especially in unpopular freezing cold environments, logistics automation can help companies grow their business and achieve more with their existing workforce.



## RETHINKING WAREHOUSE AUTOMATION

With a variety of viable options available, and with frozen food demand peaking, there's never been a better time to consider the business case for investing in enhanced warehouse automation.

For a number of years, there has been a stigma hanging over warehouse automation. The common belief held by many was that if you bring automation into your warehouse, you are replacing human workers.

While there are those exceptions, for most companies, this is simply not the case. The goals are often to enhance the productivity of human workers, create innovative environments that attract skilled labor, and improve workplace safety and ergonomics for employees.

There needs to be a shift in how we as an industry approach and view warehouse automation and human workers. It does not have to be an "either-or" approach. Installing automation doesn't have to automatically mean replacing workers. In fact, it can be a powerful tool in attracting and retaining the skilled labor many companies need. It can also be an invaluable asset to help companies keep supply chains moving as they struggle to find the workers they need in a tight labor market.

Jobs in the warehouse can be grueling work; and many in the workforce are deciding it's not a job they want or need. So even when there are people looking for jobs, companies offering warehouse positions are finding it hard to attract them. Automation solutions can help create a more inviting, comfortable and innovative environment for warehouse workers.

As companies continue to deal with labor shortages and workers' reassessment of warehouse jobs, automated storage and retrieval systems can be a powerful tool in overcoming both obstacles. These systems provide a means for many of these companies to maintain productivity and efficiency levels while dealing with a reduced labor force. A number of companies can also use the advanced technology as a way to attract potential employees who are looking for opportunities to work with technology and want to be a part of a modern, enhanced work experience. **WMHS**

*Grant Beringer is Vice President of Integrated Systems, Swisslog Americas. Swisslog delivers data-driven & robotic solutions for logistics automation alongside reliable, modular service concepts. Collaborating with forward-thinking*

*companies, the company is committed to setting new standards in warehouse automation to provide future-proof products and solutions ([www.swisslog.com](http://www.swisslog.com)).*



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## Material Handling Cart Delivery: What is it?

By: **Jillian Burrow**, Contributor

Cart delivery is the movement of material without the use of fork trucks. It is moving material with industrial carts. Delivery carts are pushed or pulled by an operator and when tugged they are always pulled in trains of multiples.

### VISUAL REPRESENTATION: THE SPAGHETTI DIAGRAM.

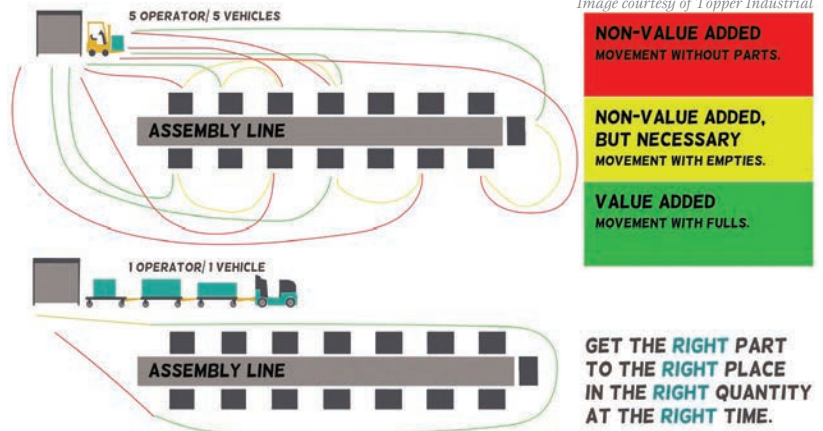
This is a spaghetti diagram. It is a visual representation of a workflow showing moving material with a fork truck versus moving material with a tugger and train of carts. Please use the color grid to follow the material flow. The red is non-value added work, it is any movement without parts. The yellow is non-value added but needed, it shows the movement of empties. That could be dunnage, container or simply an empty cart. The green is value added, it shows movement with fulls.

You can simply see by this visual that cart delivery simplifies and mainstreams the workflow.

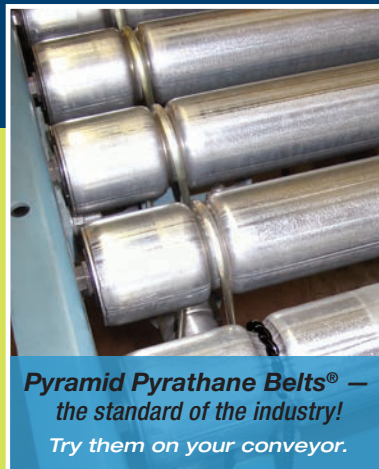
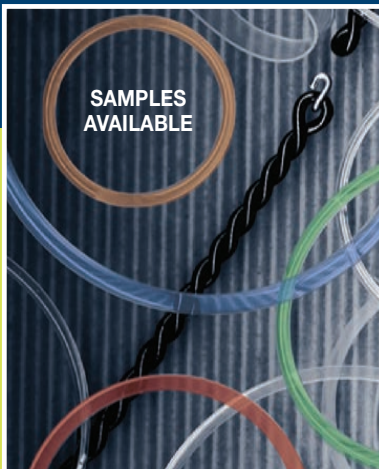
### CART DELIVERY BENEFITS

By mainstreaming your workflow, it will help getting the right part to the right place and the right time. Material handling cart delivery improves safety by reducing operator handling, over exertion, reduced motion and lessening the need to use fork trucks. It also helps to ensure quality, improve flexibility and scalability. Incorporating tugger cart delivery, you can prevent defects, shorten lead times and create more efficient processes throughout your workflow.

Image courtesy of Topper Industrial



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## OPTIONS FOR CART DELIVERY: TWO OPTIONS

You only have two options for cart delivery. The first option for material movement is to deliver the material on a cart and work out of the cart. The second option is to deliver it on a transfer cart that is equipped with a conveyor roller top and then transfer the material to a conveyor workstation.

Both can be accomplished using a train of tugger carts or a train of tugger Mother carts.

You might be asking yourself why the need to explain the difference between a tugger train of carts and a tugger mother cart system. The reality is it isn't as much a comparison as a defining each system's similar and unique characteristics.

## TRAIN OF TUGGER CARTS: DEFINED

A train of tugger carts is just what it sounds like. It is numerous carts that are coupled together in tow like a train and can be decoupled and coupled along a work route at various workstations. They are connected by a towbar at front and a coupler at rear. Each cart in tow can be a variety of cart types. This provides flexibility along the work route. When you work with delivery carts along a work route, to deliver the carts you must decouple one of the carts in the train. Therefore, if you have five carts in a row and need to deliver the second cart in tow to a work cell, you must



Tugger carts are connected by a towbar at front and a coupler at rear. Image courtesy of Topper Industrial.

decouple the second cart from the train. After you deliver the cart, you must connect cart one and three together to move again along the route with the four remaining carts. Likewise, you can pick up carts along the same route and couple them within or at the end of the train.

## TRAIN OF TUGGER MOTHER CARTS: DEFINED

To explain a tugger Mother Daughter Cart system, you first must know that the Mother Carts are tugged in a train just like a typical train of tugger carts. They are connected by a towbar in front and a coupler in back and can be decoupled, but generally are not. What moves in this system to deliver is the daughter carts.

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# TUGGERS



Daughter carts are pulled out and pushed back into the Mother Cart frame. Image courtesy of Topper Industrial.

A Mother Daughter Cart system consists of one or more large mother frame cart that tow in a train. Within the Mother Carts are two or more, smaller daughter delivery carts. The daughter carts are designed to fit within the mother cart's framework. Once the daughter carts are locked inside, the mother and daughter carts are then able to be tugged as one.

When along a delivery route, the daughter carts are used to deliver empties and fulls. Daughter carts are most often push carts; they are not equipped with a tow package.

Daughter carts are pulled out and pushed back into the Mother Cart frame. In a Mother Daughter Cart System, all the Mother Carts are the same style and size. The Daughter carts can be various cart types and can even be different sized.

## IT IS ABOUT YOUR WORKFLOW

When deciding between a tugger train of carts and a tugger Mother Cart system, you must consider your workflow. Cart delivery is researched and planned out. You must consider your delivery route. What size are the aisles? How tight are the turns along the route? Which system would work best for your team? Would the flexibility of having different carts that were easily coupled and decoupled for delivery be best? Or would having the ability to on remove daughter carts work more efficiently? **WMHS**



*Jillian Burrow has been working at Topper Industrial since 2006 as the Marketing Manager. She oversees all marketing and public relations for the company. Burrow also manages the company's editorial and blog site, [www.forktruckfree.com](http://www.forktruckfree.com). Topper Industrial ([www.topperindustrial.com](http://www.topperindustrial.com))*

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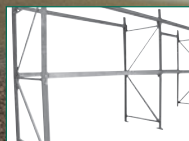
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## Maintaining Supply Chain Agility Through Labeling

By: **Amin Sikander**, Contributor

As of June 2022, the U.S. continues to experience supply chain difficulties. While the reasons we've heard include a lack of truck drivers, lack of raw materials and border closures, the reality is that incorrect labeling also creates supply chain challenges. A labeling error can bring an entire supply chain to a standstill, regardless of whether or not organizations are properly staffed and plenty of stock is available.

According to a company leader in packaging and labeling control, incorrect labeling is the top reason for food recalls. Undeclared allergens, incorrect ingredients or inaccurate shipping labels are a few examples of why recalls occur. But the food industry isn't the only one where mislabeling can be costly. The Medical Device Recall Report conducted by the Food and Drug Administration (FDA) revealed that in just the first quarter of 2014, 53 % of medical device manufacturing recalls were due to packaging errors, including labeling errors. And not so long ago, in 2019, a large car manufacturer had to delay a car release due to incorrect settings on its printers, which prompted labeling errors on vehicle components imported to the U.S. from China.

So how is it that something as seemingly insignificant as an incorrect label can have such a huge negative effect on the supply chain? The short answer is that applying a label is easy, but the entire labeling process is complicated. We often tell our clients that labels are the oil that keeps their organizational engine running.

Let's examine the labeling process in detail. First, there are several different types of labels, each with its own specific purpose, including warehouse labels, product labels, asset labels and shipping labels. Labels can be either 1D/2D/3D barcodes or RFID/IoT tags. They also need to be designed for the environment they are meant to operate in, whether high heat, cold storage, manufacturing clean rooms and so on.

Warehouse labels can be broken into different groups, but they all serve the common purpose of helping to organize, track and move inventory in and out of the warehouse. Inaccurate labeling can create operations delays while staff try to locate products or verify inventory accuracy.

Product labels help the consumer identify products and their components. Food labels are the most commonly viewed product labels; they list a product's nutrition facts and ingredients. Depending on the industry, these need to adhere to government standards and regulations and customer requirements.

Shipping labels identify shipping point of origin, destination, sender, receiver, package weight, product specifics and tracking codes. Any shipping label errors may prevent on-time delivery, or in some cases, any delivery at all. These typically need to conform to carrier standards and customs requirements.

Each label plays a key role in keeping products moving through the supply chain, yet many companies still don't have a proper workflow and software in place to manage labels. Technology provides easily replicated digital label management processes that help minimize labeling errors.

### LEVERAGE LABEL TECHNOLOGY

Label management platforms aren't a new concept, but they are getting more attention as more companies work with suppliers around the globe. However, not every label management platform meets every organization's needs. Points to consider when exploring a labeling platform:

1. Does my supply chain involve multiple suppliers? If the answer is yes, then consider a cloud label management platform. When label templates are stored in the cloud, all stakeholders can access them from anywhere. Users upload a label and send access to suppliers, preventing storing and maintaining duplicated label templates and



An example of Synkrato digital labeling that allows for group management. Users can create teams and share labels for easy access. *Image courtesy of Synkrato.*



back-and-forth emails to ensure that everyone is using current label templates.

2. Another point to consider is whether or not the label management solution you are interested in can be easily integrated with your existing supply chain software. If you're already using software to manage supply chain details, like a transportation system or a warehouse management system, look for a label management platform that is software agnostic so that it can be integrated with all of your legacy systems. Software integration can improve efficiency. For example, a ship confirmation transaction can trigger internal labels and interface with a carrier (like UPS or FedEx) to generate a carrier-specific label.
3. And finally, find out if the label management platforms you're reviewing allow for creating business rules. Business rules are especially important if your organization is highly regulated or part of a global ecosystem. For instance, in the EU, food labels need to provide specific information about the ingredients, and the information needs to be presented in a precise way. The font has to be printed with a minimum x-height of 1.2 mm unless the largest surface area of the packaging is smaller than 80 sq cm, in which case companies can use a font with a minimum x-height of 0.9 mm. Let's say that a U.S. food company supplies food to a company based in Ireland. The labeling system should

be able to automatically identify the label template that complies with Ireland food regulations and populate the information automatically from the company's ERP system. That way, operators don't need to worry about whether they are using the template with accurate font sizes, and can remain focused on validating the information, running a print test and completing the labels.

Label management platforms can help eliminate labeling errors in additional ways, but the three points outlined above are key to maintaining a transparent supply chain and allowing labels to do what they are intended to do: correctly identify goods and ensure that they are at the right location at the right time. **WMHS**

*Amin Sikander, President and CEO of Synkrato, has more than 25 years of experience in supply chain software and was one of the original architects of Oracle WMS. Sikander's experience in software development and supply chain set Synkrato's strategic vision. Synkrato harnesses the power of AI, AR, mobility and IoT to bridge the gap between the physical and digital world. Synkrato has five core components: digital twin, adaptive slotting, mobile app builder, IoT and digital labeling to make supply chains reliable, resilient and scalable ([www.synkrato.com](http://www.synkrato.com)).*

## DON'T

## JUST RE-LABEL ...

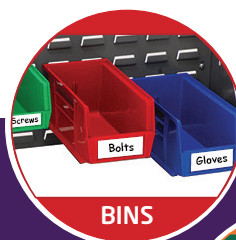
# Re

# Dentify™

Write-On Labeling System with  
Wipe Erase® Technology

### Peel & Stick, Write On / Wipe Off

- ✓ Wet Erase Marker
- ✓ Dry Erase Marker
- ✓ Permanent Marker
- ✓ Removable Labels



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Re•Dentify™ is a trademark of Aigner Label Holder Corp.  
Wipe Erase® is a registered trademark of DryTac® Corporation.

## About Us

Every day we work to address your needs and solve your challenges by applying imagination and initiative to make your job easier. Haws invents, manufactures and builds drinking fountains and standardized and customized emergency response products. With more than 8,000 distribution locations and 250 employees worldwide, we continually focus on quality, service, reliability and complete solution support.



## Haws Corporation

1455 Kleppe Ln.  
Sparks, NV 89431  
775-359-4712  
[www.hawscor.com](http://www.hawscor.com)



**Haws®** is the only safety equipment manufacturer providing warranty and field services for emergency shower and eye/face wash products of all brands to ensure equipment is functioning properly and meets ANSI/ISEA Z358.1 compliance.

Research has shown that an average of 88 % of equipment is non-compliant and 78 % of noncompliance is performance related. Most facility and safety professionals are unaware of the ANSI/ISEA Z358.1 testing requirements and have products that are non-compliant.

As the industry leader, **Haws** can help bring awareness to the hidden dangers of inadequate emergency response by providing your facility with a proven road map to compliance. Our “4-Steps to Compliance” process is a “total solution” approach that helps customers achieve ANSI compliance and ensures properly functioning emergency equipment. By taking advantage of the **Haws** “4 Steps to Compliance”, facilities can ensure equipment meets the most recent ISEA/ANSI Z358.1 Standard.

Recently, a global leader in the treatment and disposal of hazardous waste was looking to install a tempering system for their existing emergency shower and eyewash equipment at a facility in Pennsylvania and contacted **Haws** Services. In discussions with the Project Engineer, they explained they were looking to make an investment in the tempering

solution to comply with ANSI Z384.1 requirements. The site already had ten combination showers and eye/face wash units installed in the facility without tempering. The **Haws** team explained if their primary goal was compliance, investing in the tempered water skid was likely not going to help them achieve that larger goal. It would only ensure warm water from non-compliant equipment. **Haws** explained their “4-Steps to Compliance” approach to achieving ANSI Compliance. If compliance was the ultimate goal, following this process would be key to delivering the overall results they were hoping to achieve.

Starting with “Step 1” in the process - *utilizing a complimentary onsite ANSI compliance survey of all their existing emergency showers and eyewashes* - would help ensure a complete view of their compliance and non-compliance issues. The ANSI Inspection results identified 100 % of the existing units were not working properly and were non-compliant, thereby unable to deliver proper first aid in the event of an emergency. In addition, some of the emergency equipment was not appropriate for the application, there were multiple issues with too much or too little flow, non-compliant flow patterns and, in a few cases, the equipment was not installed to align for simultaneous use of both

## Haws Corporation



the shower and the eye/face wash. During the inspection, the Project Engineer was also introduced to **Haws** patented AXION® eye/face wash technology. The site immediately liked that it solved many of their flow issues without the need to replace the complete unit – simply retrofit existing units. Following the survey, the existing ten combination showers were upgraded or replaced, and the tempering skid installed.

By partnering with **Haws** Services, you will receive unmatched support. **Haws** certified technical experts ensure ANSI/ISEA Z358.1 compliance on all types of emergency equipment, regardless of brand. And facilities have assurance that equipment will be properly tested weekly and annually, freeing up maintenance teams to focus on day-to-day operations.

Learn more about **Haws** Services at [www.Hawscor.com](http://www.Hawscor.com).



# AXION Advantage<sup>®</sup>

## Achieve Compliance and Solve Common Emergency Eye/Face Wash & Shower Flow Problems with a Haws<sup>®</sup> AXION<sup>®</sup> Retrofit Kit

A simple, cost-effective solution to mitigate most common flow problems, including:

- **Lack of Simultaneous Flow**
- **Lack of Controlled Non-Injurious Flow**
- **Uneven Flow Pattern**

Visit [www.hawsco.com/axion-advantage-kit](http://www.hawsco.com/axion-advantage-kit) to find the right upgrade for your ANSI/ISEA Z358.1 compliance needs.



APPLICATION: Pedestal and Wall-Mount Eyewashes



APPLICATION: Combination Showers



APPLICATION: Halo Wall and Pedestal-Mounted Retrofit



APPLICATION: Lab and Hose Units



## About Us

'Showa' means "finding a balance between different elements" in Japanese.

This principle is much more than just a formula; it is at the heart of our approach and requires full control of all stages. SHOWA is the only company that fully controls the design and manufacture of its protective gloves. Every day at SHOWA we continue to innovate to provide each wearer with a product that meets expectations. This autonomy, impervious to competitor methods and concepts, is based on constantly surpassing what has been done before, ensuring that everyone enjoys comfort and optimum safety.



## SHOWA GROUP

579 Edison Street  
Menlo, GA 30731, USA  
800.241.0323  
USA@SHOWAgroup.com  
www.showagroup.com



## ChemRest® Know You're Protected

Selecting the right chemical resistant glove for the job is obviously complicated. In this *IHW* exclusive interview with Gilbert LeVerne, Jr., Director, Marketing at SHOWA International, we discussed a wide range of issues that can help protect workers from chemical burns, including the company's *Chemical Resistant Glove Directory*.

**Employees where chemicals are manufactured are obviously at risk for hand injuries due to chemical exposure. Other industries are also high-risk for such hazards (i.e., mining, painting, construction, welding, etc.). How can workers unintentionally expose themselves to harmful solutions?**

Mishaps, misunderstandings and lack of training: Proper training and certifications are paramount to a safe work environment, especially where harmful chemicals are in use.

**What is "chemical permeation," and how can it be combatted in industries where chemical exposure is a risk?**

Permeation is a process by which a chemical can pass through a protective film without going through pinholes, pores or other visible openings. Individual molecules of the chemical enter the film and "squirm" through by passing between the molecules of the glove compound or film. This is combatted by wearing the proper hand protection within the regulated time of exposure to chemicals.

**How does permeation differ from the term "penetration," when used to describe a chemical process?**

Permeation is described as something moving through a substance by diffusion or going through the pores of it by being spread onto it. Penetration of something is when a certain chemical can find its way into

the pores and imperfections of a certain material.

**There seem to be many complications that workers might suffer from chemical burns. What are some of these complications?**

Serious chemical burns can cause long-term complications:

- Many people have pain and scarring.
- Burns in the eye can lead to blindness.
- Swallowing harmful chemicals can lead to problems in your gastrointestinal tract, potentially leading to permanent disability.
- Some acid burns can cause the loss of fingers or toes.
- Burns can cause emotional issues including anxiety, depression and insomnia.

Long-term effects for employees and employers differ and are reviewed by incident. Employers lose tens of thousands of dollars in work compensation for injuries at work, loss of valuable employees due to permanent injuries, OSHA violations, etc.

**What are the three "service pillars" of SHOWA's ChemRest Platform?**

Educate, Evaluate, Equip

**What type of education does SHOWA provide for employees on chemical resistance and permeation?**

SHOWA has 70 years of experience with chemical hand protection. Our sales professionals, our technical team and our online services all are available to our customers at any time. We make complex chemical applications much easier for our customers to understand and prevent against.

**How is this education or training delivered?**

We do in-person training, video conferencing and videos.

**Has the company conducted any after-education assessments to see if their training/education programs help to mitigate a company's injury statistics?**

Yes, we utilize our Sentinel evaluation program to measure all of our recommendations, training, injury prevention, cost savings, etc.

**What is SHOWA's process for determining a company's best choice(s) for chem-resistant gloves?**

Application Type/Chemical Name/CAS #/Time of Exposure are the main areas that we cover before recommending the proper glove.

**Can you briefly explain SHOWA's global labeling system and its various benefits?**

We utilize the EN-374 TYPE A, B, C labeling system\*. This labeling system is throughout our online assets, catalogs, inner packaging, dispensers, marketing materials, training materials, etc.

**Selecting the right chemical resistant glove for the job is obviously complicated. What is the Chemical Resistant Glove Directory (ChemRest.com) and how does it help users navigate the myriad issues they might face in choosing the right hand protection?**

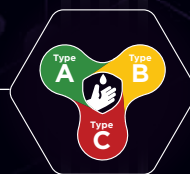
Our mission is to educate, evaluate and equip. We do this most effectively in-person, but that is not always an option. We developed chemrest.com to bridge the gap in an easy to use interface with our chemical glove portfolio of products. Go to chemrest.com; register as a user; and walk through the clear steps to finding the chemical, the exposure time and the product to protect.

SHOWA professionals are experts at using chemrest.com and can also be of great benefit to aiding the user in navigating the site.



**ChemRest®**  
know you're protected

CHEMICAL RISKS DON'T STOP AT THE SURFACE,  
**YOUR PROTECTION SHOULDN'T EITHER.**



### EDUCATE

Coherent tools & training on hand protection against chemicals



### EVALUATE

Full risk assessment & in-house lab testing of customer-specific chemicals



### EQUIP

A complete series of protective gloves adapted to all industries and uses

*Reinforce your Defense  
with the Complete CHEMREST  
Protection Platform.*

#### LEARN MORE:

**ChemRest Technology**

**Register NOW at [ChemRest.com](https://ChemRest.com)**

**SHOWA**  
Always Innovating. Never Imitating.

**[SHOWAgroup.com](https://SHOWAgroup.com)**

## The Most Versatile Fall-Protection Solutions On The Market

### About Us

Safety Rail Company makes OSHA-compliant fall protection safety railings and guard rail systems that are durable and innovative, but still affordable. With years of industry experience, our fall protection products are engineered first and foremost to save lives!

Safety Rail Company is the industry leader in rooftop safety, providing passive fall-protection products for life and compliance. Our mission at SRC is to save lives – and our engineered solutions are designed to reflect that by protecting all workers, all the time.

We are also the manufacturer. Safety Rail Company is not reliant upon overseas vendors and the often frustrating delays caused by supply-chain challenges. We build our own products, right here in America, which allows us to maintain top-notch quality control while also offering the most available ready-to-ship inventory in the market. When you need product, SRC has you covered.

As the preferred fall-protection partner of Fortune 500 companies, we have likewise developed one of the best service processes in the industry: SRC Site Safe, a do-it-all safety solution. From the first site inspection to the final installation review, Safety Rail Company is with you every step of the way. We start by providing our clients with site-specific feedback: engineer-driven recommendations to address all potential fall hazards at your facility. Then, once we've manufactured your



products in our Minnesota factory, we also install them with our on-staff team of safety experts. This hassle-free operation eliminates the stress associated with finding numerous sources (manufacturers, contractors, subcontractors, and installers) – we do it all.

Safety Rail Company's versatile product lineup works together to ensure total compliance and safety. Our workhorse product is the SRC360 Mobile Rail: a non-penetrating guardrail that installs at the roof perimeter, acting as a permanent barrier between the worker and the fall hazard. Available in multiple sizes to fit your needs, the SRC360 Mobile Rail utilizes our weighted bases as a foundation – thus, no drilling is required into the rooftop membrane.

Indeed, we offer guardrails for any application, including those that fold down for discretion when not in use, those that complement your building's architectural sight lines, and those that work on metal-deck roofs.

And because safety is about more than simply securing the leading edge, as any facility manager or compliance officer can testify, rooftop SRC provides a comprehensive roster of solutions providing protection for skylights, open hatches, ladders, and other maintenance obstructions.

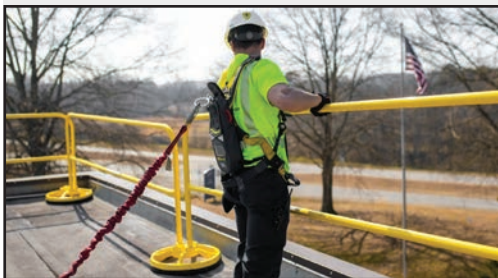
Simply give us a call at 888-434-2720 to see how we can help your facility achieve total fall-protection compliance!



### Safety Rail Company

4244 Shoreline Drive  
Spring Park, MN 55384  
888-434-2720

sales@safetyrailcompany.com  
www.safetyrailcompany.com





# YOUR AMERICAN MANUFACTURER

MADE IN AMERICA FALL-PROTECTION SOLUTIONS



**SRC360 Mobile Rail** is your best defense against jobsite falls – permanent, non-penetrating barriers between workers and the hazardous leading edge.

- Non-Penetrating
- Simple Installation
- OSHA Compliant
- No Harnesses/Training Required

**INVENTORY  
IN STOCK**

READY TO  
SHIP!

Made in America: three simple words whose value have perhaps never been more pronounced. Global supply-chain disruptions have created an inventory shortage across the fall-protection industry — but not at Safety Rail Company. Our in-house manufacturing model ensures our status as the market leader in both available stock and quickest turnaround times.



**SafetyRailCompany**  
Fall Protection for Life and Compliance

[SAFETYRAILCOMPANY.COM](https://www.safetyrailcompany.com) | 888.434.2720

## Safety, Quality And Innovation

### About Us

At MARTOR, we care about our customers' cutting needs, and we are available to answer any questions that may arise. We pride ourselves on delivering high quality knives, blades, tools, and accessories, and we believe that safety is our business.

MARTOR is the international leading partner for safer cutting solutions. For more than 80 years, the family owned company based in Solingen has been combining quality with innovation to manufacture premium cutting tools for industrial and professional purposes. Today, the brand MARTOR is represented by partners and dealers in more than 70 countries all over the world.

MARTOR focuses on the product segment of safety knives. "Safety knives" because they are equipped with reliable safety technologies. Year on year, MARTOR extends its product portfolio along with specific



services to offer the most comfortable and efficient cutting solutions. Large retail chains, logistic companies and automobile manufacturers, to name just a few industries, have not only professionalized their manual cutting work by using MARTOR products, they have also managed to considerably reduce the number of cut related injuries.

MARTOR launches new products regularly - most recently the SECUMX 320 with concealed blade and the metal-detectable SECUNORM PROFI40

MDP for the food and pharmaceutical industries. The high quality safety knives, equipped with quality blades from Solingen, can be used for numerous

cutting tasks on a variety of materials, such as multi-ply cardboard, paper, plastic strapping band, tape, bagged goods, shrink film and plastic wrapped pallets.

Additionally you will find further product categories at MARTOR, such as cutters and specialty knives (scalpels, deburring cutters, scrapers etc.) for various professional segments.

"THE SAFER WAY TO CUT." is the new MARTOR slogan that succinctly communicates our mission on making the world of work safer. We invite not only end users, but also trade partners to experience this safety - because you can always rely on the quality standard of the market and innovation leader.



## martor

### Martor USA

1235 S. Kimps Court, Unit 29  
Green Bay, WI 54313  
(920) 662-9646  
info@martorusa.com  
www.martorusa.com



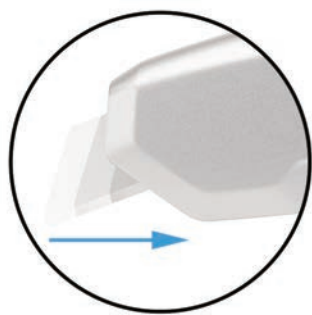


# DON'T WORRY! IT'S A SAFETY KNIFE.



## **A safety knife with fully automatic blade retraction:**

The SECUPRO 625 combines sharpness and cutting performance with very high user protection.



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THE SAFER WAY TO CUT.

**martor**

## Professional Cleaning Equipment From Nilfisk

### About Us

A leading global provider of professional cleaning products and services. We enable sustainable cleaning worldwide to improve quality of life

Nilfisk was founded on a vision of producing and selling products of the highest quality worldwide and for more than a hundred years, Nilfisk has adapted to the changing needs of markets and customers with innovative products and solutions. With a global sales force and proven sales channels, we have established strong and valuable customer relations and partnerships across the world and we strive to be at the forefront of technological



advancement to drive future customer needs.

Nilfisk is committed to investing in innovative customer solutions while also ensuring product safety, quality, and sustainable performance. Today, Nilfisk offers an extensive range of premium cleaning products, including floorcare equipment, industrial vacuum cleaners and high pressure washers.

With a direct sales force and extensive dealer network, Nilfisk cleaning experts

help solve a variety of cleaning challenges. Customers receive free on-site assessments and product demonstrations to help evaluate facility cleaning and maintenance needs. Whether you are decontaminating a cleanroom, complying with OSHA and NFPA combustible dust standards, cleaning overhead racks and floors in a warehouse or simply keeping hallways clean in a school, Nilfisk has a solution to accelerate your cleaning regimen.



**Nilfisk**  
9435 Winnetka Ave N,  
Brooklyn Park, MN 55445  
800-989-2235  
[www.nilfisk.us](http://www.nilfisk.us)







# Mitigate the risks of combustible dust

Keep your people and facility safe

Nilfisk offers free facility assessments to help reduce the risk of combustible dust incidents

**Visit [nilfisk.us](https://nilfisk.us) to learn more**

## Graphic Products + DuraLabel Customers do the talking.

*"The products are great, and the customer service is fantastic."*-Christina M

*"My labels arrived sooner than I expected and were perfect for my purposes."*-Clint

*Love using this printer. Love the way the tape holds up to all our conditions in the plant (wet & dry)."*-Caroline K.

*"The Kodiak delivers. We have six print stations sending labels for printing and it hasn't misprinted a label once!"*-Jackson

*"I've used Graphic Products off and on across multiple companies for over 15 years. Always had top quality products and service. Website was easy, shopping was convenient and easy."*-Michael L.

*"This is so good."*-Shyne

(Source: Verified Shopper Approved Reviews)

## The Future of Safety is Now: Increase Compliance and Improve Productivity

Safety managers need to be able to create signs and labels for customized safety communication in multiple locations. OSHA regulations and National Emphasis Programs require updated signage to be compliant and efficient.

When you need signs and labels for worker safety, floor marking, blind spot protection, pipe marking, ANSI standards, complex chemical labels, or worksite efficiency, Graphic Products + DuraLabel makes it easy. Mark your facility with required compliance communication on high-quality, durable supplies that withstand harsh industrial conditions.

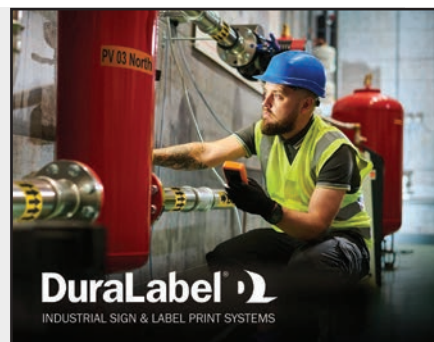
Plus, our free LabelForge PRO software includes an industry-leading library of compliance label templates, and thousands of ANSI standard symbols

that help you meet regulatory requirements, save time, and increase worker protection.

## Create Facility-wide Safety, Efficiency, and Strong Worker Communication

Graphic Products + DuraLabel creates communication, compliance, and efficiency in your facility. We help you eliminate incidents and increase worker productivity. And we back up your products with world-class support and warranties.

Safety Managers can quickly and easily use **DuraLabel** and **PathFinder** solutions to create labels and signs for workplace regulation compliance, floor marking and wayfinding, electrical and arc flash protection, pipe marking, 5S and lean manufacturing efficiency, GHS and



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For more than 50 years, Graphic Products has been a leader in delivering innovative design software, industrial sign and label printers, all-purpose floor marking, multi-language signs and labels, and colored pipe markers for any facility's compliance and safety requirements.

See for yourself.

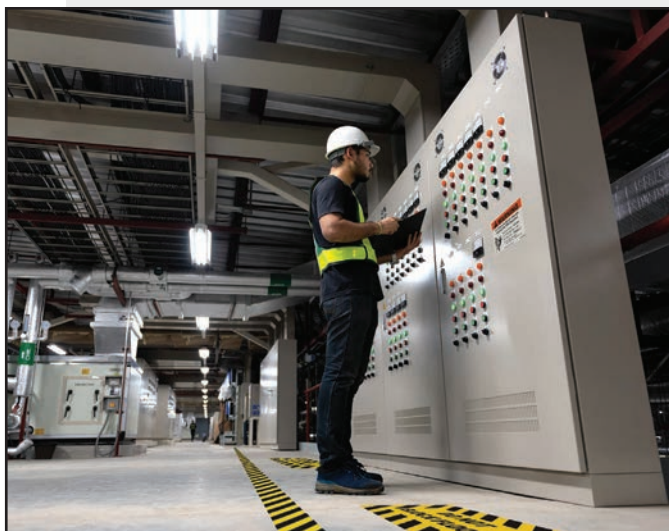
Download this free Best Practices Guide exclusively for Workplace Materials Safety & Handling readers: **Checklist Best Safety Practices for Effective OSHA Floor Marking**

Learn more about how DuraLabel can enhance the safety and efficiency of your facility at <https://www.graphicproducts.com>.

Or call Graphic Products for a consultation and virtual assessment. We'll help you plan your future Safety Programs: 1-888-637-3893.



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# STOP

# HERE COMES AN INCIDENT



## CREATE A SAFER PATH

DuraLabel PathFinder establishes communication, compliance, and efficiency in your facility. PathFinder's rigid material is designed for heavy duty foot and forklift traffic. It's easy-to-apply, cost effective, and convenient. PathFinder helps you increase worker safety and productivity. Call us for a virtual assessment. We'll help you create a safer path. **1-888-637-3893**



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## From 50 lbs. to 40 tons, Gorbel Cranes Keep you Moving

### About Us

Since 1977, Gorbel has been providing overhead material handling equipment solutions that are A Class Above in quality, reliability, performance and safety. Whether you're moving materials or protecting workers at heights, the owners of overhead safety have your back. Gorbel cranes, ergonomic lifting solutions and fall protection devices can be found in virtually every industrial environment, elevating safety, productivity and profitability.

### Elevate your applications with our rugged Work Station Cranes

Available in free standing and ceiling mounted configurations, Gorbel® Work Station Cranes are proven to improve productivity, increase quality, and provide a safer work environment. Our aluminum and steel systems feature an enclosed track that is high in strength and low in weight. With standard spans to 30 ft. and lift capacities to 4,000 lbs., they ensure a higher level of productivity.

### Heavy-duty I-Beam Jibs, always ready for duty

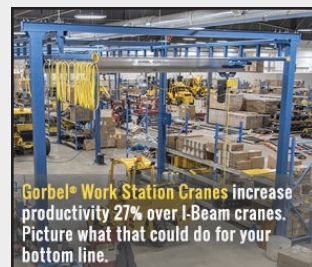
From free standing to wall

bracket configurations, Gorbel I-Beam Jibs are synonymous with quality, safety and performance. Designed to lift and move materials in semicircles or full circles, they're a cost-effective way to ensure maximum productivity in environments with limited space.

### Cleveland Tramrail®

Cleveland Tramrail® Patented Track Cranes are the gold standard of overhead cranes. We've built a reputation based on quality products, top-notch service, engineering expertise, and application knowledge. This combination allows us to provide flexible integrated solutions that will

give your productivity a lift. Cleveland Tramrail's unique Tarca Track, with its special raised tread and high-carbon track, is superior to I-beams in strength, durability, and consistency. Our rails permit the use of underhung carriers operating on a single straight, curved, or inclined track or operating on two or more straight track runways.



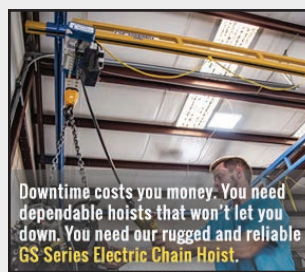
## Ergonomic Solutions for an Easier Lift

### GS Series Electric Chain Hoists

Available in a wide variety of models and configurations, our rugged line of GS hoists is ideal for just about every application—from high-production environments to periodic lifting and positioning. Their compact design makes them a good fit for all types of spaces, including those with low headroom, and they're easy to install, maneuver and relocate.

### Intelligent Lifting Devices take your lifting to the next level

Combining the agility and responsiveness of a human



operator with the power of a machine, Intelligent Lifting Devices (ILDs) are revolutionizing the material-handling landscape. Gorbel's G-Force® and Easy Arm® ILDs are leading the transformation with systems that can make repetitive-motion injuries obsolete, eliminate product damage, and facilitate record-breaking levels of productivity.

## Protect Your People with Gorbel's Fall Protection Solutions

### Anchor your Fall Protection Program with Tether Track™

Gorbel Tether Track Rigid Rail Fall Arrest Systems provides workers with a high degree of mobility and freedom, while preventing falls to lower levels. Standard systems are designed to

accommodate multiple workers, each weighing up to 310 pounds with tools. Gorbel Tether Track Rigid Rail Fall Arrest Systems provide a reliable and cost-effective solution for reducing the risk of injury in elevated work environments. Available in various configurations.



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# PROTECT

PEOPLE • PROFITS • PRODUCTIVITY



**TETHER  
TRACK™**  
FALL PROTECTION  
SYSTEMS BY GORBEL®

## Defend What Matters Most

Finding a balance between safety and productivity doesn't have to be a losing battle. Gorbel's Tether Track Fall Protection solutions were designed to protect the things that matter most to you – your people – without sacrificing productivity or profits. We take the guesswork out of fall protection by helping you select a system designed specifically for your needs.

**On the front line of falls, we're your best defense.**

**DOWNLOAD OUR FALL  
PROTECTION TOOLKIT TODAY!**

» [www.gorbel.com/right-track](http://www.gorbel.com/right-track)

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**GORBEL®**  
A C L A S S A B O V E

## Armor Guys

### About Us

Armor Guys core material has been developed over the years as an unequal reinforcement material for the most demanding industries in the World. After years of R&D efforts, it is now available for your safety protection.

Armor Guys, bringing protection to new heights!

Armor Guys is a leader in the design, development and manufacturing of premium hand and arm protection. Our parent company began operations in 1993 and over the past 25 years has developed some of the finest gloves and sleeves for general purpose, cut resistant, and chemical resistant applications. Operating in factories that are ISO 9001:2000 certified for quality management, ISO 14000 certified for environmental management and deriving 80 % of our energy used from solar power, Armor Guys plays an important role as an environmentally responsible glove manufacturer. Being vertically integrated; we source the raw materials, upwind our proprietary yarns, knit the liners, apply the coating, wash the gloves prior to packaging and do a final inspection to ensure quality of the products. Because of this, Armor Guys is able to provide products that meet and exceed the most stringent quality standards, while doing so at the most competitive prices in the market.

Building on years of technical leadership, backed by a strong research and

development program, Armor Guys is the first glove manufacturer to commercialize Graphene for use in hand and arm protection. Discovered in 2004 by two scientists at the University of Manchester, Graphene has been found to be 100 times lighter than paper, 200 times stronger than steel, harder than diamond and only 1 atom thick. Graphene is also inherently anti-bacterial, thermal regulating, odor neutralizing and highly resistant to UV-A and UV-B rays.

In 2017, Armor Guys launched the 1<sup>st</sup> range of graphene gloves and sleeves. Kyorene® as this range of products is known is offered in general purpose and cut resistant gloves and sleeves ranging from ANSI A1 to ANSI A6 cut resistance. Kyorene® is available in a variety of coating options giving the user an array of glove choices that best suits their need. Following the successful launch of Kyorene®, Kyorene® Pro was launched in mid-2018. Building on the successful attributes that made Kyorene® successful – anti-bacterial, thermal regulating, odor neutralizing and UV resistant, Kyorene® Pro



is free of stainless steel and fiberglass, resulting in gloves that are more comfortable, thinner, lighter weight and more dexterous. Kyorene® Pro is also offered in a variety of coating options and is available in ANSI A3 to ANSI A9 cut resistance.

With more than 30 patents under application or awarded globally and continuing further development into Graphene, Armor Guys is well positioned as a global leader in the use and application of Graphene for hand and arm protection. Beyond the Kyorene® and Kyorene® Pro ranges of Graphene glove and sleeves, Armor Guys offers a number of other high-performance gloves in our Taeki5®, Basetek®, Extraflex® and Extraflex® Plus ranges. As a manufacturer with years of know-how, patented and proprietary products, Armor Guys stands ready to meet the needs for hand and arm protection across the U.S.

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## Creating Safer Workplaces

### About Us

Working together for a safer, stronger future

For more than 100 years, the American Society of Safety Professionals has been at the forefront of helping occupational safety and health professionals protect people and property. The nonprofit society is based in the Chicago suburb of Park Ridge. Its global membership of 36,000 professionals covers all industries, developing safety and health management plans that prevent injuries, illnesses and deaths. ASSP advances its members and the safety profession through education, advocacy, standards and a professional community.



For more than 100 years, ASSP has served as a global advocate for the occupational safety and health (OSH) profession by providing advocacy, education and standards development, and by promoting the expertise, leadership and commitment of its members. With more than 36,000 members worldwide, we create safer work environments by preventing workplace fatalities, injuries and illnesses. Become a member

### Supporting the Careers of Safety Professionals

Our commitment to safety is what inspired us to create the ASSP Foundation, the charitable arm of ASSP that was chartered in 1990. The Foundation promotes occupational safety and health as a career choice and works to build a sustainable talent

guidance, education and leadership development. The charitable effort is designed to attract new individuals to the profession as well as enhance the knowledge and skills of current safety students and professionals. Visit [www.assp.org/foundation](http://www.assp.org/foundation) to find out how you can support the future of the OSH profession.

### Safety Education You Can Trust

Sharing knowledge is at the heart of what we do. We deliver enriching learning opportunities in a range of formats from webinars, online courses and micro-learning to conferences, symposiums, certificate programs and certification exam preparation courses. ASSP is approved as an accredited provider by the International Association for Continued Education and Training (IACET) and is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET standard. We offer a robust education calendar, full of online and in-person learning opportunities throughout the year. **View our Education Calendar**

### Safety Standards Development

We engage in a collaborative, consensus-based process that brings together diverse viewpoints to develop and publish standards on many issues with the American National Standards Institute and the International Organization for Standardization. ASSP is secretariat of several standards writing committees including the Z10 Committee, which writes the current Z10



occupational health and safety management system standard and two implementation guides. We are also administrator of the technical advisory group (TAG) to ANSI for the ISO TC-283 Committee, the global group responsible for the ISO 45001 OHSMS standard. These roles reflect our position as a global champion of these systems and our advocacy for the importance of effective safety management overall. **Learn more about standards**

### Technical Publications

As a leader in the safety industry, ASSP publishes technical books and a monthly peer-reviewed safety journal. We also offer implementation support for our standards through downloadable technical briefs, implementation guides, webinars and articles. ASSP's The Case for Safety Podcast features conversations with standards committee members and safety experts sharing their ideas and insights on standards related topics. **Listen to our podcast**

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pipeline to make all industries safer worldwide. Its programs and services are solely supported by charitable donations from the ASSP community and corporations motivated to support the profession. The ASSP Foundation has invested more than \$5 million into the occupational safety and health community to develop opportunities for career





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## HafcoVac Air-Powered Industrial Vacuums

### About Us

HafcoVac is a product line of Hafco Foundry. Hafco Foundry is located in Midland Park, New Jersey. Founded in 1969, Hafco Foundry manufactures and distributes a variety of vacuum cleaner units and accessories that are perfectly adapted to the heavy duty requirements of industrial and machining cleanup.

HafcoVac Air-Powered Industrial Vacuums are designed to be high-performance solution for use within environments where electricity is not available, too dangerous or prohibited for use. Our vacuums are multi-functional, maneuverable, easy-to-use and can be accessorized to meet the needs of any type of industrial cleaning necessary. HafcoVacs safely collect both wet and dry materials and are constructed with no moving parts that can create friction, arcs or sparks. They are also ATEX and NRTL certified for use in the cleanup of hazardous combustible dusts. Many industries have to comply with safety regulations involving combustible materials and the versatile HafcoVac is both a price and service leader for intrinsically safe, certified, air-powered industrial vacuum cleaners.

HafcoVacs are perfect for use in heavy-duty industrial cleaning for the purpose of recovery of wet and/or dry materials. Using the existing compressed air in your facility, our simple Venturi system can provide up to 5x the power generated by motor driven systems. Since the Venturi



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When coupled with our popular Overhead Cleaning Kit accessory, Air-Powered Hafcovacs prevent blow-down and distribution of harmful fumes and materials. Available in 4 different lengths the kit makes cleaning pipes, beams and overhead areas quickly, efficiently, and safely.



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HAFCO Vacuums are ATEX certified and designed for use in Class I: Division 1, Groups A, B, C and D T6, Zone 1, and Class II: Division 1, Groups E, F, G, T6, and Class III: Division 1 Hazardous Locations as defined in the National Electric Code (NFPA 70). They can be used in a Division 2 hazardous location, providing it is in the same Class and Group.



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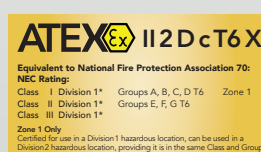
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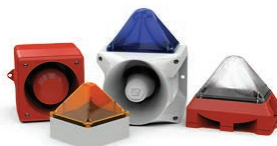
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Pfannenberg's core purpose is "Protecting people, machines, and the environment." For over 50 years they have developed technically superior signaling devices. As signaling safety experts Pfannenberg has always felt that safety begins with understanding the situation facing your personnel. To best understand you need to know the space being covered, standards or codes to be met, the type of event (Alarm – Imminent Danger, Warning – Impending Danger, Indicate – Process Notification) and the detailed performance characteristics of visual and audible devices needed to



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## Avery Products Corporation – Avery Industrial

### About Us

Avery Industrial is a division of Avery Products Corporation, one of the world's leading manufacturers of self-adhesive labels, labeling software, tags, binders and other products, and markets under the well-known Avery® brand.



Avery Products Corporation  
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At Avery Industrial, we want to make workplace safety and identification as easy as possible. That's why we've utilized our expertise in label development to help you get OSHA compliant quickly, easily and cost-effectively. These award-winning products make it simple to design, print and apply a wide range of durable safety labels, tags and signs on-site using a standard laser or inkjet printer.

Our innovative Design & Print online software offers hundreds of customizable ANSI/OSHA templates so you can protect your workers and facility in minutes.

### PRODUCT HIGHLIGHTS

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As the world's signaling needs shift from simple lights and buzzers to smart,



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\*Professional Development Seminars require a separate fee for attendance.

# Innovations in Material Handling: Working Smarter, Not Harder

Contributed by: **Gorbel**

Manufacturing facilities and distribution centers traditionally had to choose between keeping their works safe or keeping them productive. Thanks to recent material handling innovations, companies no longer have to make that trade off. Innovative and affordable material handling solutions empower workers to perform tasks faster and with more precision, while also reducing the risks of injuries from accidents and repetitive motion, and lowering the costs associated with damaged parts, products and machinery. The combination of increased productivity, less injuries and fewer damaged parts and machines directly increases profit margins.

## THE PUSH FOR HIGHER PRODUCTIVITY

High productivity has always been crucial to being profitable and remaining competitive, and it has become even more important during this period of acute labor shortages in the manufacturing and logistics sectors of the economy.

In fact, the National Association of Manufacturers Outlook Survey finds that “attracting and retaining a quality workforce” is one of the top business challenges among respondents and predicts that U.S. manufacturing will have 2.1 million unfilled jobs by 2030.<sup>1</sup> Instawork reports that 73 % of warehouse operators can’t find enough labor.<sup>2</sup>

As companies struggle to recruit and retain workers, the reduced workforce is pressed to be more and more productive. The potential problems with this trend are obvious. “Beyond causing stress, the lack of skilled workers has heightened workplace injury, product liability and property damage risk for these businesses,” warns Liberty Mutual Insurance.<sup>3</sup>

## ACCELERATING TREND TO AUTOMATE

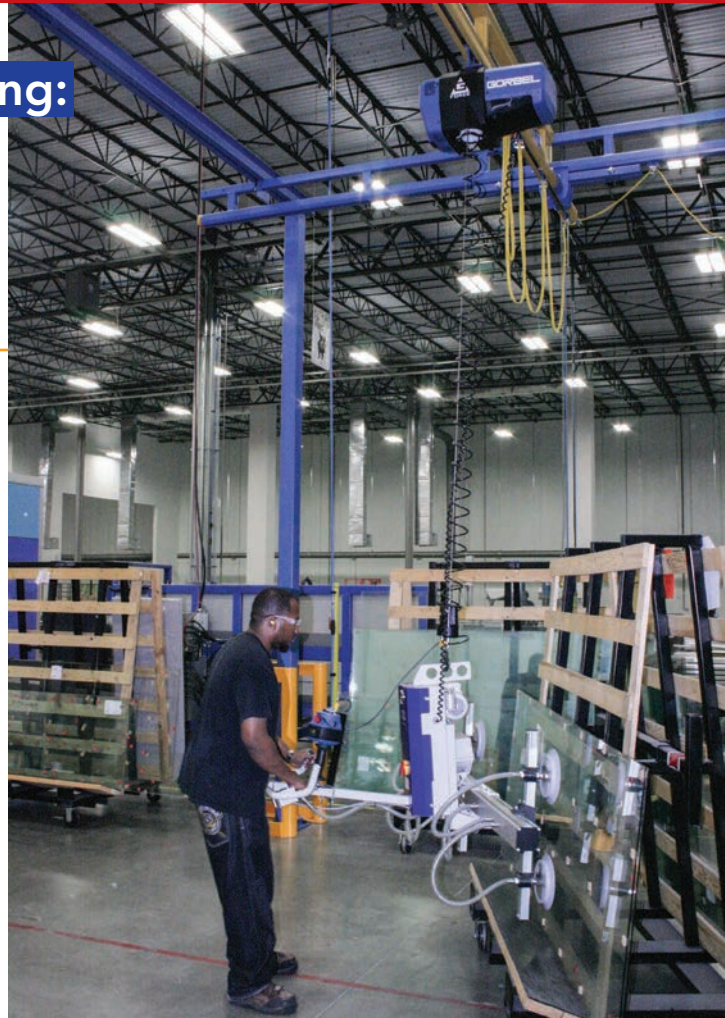
Businesses have increasingly turned to automation to address these challenges. Automation can reduce labor requirements, with fewer employees needed to perform the same functions, and it can also help with recruitment and retention by making jobs more appealing to workers.

However, full automation is not appropriate, or even possible, for every task, and it often does not make business sense. Automation systems are expensive to design,

1 <https://www2.deloitte.com/us/en/insights/industry/manufacturing/manufacturing-industry-diversity.html>

2 <https://www.freightwaves.com/news/survey-73-of-warehouse-operators-cant-find-enough-labor>

3 <https://business.libertymutual.com/insights/labor-shortage-in-manufacturing-causes-risks-and-solutions/>



The Gobel G-Force® Intelligent Lift Device uses advanced technology to lift and maneuver heavy, large and unwieldy objects. Image courtesy of Gobel.

fabricate and install, and often require specialized skills to operate and maintain. For many manufacturing and logistics applications, highly automated systems, including robotics, are simply not suitable because they are less flexible than humans, the most versatile machine of all.

## WORKER ASSISTANCE SOLUTIONS

Fortunately, a number of material handling solutions exist between fully manual processes at one end of the spectrum and completely robotic automation systems at the other end. These solutions utilize innovative system designs and proven technology to assist workers in performing their jobs better and faster, while also reducing strain and injuries, and limiting damage to parts and equipment.

These worker assistance solutions combine:

- the strength and power of a machine, with
- the control and cognitive thinking of a human.



The basic concepts of mechanical advantage have been known for thousands of years. Understanding the power of the lever and fulcrum, Archimedes is said to have playfully boasted, "give me a place to stand and I will move the world." Wheels, pulleys, wedges, screws and other simple machines were put to use to dramatically expand what people could accomplish with much less effort.

#### INTELLIGENT LIFT ASSIST SOLUTIONS: WORK SMARTER, NOT HARDER

Today, material-handling-assistance solutions fulfill the same basic promise, empowering operators to naturally and almost effortlessly lift and maneuver heavy, large and unwieldy objects, as if the devices were an extension of their arms.

Intelligent Lift Assist Devices (ILD) incorporate advanced technology, such as hoist systems with processor-controlled servo drives, to replace back breaking work with fingertip control and maneuverability.

But intelligent material handling solutions are not just about advanced technology. They consist of the smart overall design of complete solutions that utilize cranes and conveyors to best assist workers in each particular material-handling application on the shop floor and at the loading dock.

#### INTELLIGENT DEVICES

The Gorbel G-Force® Intelligent Lifting Device exemplifies how state-of-the-art technology can effectively enable ergonomic and user-friendly load manipulation. The industrial processor-controlled servo drive system allows the G-Force to deliver both unmatched lifting precision and speed, a combination that traditional lifting devices have been unable to offer.

In a study conducted by the Rochester Institute of Technology, workers in high-cycle settings were nearly 70 % more productive using this system, compared to other lifting solutions, including manual lifting, chain hoists and air balancers.

The G-Force also excels at giving operators the precise control they need to carefully finesse expensive or fragile parts into place. During precision placement tests, the RIT study found that operators were 77 % more efficient than with air balancers, and 59 % more efficient than with traditional hoists.

The high-speed servo control system and sensor technology, along with the highly usable design, make the system remarkably easy, effortless and natural to operate. Optional force sensing handles automatically detect force applied without requiring any handle motion, unlike other hoist



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systems that require operators to press a button or squeeze a handle to initiate upward or downward motion. Float Mode enables operators to precisely orient loads throughout the full stroke range by manipulating the load with their hands and applying as little as 1/2lb (227 g) of force on the load itself to activate the vertical movement.

A combined collector/air swivel allows the handle to continuously rotate without damaging electrical conductors in the coil cord or optional air coil. This is ideal in applications where the operator is continuously rotating the handle. The control handles have operator-present sensing functionality, making them safe and intuitive, without the operator needing to depress a physical lever.

## SMART SYSTEM DESIGN OF WORKSTATION CRANES

An optimal material-handling solution pairs the intelligent lifting device with a crane system that makes horizontal movement as easy and efficient as the vertical lifting. Workstation cranes achieve this goal better than alternative solutions, with superior maneuverability, enhanced safety and large rectangular area of unobstructed coverage.

Workstation cranes, also called overhead traveling cranes and bridge cranes, are a type of overhead industrial crane that consist of a moving bridge that runs across parallel runways. A lifting device travels back and forth across the

bridge, while movement of the bridge enables simultaneous movement in a perpendicular direction. A well-designed system will offer little rolling resistance of the bridge and trolleys so that operators can move freely around their work cell and perform their tasks in an ergonomic manner.

A workstation crane with an intelligent lifting device is much less complex and expensive than a fully automated system, but still provides vast improvements in productivity and safety compared to forklifts and other traditional material handling methods.

The workstation crane is much more efficient, often dramatically reducing cycle times and freeing up the forklift and the forklift operator to perform other tasks. Pair that work station crane with an intelligent lifting device instead of a traditional lifting device, and you have even more precise control, thereby significantly reducing risk of injuring workers and damaging the product and or the production equipment, like expensive CNC machine chucks

## ASSISTING WORKERS AND AUGMENTING ROBOTIC SYSTEMS

As we noted earlier, material-handling assistance systems provide productivity and safety solutions that fill a gap between fully manual processes at one end of the spectrum and completely robotic automation systems at the other end.

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Pairing a workstation with an intelligent lifting device makes control more precise and enhances operator safety. Image courtesy of Gorbel.

This is often true in the literal sense, in applications where intelligent lifting devices are physically located in front of highly automated systems. In the aerospace industry, for example, it is common to employ ILDs on workstation cranes to load expensive, fragile parts, which can be large and difficult to maneuver, into fixtures in robotic machine centers. The material-handling assistance systems precisely and safely load and unload the parts, protecting the workers, the parts and the machining equipment.

### SMART SYSTEM DESIGN AT THE LOADING DOCK

Marrying productivity and safety without complete automation isn't just for the production floor. There are also material handling innovations at the dock doors that are saving companies time and money. Another good example of system design that allows workers to work smarter, not harder is Gorbel's Destuff-it™ Portable Ergonomic Conveyor Systems. These systems enable workers to more efficiently load and unload containers and trailers, transferring floor-based boxes to the dock area for sorting and palletizing.

The systems provide a safe platform that elevates to position the worker at the optimal height on the box wall, replacing the traditional step ladder and the temptation to stand on boxes. From the platform, the workers transfer items to a conveyor when unloading a container, or from a conveyor when loading a container.

A single worker is typically able to achieve a case rate in excess of 800 boxes per hour, depending on the size and weight of the box, cutting unload labor costs by half. By reducing the amount of lifting, twisting, carrying and overhead reaching required, workers experienced less fatigue and muscle strain. Moreover, the product, which may range from wine bottles to furniture, is less likely to be damaged.

### HIGHER PRODUCTIVITY WHILE PROTECTING WORKERS

From the dock door to the production floor, there are a wide range of affordable material handling innovations that can significantly increase productivity, and therefore profitability, while also enhancing employee safety and protecting product and equipment. **WMHS**

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## OSHA PSM Enforcement is Increasing: Are You Prepared?

By: **James Junkin**, Contributor

While the Occupational Safety and Health Administration Process Safety Management (OSHA PSM) standards have been in place for 30 years, enforcement of the existing rules often comes down to White House priorities — which change with each administration.

The current administration has increased fines, and the President's budget proposal calls for hiring an additional 207 OSHA enforcement employees and 63 new whistleblower investigators in the near future.

These efforts have chemical and manufacturing plants concerned, causing a debate on whether you must comply, and how to create sound procedures to avoid hefty OSHA citations as well as keep your workers safe.

### IS MY FACILITY COVERED BY PSM?

PSM most directly applies to companies handling more than 130 reactive and toxic chemicals, or flammable gases and liquids of 10,000 pounds or more. Industrial plants that make organics and inorganics, paint manufacturers, large pharmaceutical companies, manufacturers of adhesives and sealants, paper mills, food processors — all may be covered under PSM. Coverage depends on chemical inventory and weight listed in OSHA's Appendix A of 29 CFR 1910.119.

Develop a chemical inventory with quantities to determine if PSM coverage applies to you. Any chemicals handled by your facility must tick both boxes on Appendix A, type and weight. If they exceed the defined limits in one location, you're covered under PSM.

If the chemical's threshold quantity is stored in atmosphere tanks or without the benefit of chilling or refrigeration, or if you're using fuels that aren't part of the process of your facility (e.g., diesel fuel onsite used for refueling), then your facility may be excluded from PSM.

### EIGHT THINGS YOU NEED TO DO TO AVOID AN OSHA PSM CITATION

Once you determine that the PSM standard applies to your facility, you need to follow the right protocols to avoid a citation and remain compliant. Here's how:

- 1. Form a PSM committee.** Include process engineers, senior management, operators, safety and maintenance professionals, and outside consultants, if necessary to receive a well-rounded amount of perspective on safety procedures.
- 2. Document everything.** Make sure there's adequate feedback and back-and-forth discussion between your working committee and those in higher management. Document all happenings and make sure there is a record.
- 3. Have a written plan.** Define committee members' duties and responsibilities, who they report to, and how they'll control PSM documentation. The latter is ripe for human error. Once an error is introduced, it can be replicated over and over and become difficult to find or undo, or worse, it can lead to a disaster.
- 4. Track progress.** Determine how often the committee will meet. Define a feedback loop between the committee and senior management.
- 5. Update data.** Use whatever methods are available to get the most current data in front of decision makers. Outdated and old data can lead to further mistakes and missteps down the line.
- 6. Collect toxicity information.** Use the National Institute for Occupational Safety Health (NIOSH) pocket guide or the American Conference of



PSM applies to companies handling more than 130 reactive and toxic chemicals, or flammable gases and liquids of 10,000 pounds or more.



Government In Health Guide to Occupational Exposures Values to evaluate safety data and toxicity levels for each chemical listed on your inventory. Figure out permissible exposure limits for each chemical and think about the hazardous effects of inadvertently mixing different materials. For example, a person could die from just one drop of hydrogen fluoride.

7. **Create a block safety diagram or process flow diagram.** A process flow diagram helps you analyze where danger might lurk. You'll need individual diagrams showing how each chemical moves through a facility—the more chemicals you use the more difficult this task will be. Determine what the committee should be reviewing—piping materials, process and instrument drawings, electrical classifications, ventilation, mechanical processes. Use the information to brainstorm what-if scenarios. Can we ventilate the chemical if we have a release, so we don't kill everyone in the safety plant?
8. **Do a Process Hazard Analysis (PHA).** The key to process safety management. PHA helps identify, evaluate and control hazards involved in the process. As you develop PHA, you'll run through many what-if scenarios: What if 'X' fails? What if we get hit by lightning? What if we're along the coast and get a storm surge? Brainstorm responses and use that information to develop a checklist. Follow up with

hazard and operability studies (haz opps) and failure mode and effects analysis (FMEA).

## CHEMICALS ARE SERIOUS BUSINESS – DO PSM RIGHT

Once you've made your determinations, it's time to make changes. There will be inspections, testing, training and change management to deal with down the road. The latter is particularly difficult as the standard requires you to describe how you will manage change and all stakeholders must have input.

Chemicals are serious business. People die when things aren't communicated correctly. Putting in place the aforementioned eight building blocks to the 14-element PSM standard will set you on a path to increased safety for your employees, your facilities and the environment. **WMHS**



*James Junkin, CSP, SMS, CSHO is a master trainer for Veriforce. He holds a degree in Occupational Safety & Health and is a noted author and much sought-after trainer and speaker. As noted above, Junkin holds the Safety Management Specialist (SMS) and the Associate Safety Professional (ASP) designations from the Board of Certified Safety Professionals. For more information about Veriforce, visit [www.veriforce.com](http://www.veriforce.com).*

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## Is There a Negative Impact of Disposable Earplugs?

By Garry Gordon, MS and Robert M. Traynor, Ed.D., MBA

For many people, hearing protection is an important part of their daily routine. Whether the noise exposure is occupational, recreational or non-industrial, the risks of not wearing hearing protection are well documented. Failure to block out excessive noise levels can cause irreversible hearing damage, which can have serious implications on an individual's personal and professional life and it is totally preventable!

There are various types of hearing protection available, from pre-formed flanged reusable to custom fit earplugs, however, the single-use disposable foam (PVC) or polyurethane (PU) earplug remains the most common type of hearing protection in use today, being commercially introduced over 40 years ago.

These earplugs consist of soft moldable foam that conform to the size and shape of the ear canal. When inserted correctly these earplugs may offer noise reduction ratings as high as 35 dB. For a correct fit, these foam type plugs are simply rolled into a tightly compressed cylinder and inserted inside the ear in a way that the plug conforms to the unique shape of the ear canal. For recreation, these foam plugs cost only a few cents per pair and are popular as they are easy to carry and offer utility in their protection against loud noise.

These inexpensive earplugs are widely used in industry. As part of controlled hearing conservation programs, manufacturers enforce the use and proper disposal of these earplugs in trash receptacles.



Unfortunately, unlike in industry, there are no controls for proper disposal of earplugs except for warnings of the repercussions from littering.



On the personal/recreational side, high noise levels from table saws, lawn mowers, motorcycles, the shooting range, racetracks or music festivals add exponentially to hearing hazards. The prudent choice made by more and more people is to protect the ear from damage and not become a premature hearing-impaired individual. Thus, as noise has increased in our environment, the public has become more aware of the hazards of loud noise, therefore the demand for and use of various types and styles of ear protection has increased.

Each year E.A.R. Inc. engages with numerous industrial and recreational hearing protection accounts worldwide. While they all agree that foam disposable hearing protection devices (HPDs) provide excellent hearing protection, reports of environmental pollution by these devices increase each year. Safety officers, HPD users, occupational hearing conservationists, industrial hygienists and others all agree that there is definitely a place for these foam HPDs, but it is not all over the ground. Unfortunately, unlike in industry, there are no controls for proper disposal of earplugs except for warnings of the repercussions from littering.

These plugs show up on the floor at gas stations, various types of manufacturing plants, shooting ranges and even airports. The U.S. Air force has also had difficulty with foam plugs littering the flight lines endangering jet engines and other expensive equipment. From their name, disposable earplugs are those that you wear once then dispose of them. Since they are disposable, they are cheap and may be easily replaced.

The litter problem also includes pre-formed reusable earplugs. From their name, reusable pre-formed earplugs are designed in various sizes to fit different sizes of ear canals and may be used more than once. They are a popular alternative used by musicians, festival goers, hunters, construction workers or anyone who is frequently in a noisy environment. They are pre-formed for the ear canal and can be washed so that bacteria is not reintroduced into the ear. The pre-formed earplugs have a useable life and



therefore become disposable when they have discolored or begin to harden.

The bottom line is that literally millions of disposable earplugs and their wrappings are disposed of each day. Unfortunately, there are not any guidelines as to disposal. They can only go in with regular garbage. They are not biodegradable; nor are they recyclable, however, everyone can do their part in keeping our streets and neighborhoods clean of earplug litter by disposing of them in the proper receptacle. Or another alternative may be to obtain a good set of custom hearing protection devices that have a long-term lifecycle which would avoid the trash can altogether. **WMHS**

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*Garry Gordon, MS, is the CEO/Owner and Audiologist/Instructor at E.A.R Inc. Gordon has served well over 4,000 major medical, audiological and industrial accounts and trained a network of 500+ recreational and industrial providers who market high-quality hearing protection (<https://earinc.com>).*

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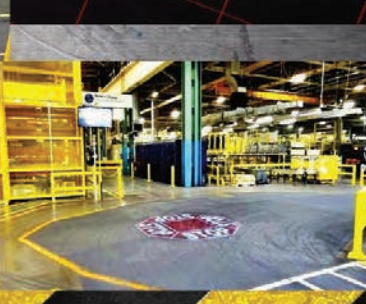
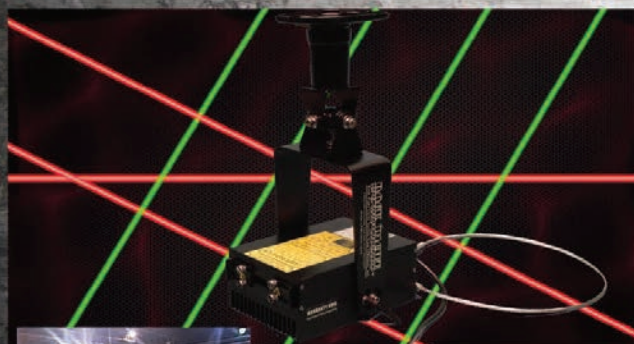
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