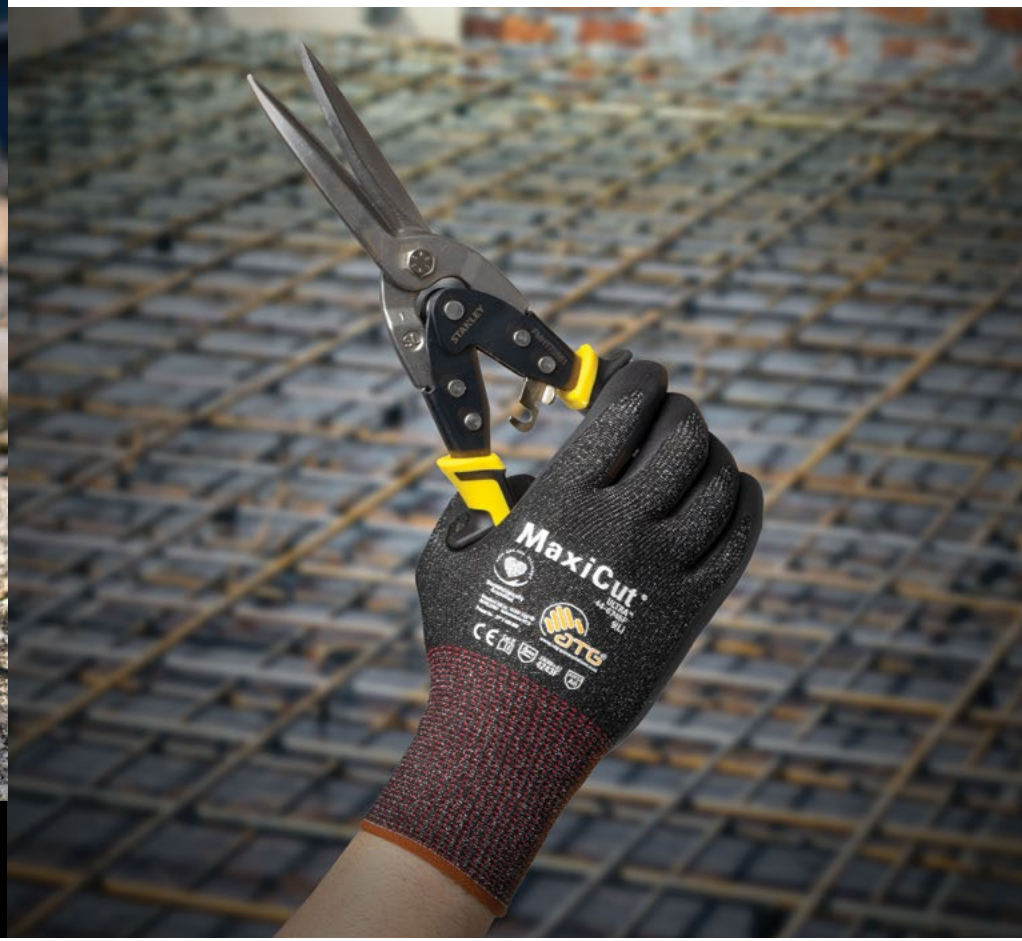
SHOWA
Always Innovating. Never Imitating.

ARMOR GUYS



Hand Protection

Tools that emit vibrations can cause debilitating effects on workers' fingers and hands. © cineberg - stock.adobe.com

Good Vibrations? Not for Hands

By: Maureen Paraventi

Jackhammers, chain saws, rivet guns, angle grinders, sanders, impact wrenches and power drills are just *some* of the tools and equipment that can transmit strong vibrations to the hands of workers and do-it-yourselfers and result in a condition known as *hand-arm vibration syndrome* (HAVS). While they're cutting through concrete or grinding metal, these powerful tools are also sending tremors through the nerves and soft tissues of the hands. Employees in the manufacturing, construction, automotive, carpentry, quarrying, agriculture and forestry industries are among who may develop HAVS. In the U.S. alone, approximately 2.5 million workers are exposed to it, despite the fact that many tool manufacturers have incorporated anti-vibration (A/V) designs into their product lineups.

How serious is this condition (which is also known as *vibration white finger* and *Raynaud's phenomenon of occupational origin*)? The consequences can range from fingers that are numb, painful and unnaturally pale to long-range circulatory and neural effects, like loss of dexterity and sensation and chronic pain. Muscles, tendons, nerves and bones may all be affected. HAVS is irreversible; there is no cure for it, just treatment intended to alleviate the pain. Thus, it is important to watch for symptoms and take action to avoid permanent problems. Workers may notice the following in their fingers and hands:

- A "pins and needles" feeling
- A loss of sensation
- Pain at night that is severe enough to awaken them
- Fingers turning white in painful attacks that can last up to 15 minutes

Symptoms can be more severe in cold temperatures or in a worker who smokes.

Workers whose hands are regularly exposed to vibrations, shift after shift, should be made aware of these signs. According to the National Institute for Occupational Safety and Health (NIOSH), HAVS can present serious symptoms after only a year's exposure. Home hobbyists who use vibration-emitting tools often should also pay attention.

In the workplace, anti-vibration gloves can be used, along with engineering controls and modified work practices, to protect workers from harmful vibrations. This type of hand protection includes special features designed to absorb vibrations, such as air-filled spaces between the glove's exterior and its palm and extra layers of vibration-dampening materials.

FACTORS TO CONSIDER WHEN SELECTING ANTI-VIBRATION GLOVES

- How important is dexterity? Will the user be required to grasp small objects to accomplish tasks?
- Do the tools being used generate high-frequency vibrations? Grinders, sanders and saws call for different models of anti-vibration gloves than pavement breakers, which emit low frequency vibrations.
- Should the gloves have additional features, like impact resistance or cut resistance? Do wearers have to be protected from impact and shock hazards, in addition to vibrations?
- Will the gloves be worn in extreme temperatures and humidity levels – whether indoors or outdoors?
- Do they need to be oil and water-resistant?
- Should they be high visibility?
- Is touchscreen compatibility a priority?

Those, of course, are in addition to the usual concerns that come into play when choosing any kind of personal protective equipment. It should be comfortable to wear, designed with ergonomics in mind and durable enough to justify its cost.

Anti-vibration gloves are available in both natural and synthetic materials – everything from nylon, a nylon/cotton knit, leather, neoprene and even terry cloth, which wicks away sweat. Knitting mesh or a similar fabric on sections like the back of the hand can make the gloves lighter and more "breathable." Neoprene is able to stand up to harsh sunshine and other environmental elements.

The optimal coating should be based on expected usage and the variables of the work environment, such as temperature. Nitrile palms give gloves a good grip with oily or wet objects or surfaces. Coatings like polyurethane, PVC and latex are also available, and provide different levels of flexibility and insulating properties.

Padding on the palms and knuckle and finger guards may consist of EVA (ethylene-vinyl acetate), a closed-cell copolymer foam with form and impact absorption properties; thermal plastic rubber, chloroprene rubber and memory gel.

There are varying levels and types of padding available in anti-vibration gloves, and deciding on which models are right for specific workers is no easy task. Comfort and dexterity must be balanced with protection. Bulky padding or padding that is too stiff may prove cumbersome and force the wearer to exert more effort while performing tasks. This can contribute to cramping and hand fatigue. Lesser amounts of padding, constructed of more flexible materials, may not effectively tamp down vibrations.

A few other features to be aware of:

- Adjustable elastic cuffs wrist straps and velcro closures will help gloves fit comfortably and securely.
- Leather protects the wearer from abrasive surfaces, sparks and heat. Synthetic, rubber or plastic gloves can provide barriers against grease, oil, biohazards and chemicals.
- A thermal lining will help keep hands warm in cold conditions.
- Anti-vibration gloves with lots of flex points tend to be more comfortable to wear.
- Fingerless gloves are not recommended, nor are they tested for efficacy, since HAVS always begins at the fingertips and moves toward the palm.
- A worker using different tools to perform a variety of tasks may need to use different models of anti-vibration gloves, to get the dexterity level and vibration protection needed for each tool.

Taking steps to reduce the likelihood of HAVS through the use of anti-vibration gloves and other means can keep your workforce healthy and productive, and prevent lost time and, potentially, long-term disability among employees. ***WMHS***

ARMOR GUYS

Redefining What's Possible In Hand Protection

Armor Guys has long been an industry leader in the design, development and manufacturing of high-performance hand and arm protection. Our parent company began operations in 1993 and over the last 30 years has developed some of the most technologically advanced 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 85% of our energy 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.

In 2017, Armor Guys launched the 1st 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 needs. Following the successful launch of Kyorene®, Kyorene® Pro was launched in 2019. Building on the successful attributes that made Kyorene® successful – anti-bacterial, thermal regulating, odor neutralizing and UV resistance, 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 offered in a variety of coating options and is available in ANSI A3 to ANSI A9 cut resistance.

So what is graphene? Graphene is an allotrope of carbon which is a two-dimensional structure in a honeycomb lattice construction that is one-atom thick. When one million layers of graphene are stacked on top of each other they form graphite, a mineral consisting of carbon which is the most abundant material on earth.

What are its properties? Graphene is 1 million times thinner than a piece of paper, 200 times stronger than steel, harder than diamond, flexible, transparent & conductive and inherently bacteriostatic, thermal regulating and odor neutralizing.

How do we use graphene in our gloves? We take raw graphite and separate it down to the appropriate layers to which it becomes graphene. Next, we liquefy the graphene turning it into Graphene Oxide (GO). From there, we covalently bond the Graphene Oxide (GO) to host yarns. As a result of the covalent bonding, the graphene cannot flake, shed, or come off the host yarn. By bonding the graphene to the yarn that makes our gloves, our gloves take on the incredible properties that graphene possesses.

What does it mean to be a Verified Graphene Producer®? The Graphene Council administers the Verified Graphene Producer® program; the only credential that includes independent 3rd party inspections of graphene production facilities, verification of production methods, and volumes and quality control processes. On 10/10/2022 QS Safety (and its subsidiary Armor Guys) became 1 of only 6 companies in the world, and the only glove company, to earn the coveted Verified Graphene Producer® certification. This verification assures our partners and customers that we deliver authentic, high-quality graphene-based products.

Learn more at www.armorguys.com.

NO STAINLESS STEEL • NO FIBERGLASS • BACTERIOSTATIC • ODOR NEUTRALIZING • THERMAL REGULATION • UV PROTECTION

KYORENE® PRO

00-840HV

OUR BEST SELLER
NOW IN *HI-VIS!*

ULTIMATE FIT, FEEL, COMFORT & DURABILITY!

ARMOR GUYS

VERIFIED GRAPHENE® PRODUCER
THE GRAPHENE COUNCIL

www.armorguys.com | contact@armorguys.com | 1 (310) 504-1380

The Evolution of Hand Protection: Advancements, Challenges and Future Directions

Hand protection has been transformed, offering better safety plus more comfort, productivity and durability.

By: **Ben Julian**, *Contributor*

Hand protection has seen significant advancements in the past five years, driven by the need to reduce hand injuries and enhance worker safety across various industries. With evolving technologies and materials, the landscape of hand protection has transformed, offering better safety plus more comfort, productivity and durability.

THE SHIFT IN CUT RESISTANT GLOVE STANDARDS

The demand for higher cut resistance in gloves has surged as industries seek more protection for workers. And, the American National Standards Institute (ANSI) and the International Safety Equipment Association (ISEA) have updated their cut resistance standards, prompting manufacturers to develop gloves that meet these rigorous requirements.

General-purpose gloves that had been acceptable in the past are now often replaced by cut protective gloves. The adoption of A2 cut-resistant gloves has increased, providing basic protection against light cuts and abrasions.

In recent years there has also been a significant shift from ANSI/ISEA 105-2016 level A2 to A4 or higher. As industries recognize the need for enhanced safety, A4 cut-resistant gloves have become more prevalent, offering superior protection against more severe hazards.

ADVANCEMENTS IN GAUGE TECHNOLOGY

One notable advancement in hand protection is the increase in gauge, which often correlates to thinner glove liner material. Traditionally, 13-gauge gloves were most common, providing a balance between protection and dexterity. However, the industry has seen an innovative shift towards higher gauge gloves, from 15 to 21 gauge, which offer enhanced flexibility and tactile sensitivity without compromising safety.

Higher gauge gloves are made using advanced knitting techniques and innovative materials, resulting in gloves that are thinner, more comfortable, and provide better dexterity. These gloves are ideal for tasks that require precision and fine motor skills, allowing workers to perform duties without restriction.

ENHANCED PRODUCTIVITY AND DURABILITY

Modern hand protection solutions are designed with productivity and durability in mind. One advancement is the integration of touchscreen compatibility into gloves. With the increasing use of touchscreen devices, gloves that allow workers to operate these devices without removing them have become essential. This feature enhances productivity and reduces the risk of hand injuries caused by constant glove removal.

The reinforcement of the thumb crotch area, a region that is prone to wear and tear due to repetitive movements and stress is a critical component of a glove's construction. Reinforcing the thumb with durable materials increases the glove's lifespan and provides additional protection against abrasion and premature degradation. This feature is particularly important in industries that require frequent use of tools and machinery.

Advanced fiber technologies integrated into cut resistant work gloves, such as the ATG® MaxiCut®Ultra™ by Protective Industrial Products (PIP®), meet the safety and performance demands of the modern workplace. *Photo courtesy of PIP®.*

CHALLENGES WITH AFFORDABLE CUT-RESISTANT GLOVES

While advancements in hand protection have brought about numerous benefits, challenges remain with "affordable" options. These gloves often compromise on quality to reduce costs, posing several issues for users:

- **Poorly Encapsulated Fibers:** Over time, harsh fibers like glass and steel can become exposed and cause skin irritation and discomfort, leading to decreased PPE compliance and increased risk of injuries as workers are less likely to wear these gloves.
- **Silicone Coatings:** Silicone is often used as an affordable means to enhance grip, providing better control and reducing the risk of slips and accidents; however, the use of silicone can be problematic in industries such as automotive, aerospace and electronics assembly where there is risk of contamination.
- **Cost Per Pair vs Cost Per Wear:** While affordable gloves may have a lower upfront cost, their durability and lifespan are often compromised, leading to a higher long-term cost due to frequent replacement.

A BENCHMARK IN HAND PROTECTION INNOVATION

Coated seamless knit cut protective gloves are among the leading advancements in hand protection. Advanced fiber technologies meet the demands of the modern workplace , and provide ultimate protection and superior comfort.

Some glove models incorporate technologies that enhance safety, comfort, and durability, leading to a higher rate of wearer acceptability on the job. Integrating high-performance fibers and yarns also delivers exceptional cut protection ranging from ANSI/ISEA 105-2016 A4 to A6, without compromising flexibility or dexterity. The ATG® MaxiCut®Ultra™ by Protective Industrial Products (PIP®), for example, ensures 360-degree breathability that keeps hands cool and dry, even during extended use. Other features to consider:

- A15-gauge glove liner that offers a snug fit and excellent tactile sensitivity.
- Reinforced high-wear areas, such as the thumb crotch, that enhances durability and extend the lifespan of gloves, making them a more cost-effective solution.
- Gloves designed to mimic the "hand at rest" position, which significantly reduces hand fatigue during prolonged use.
- A secure MicroFoam nitrile coating finish that improves control and maximizes grip for a variety of environments.

Beyond these advanced features, look for gloves that are dermatologically accredited by the Skin Health Alliance and OEKO-Tex® and certified, ensuring they are safe and comfortable for prolonged use. These certifications guarantee that the gloves are free from harmful substances and do not cause skin irritation, promoting higher usage among workers. Additionally, silicone-free gloves enhance compliance in industries that have strict standards and regulations regarding contamination.

With these cutting-edge technologies and certifications, gloves can deliver a comprehensive hand protection solution that meets the highest standards of safety and performance.

LOOKING AHEAD: THE FUTURE OF HAND PROTECTION

The landscape of hand protection has undergone a remarkable transformation over the past five years, reflecting the industry's commitment to enhanced safety, convenience and durability. As cut resistance standards evolve and gauge technologies advance, gloves are becoming increasingly specialized to meet diverse needs.

While the drive for affordability presents challenges, particularly with quality and long-term costs, we continue to integrate cutting-edge features and innovations into practical hand protection solutions. As industries continue to prioritize worker safety and productivity, the future of hand protection promises even greater advancements, ensuring that employees are equipped with the best possible tools to perform their tasks safely and efficiently. **WMHS**

Ben Julian is Industrial Marketing Manager for Protective Industrial Products (PIP®) a global leader in worker safety and innovative safety solutions. Contact PIP to learn more: https://us.pipglobal.com/en/

MFT PRO Gloves From SHOWA

SHOWA Group is excited to introduce MFT PRO, an innovative line of gloves that seamlessly blend exceptional comfort and protection. Utilizing a first-of-its-kind microfiber technology, these gloves set a new standard for performance in hand protection.

Building on the success of our popular 381 glove, the MFT PRO line incorporates three new polymers and advanced technologies, offering a diverse range of options to meet various needs. Each glove is designed with specific applications in mind, ensuring that you have the right protection for any challenge.

The MFT PRO 264 features a durable, abrasion-resistant polyurethane palm coating, making it ideal for extended wear in harsh manufacturing and packaging environments. For tasks requiring superior grip, the MFT PRO 344 is equipped with a textured natural rubber palm, perfect for warehousing, distribution, construction, and commercial landscaping. With primary durability properties, the MFT PRO 374 includes a flat nitrile palm coating that resists wear and tear, making it suitable for automotive and construction applications. Lastly, the MFT PRO 381 possesses an embossed microporous coating, offering an excellent oil-resistant grip for engineering and mechanical tasks.

In terms of comfort, MFT PRO gloves feature a 4-way stretch design that provides maximum flexibility and fast-drying technology for all-day wear. Ventilated sections promote optimal airflow, keeping hands cool and dry during demanding activities. The breathable materials used in MFT PRO gloves help prevent overheating and reduce the risk of blisters, ensuring you can work comfortably and safely throughout the day.

The MFT PRO line is not only lightweight and flexible but also conforms to the hand for enhanced dexterity and precision. Additionally, our microfiber products are machine washable and reusable, offering a cost-effective solution that contributes to significant savings over time. By choosing these reusable gloves, you can also help reduce waste and support sustainability initiatives.

Experience the unmatched protection and performance of the MFT PRO line and elevate your hand safety to a new standard by emailing our customer service professionals at USA@SHOWAgroup.com.

MFT PRO

PERFORMANCE BY DESIGN

SHOWA's MFT Pro gloves feature a first-of-its-kind microfiber technology (MFT) that offers exceptional comfort, moisture-wicking, and hand protection. With four specialized styles, the MFT Pro family offers a glove for every challenge.

MFT PRO
264
Polyurethane (PU) Palm

MFT PRO
344
Natural Rubber (NR) Palm

MFT PRO
374
Flat Nitrile (NBR) Palm

MFT PRO
381
Foam Nitrile (NBR) Palm

SHOWA
Always Innovating. Never Imitating.

Learn More at
SHOWAGroup.com

How to Eliminate Leading Causes of Material Handling Injuries

A step-by-step guide to help you anticipate and mitigate material handling injuries.

By: **Nick Warrick**, *Contributor*

Industrial establishments and warehouses automate most of their core functions. Still, modern technologies have limitations, necessitating workers to do manual activities. One such manual activity is material handling and storage.

Material handling entails moving, securing, storing and monitoring materials and finished products as they pass through various processes, from manufacturing to the final consumer. Here are four typical material handling processes:

- Hoisting prefabricated concrete elements with a crane
- Driving a truck loaded with concrete blocks
- Carrying materials in bags
- Stacking palletized bricks

Industries must be efficient in handling and storing materials. That way, they guarantee an uninterrupted flow of parts and assemblies throughout a manufacturing line; ensuring materials are available on time, wherever they are needed.

SIGNIFICANCE OF ADEQUATE SAFETY PROCEDURES IN MATERIAL HANDLING

Without adequate safety procedures, workers engaged in material handling tasks like lifting, pushing, pulling and carrying loads may face unnecessary risks to their physical and mental health. Also, the risks apply to those workerswhoperformequipment-assisted material handling duties. The ensuing consequences include significant or fatal injuries and property damage. And the injury downtime and decreased productivity can negatively affect the bottom line.

UNDERSTANDING THE SCOPE OF MATERIAL HANDLING INJURIES

Using specialized equipment can ease and secure a manual material handling task. Still, if abused, this manually-operated equipment, like hand carts, can become hazardous to the operators. Some of the hazards or injuries associated with material handling include:

- **Sprains, Strains, & Joint Injuries:** Overexertion accounts for up to 30% of warehouse and transportation injuries. It occurs when workers overstretch their muscles, ligaments and tendons according to the Liberty Mutual Workplace Safety Index.[1]
- **Crushed and Bumped Hands, Arms, Fingers and Legs:** Workers whose hands, fingers, arms, or legs get caught in the material handling equipment can get bumped or crushed.
- **Broken Bones & Back Injuries:** Workers who slip, trip or fall at industrial plants or warehouses may break their bones or develop back and spinal injuries.
- **Hearing Impairment:** Workers exposed to hazardous noises following an equipment malfunction or industrial accident can develop hearing difficulties and a ringing or buzzing noise in one or both ears.

PREVENTION METHODS FOR MATERIAL HANDLING INJURIES

The best way to prevent material handling injuries is by mitigating the risks associated with the various material handling activities. Here, business owners should create a conducive work environment where workers can adapt quickly to their duties with minimal or no repetitive or strenuous incidents. They should identify potential hazard zones in the material handling channels.

Use off PPE and Proper Apparel

Workers should have PPE clothing to enhance workplace safety and minimize injuries associated with material handling. The essential PPE varies depending on the extent of risk exposure.For example, equip workers with HAZMAT suits to shield them from accidental splashes of dangerous materials. Likewise, they should wear metatarsal guards

1 https://bit.ly/4cbrg6K

when handling heavy materials. Other PPE and protective apparel include safety boots, gloves, eye protection gear, ear muffs and earplugs and high visibility apparel.

Minimize Ergonomic Risk Factors

Opt for machine-handling equipment that is easy to push, pull or maneuver. The lesser force reduces the risk of material handling injuries. Then, plan material handling routes to avoid unnecessary stops.

Right Material Handling Equipment

Proper choice and handling of equipment can prevent hazards and injuries and guarantee economic and effortless operation. For example, when using swing loads, use the right lifting equipment for the load. Ensure the equipment has been inspected and approved. Add active safety technologies like a frequency inverter and use a lifting beam to minimize load sway and maintain the center of gravity.

Second, use a hand pallet truck, also known as a pump truck or pallet jack, to pick and move materials from one section to the next while on palletized trays only.

Right Lifting Techniques

Employees should learn and implement proper lifting techniques for manual material handling tasks. The lifting techniques include:

- Maintaining a straight back with the load near the center of your body
- Keeping arms and elbows near your body
- Tightening abdominal muscles
- Bending the knees

RIGHT SAFETY TRAINING AND EDUCATION

Even though companies perform rigorous vetting processes to hire competent and adaptive employees, employee performance requires regular monitoring to remain top-notch. Moreover, the workers have human limitations like fatigue and stress that cannot be ignored. Then, all employees whose job duties include handling materials should undergo regular workplace material handling training as part of their mandatory compliance training.

A typical safety training and education program covers the following instructions:

- Become familiar with the various equipment appropriate for equipment-assisted material handling duties. The mechanical equipment includes hand trucks, forklifts, pallet jacks, cranes and front-end loaders.
- Master special guidelines applicable to unique material handling equipment.
- Walk at a speed appropriate for the equipment's size, load and nature of the wheels. Workers should push, not pull, four-wheeled equipment.
- Wear personal protective equipment (PPE) at all times.

Here are additional precautions that can help reduce hazards associated with manual material handling:

- Keep aisles clear of clutter to provide the equipment operator with clear lines of sight. Install cameras or signals to facilitate the equipment's movement. Ensure they are wide enough at the corner areas to allow the workers to maneuver equipment without unnecessary stops.
- The floors should be clean and well-maintained, keeping them free of debris, dirt, dust or spills at all times.
- Assign workers the right size of equipment to accommodate the load and work area. Opt for equipment with larger diameters and robust casters or wheels to minimize the force necessary to operate it.
- Keep off air-filled wheels. They tend to flatten out and place more tread when in contact with the floor. In turn, the workers exert more force to maneuver the equipment, resulting in injuries.

EMBRACING CONTINUOUS IMPROVEMENT IN PPE MEASURES

Ensuring workplace safety is an ongoing process. As such, companies have to take proactive measures to minimize exposure to chemical, biological and physical hazards in the workplace. Keeping up with the latest trends in PPE and implementing continuous improvements helps achieve this.

Planning Ahead

Organizations should develop strategic plans that anticipate and address safety concerns before they occur. Ask for suggestions and input from first-line industrial workers, warehouse owners, expert consultants, suppliers and any other affected third parties.

Standardize Manual Material Handling Processes

Manufacturers and warehouse owners should develop standard operating procedures (SOPs) to define all their material handling processes. That way, they can pinpoint and avoid fatal errors and prevent the spread of germs and infectious diseases.

Hazard Demarcation

Then, demarcate all the hazard zones to point out dangers and remind workers about the safety rules and guidelines. For example, you can use measures like a steel demarcation safety post, color-coded floor lines, markings and barricade tape to protect employees from excessive chemical exposure.

Equipment Pre-Inspection

Always pre-inspect your material handling equipment to rule out mishaps when raising, pulling, moving and stopping loads. Also, ensure that the equipment complies with regulatory requirements.

CONCLUSION

What is your industrial plant or warehouse doing to mitigate the risks associated with material handling? Do you have a contingency plan to prevent material handling injuries? We hope this quick guide gives you valuable insights to anticipate and mitigate material handling injuries in your industrial facility or warehouse. ***WMHS***

Nick Warrick is the Sales Manager at All Seasons Uniforms. With over 15 years of experience in the work uniform business, he has worked with 100+ clients across 20 different industries. Holding bachelor's degrees in both Business Administration and Information Technology, Warrick revamped the company's online presence, offering its customers a new uniform shopping experience. www.allseasonsuniforms.com/

THANKS TO OUR SPONSORS

ARMOR GUYS

SHOWA
Always Innovating. Never Imitating.

WORKPLACE
Material Handling & Safety

A RDG Media, Inc. Publication
P.O. Box 529
Estero, FL 33929
586-227-9344
www.WorkplacePub.com