Protecting Your Hands

Ansell

WONDER GRIP®
Redefining Hand Protection

Ansell Jobsite Hazard Analysis Reduces Injuries

It goes without saying that the need and value of PPE and worker safety has surged over the past two years. More than ever, it is imperative that organizations ensure they mitigate risk of workplace hazards for their employees as well as their business's sustainability.

In 2015, there were approximately 2.9 million nonfatal workplace injuries and illnesses such as burns, lacerations, cuts and fractures as well as latex and chemical allergies reported by private industry employers in the US.[1] The previous year in the EU-28 zone, there were close to 3.2 million nonfatal accidents.[2] Besides severe effects on the individual, these types of workplace injuries can also have particularly serious implications for a business's performance. The associated direct costs of an injury range from medical expenses to rehabilitation costs to workers' compensation, plus indirect costs including replacement workers, accident investigation, productivity loss and demotivation of workers.

In addition, global and local trends have an impact on your company's economic performance, such as:

- Increased health and safety standards and regulations
- Increased focus on sustainability and waste reduction
- Vendor standardization and consolidation
- Global standardization in supplies and processes

According to OSHA, one of the root causes of workplace injuries is the failure to identify or recognize hazards. In fact, 70.9 % of hand and arm injuries are preventable with the appropriate gloves and PPE. Ansell, a national leader in PPE solutions, has over 125 years of experience, proprietary software, and a chemical database that has assisted 15,000 + facilities worldwide and saved them over $65M using Ansell's PPE by offering an assessment to determine the best gloves and PPE a company needs.

In its 45 years of performing safety assessments through their AnsellGUARDIAN® consultation program, Ansell has learned a few things. Every company is different, and so is every worker. And all the operations they undertake and safety requirements they have are unique in their own way, which also means that every assessment is unique. Each AnsellGUARDIAN® partner receives a tailor-made safety solution, backed up by data collected by 600 + safety experts from over 17,000 individual assessments since 2010.

With simple and clear processes provided by AnsellGUARDIAN® that focus on the most relevant areas to deliver best practice recommendations for one single application or even an entire site, a business is able to be equipped to mitigate risk and aid their people as well as their production. Depending on results, an assessment may recommend nitrile chemical gloves or cut resistant gloves. For other industries, electrical protection gloves or abrasion resistant gloves may be required. In the end, customized solutions that can help reduce injuries and keep workers' hands safe are offered at ***no cost***.

Let Ansell help you establish a proactive, ongoing jobsite hazard analysis process as a critical element of your safety and health program. This is AnsellGUARDIAN. Request a complimentary assessment today. ■

[1] Source: Bureau of Labor Statistics United States.

[2] Source: Eurostat Statistics.

ANSI 105/EN 388 Standards for Hand Protection

PYRAMEX
Perform At Your Peak™

"Understanding the need to listen to our customers to make sure we make the right product recommendation for a task to be completed is one of Pyramex's most important goals. The ANSI/ISEA 105 and EN388 standards help to identify the correct glove for the task and gives employers the confidence that their employees are protected. By investing time in product research and testing on the front end, Pyramex can guarantee these products meet the highest industry standards. To learn more about Pyramex, go to www.pyramex.com."
Pyramex, www.pyramex.com

Important to Know:

Two global standards are used to evaluate the protection levels of work gloves: the ANSI/ISEA 105 (U.S.) and EN 388 (EU). EN 388 is also commonly cited in other parts of the world (i.e., Canada, AUS/NZ and South America).

A cut is usually considered to be a wound caused by a sharp object (knife or glass shard). A laceration implies a torn or jagged wound. Lacerations tend to be caused by sharp objects. Cuts and lacerations are terms often used interchangeably for the same condition or wound.


© Maksim Kostenko - stock.adobe.com

ANSI/ISEA 105-2016 & EN 388 are voluntary standards where manufacturers can choose the attributes they would like to make claims, perform testing and label classifications accordingly. The standards address the classification and testing of hand protection for specific performance properties related to chemical and industrial applications. Within these standards, hand protection includes gloves, mittens, partial gloves or other items covering the hand or a portion of the hand that are intended to provide protection against, or resistance to, a specific hazard. Performance ranges are provided for:

- Mechanical protection (cut-resistance, puncture-resistance and abrasion-resistance)
- Chemical protection (permeation resistance, degradation)
- Other performance characteristics, such as ignition-resistance and vibration reductions, based on standardized test methods

Standard Requirements:

Gloves are classified to performance levels based upon their performance when evaluated against set industry test methods. The ratings can assist users in selecting appropriate hand protection for known specific hazards in the workplace. Performances are rated in Chemical and Mechanical Protection categories, as well as "Other" protections.

Chemical Protection

Permeation testing is done in accordance with ASTM Method F 739 standards. In this method, a specimen is cut from the glove and clamped into a test cell as a barrier membrane. The exterior side of the specimen is then exposed to a hazardous chemical. At timed intervals, the unexposed interior side of the test cell is checked for the presence of the permeated chemical and the extent to which it may have permeated the glove material.

Mechanical Protection

- Cut-resistance—In an effort to reduce variation for purposes of classifying a glove to ANSI/ISEA 105, a single test method (ASTM F2992-15 for TDM) was selected to help provide consistent meaning of the ratings, from the end-user perspective. The number of classification levels has also been expanded in the latest standard update to address the gap among certain levels seen in earlier versions and to model the approach used in similar international standards. ISEA and EN cut levels will be determined with the same piece of test equipment.
- Puncture resistance—The standard puncture test remains the same, using the EN388 puncture probe. An additional update is the inclusion of a needlestick puncture test, recognizing that this is a common potential exposure for the medical, sanitation and recycling industries. The standard EN388 probe is quite large. There is a segment of users who need protection from smaller hypodermic needles, requiring a significantly different puncture device—very thin and sharp—and

calling for using a new testing method and rating scale. The new method uses a 25-gauge needle as a probe. The normal industrial puncture test is done in accordance with clause 6.4 of EN 388:2003 (updated in 2016). A circular test specimen, cut from the glove palm, is mounted in a holder and punctured with a stylus of specified sharpness attached to a tensile tester. The force required to puncture the specimen to failure is measured. Results are classified into five performance levels: The higher the result, the better the performance. The average of 12 specimens (minimum) are used to determine the classification level.

- Abrasion resistance—These ASTM test methods (D3389-10 and D3884-09) shall be followed using H-18 abrasion wheels with a 500g load for levels 0-3 and a 1,000g load for levels 4-6. The test method has a 4in circular test specimen mounted on a horizontal axis platform, while being abraded to failure under a specified vertical weight load (500 or 1,000g) by the sliding rotation of two vertically oriented abrading wheels. The abrading wheels are comprised of vitrified clay and silicon carbide abrasive particles.

Other Protection

- Ignition resistance–Testing in accordance with ASTM F1358-16, the glove material's ignition-resistance and burning behavior should be classified against the levels provided in the standard. In order to be classified at a specific level, the glove material needs to meet each of the criteria at that specific level.
- Vibration reductions–The glove's vibration-reduction is classified as "pass" or "fail," when testing in accordance with ANSI S2.73-2002 (ISO 10819). A glove can only be considered an anti-vibration glove, if it fulfills both of the following criteria: TRM < 1.0 and TRH < 0.6, according to this standard.

Increase Your Knowledge:

→ The ANSI/ISEA 105-2016 standard is available for purchase at: https://webstore.ansi.org/Standards/ISEA/ANSIISEA1052016. ***WMHS***

© AnnaStills - stock.adobe.com

Did You Know?

New cut-resistance standards from the American National Standards Institute (ANSI) and International Safety Equipment Associations (ISEA) became effective in March 2016. The standards include changes to the ratings scale and the standardization on a testing methodology. The European Standard for Protective Gloves-EN 388 was updated in November 2016, shortly after the American standard.

EN 388 is similar to ANSI/ISEA 105 and is used to evaluate mechanical risks for hand protection. Gloves with a EN 388 rating are third-party tested and rated for abrasion-, cut-, tear- and puncture-resistance. Cut resistance is rated 1-5, while all other physical performance factors are rated 1-4. Up until this update, the EN 388 standard used only the Coup Test* to test for cut resistance.

The new EN 388 2016 standard uses both the Coup Test and the TDM-100 Test to measure cut resistance for a more accurate score. Also included in the updated standard is a new Impact Protection test. In North America, you can find the EN 388 marking on many cut-resistant gloves. ***WMHS***

**Coup Test: The cut protection is tested when a knife is passed over the glove material until it cuts through. Protection level is a number between 1-5, where 5 indicates the highest cut protection.*

Hand Protection in Construction and Manufacturing Environments

By: **William Soellner**, *Contributor*

If you research the numerous hand protection standards set by the ASTM and EN388 regulatory testing organizations, you will find at least 15 standards that apply to hand protection. These standards measure everything from cut resistance to puncture, impact, thermal and chemical resistance, and other potential hazards. They set and regulate test proceeds so we can evaluate the various hand protection products available to protect workers from these hazards.

Along with keeping workers safe from potential injury, the use of gloves to protect workers' hands can reduce the type and severity of injuries, increase worker productivity and keep workers comfortable on the job. Since the type of injuries and hazards are similar in both construction and manufacturing environments, the glove solutions are similar in both industries. The cost of a lost-time injury to the hands runs between $6,000 and $12,000 average, depending on the severity of the injury and how long it takes the worker to get back to work. Severe injuries can result in OSHA actions and legal fees, in addition to medical expenses. Coupled with lost time of experienced and skilled workers, no employer wants to risk on-the-job hand injuries.

Types of injuries typically experienced in both construction and manufacturing environments:

1. **Cuts and abrasions.** Sharp and rough edges are found in both work scenarios. Sheet metal, glass, rebar, rough stone and concrete, and the use of sharp tools all create the same cut and abrasion hazards. The sharpness of the hazard (a knife as opposed to rough edged metal) will be a factor in how bad an injury can take place. Repeated handling of a sharp object can weaken even the strongest protective glove material. Each job needs to be evaluated for past injury history, common sense review, known hazard levels ("Hey! That metal is razor sharp! Be careful!") and the degree of worker training and experience in the particular job. The recent advent of nine levels of cut resistance measurement has resulted in many choices for worker protection. Look for comfort, dexterity and the proper level of cut resistance for the job.

2. **Dropping of heavy objects.** Dexterity and grip come into glove selection. If a worker is handling heavy objects like castings or stone, grip and the dexterity are especially important. The right glove coating needs to be used to enhance wet and dry grip while still being comfortable. Materials like foamed latex or nitrile can offer exceptional grip and the new "sandy" finishes increase the abrasion resistance for longer glove life.

3. **Puncture hazards.** Are pointed materials present? Nails, fasteners, fittings and glass all can cause serious injury. Will the glove material be adequate to protect? Simple, common materials like leather and latex on the gripping surfaces can offer just enough puncture protection for a given job function. For extreme puncture hazards, specialized anti-puncture gloves are recommended.

4. **Chemical hazards.** Are cleaning agents (caustics or solvents) being used? Are there petrol-chemical oils, lubricants or drying agents like grouts and cements present? All these substances can cause burns, skin absorption issues, dermatitis or other skin related injuries. Choosing the right glove for those hazards reduces both short- and long-term injuries. It is important to evaluate any chemicals

present and refer to the chemicals MSDS sheet for the proper protection required. Polymers including latex, nitrile, PVC, Viton, PVA, neoprene and butyl rubber all have specific chemical resistance and test data that helps workers choose the right gloves.

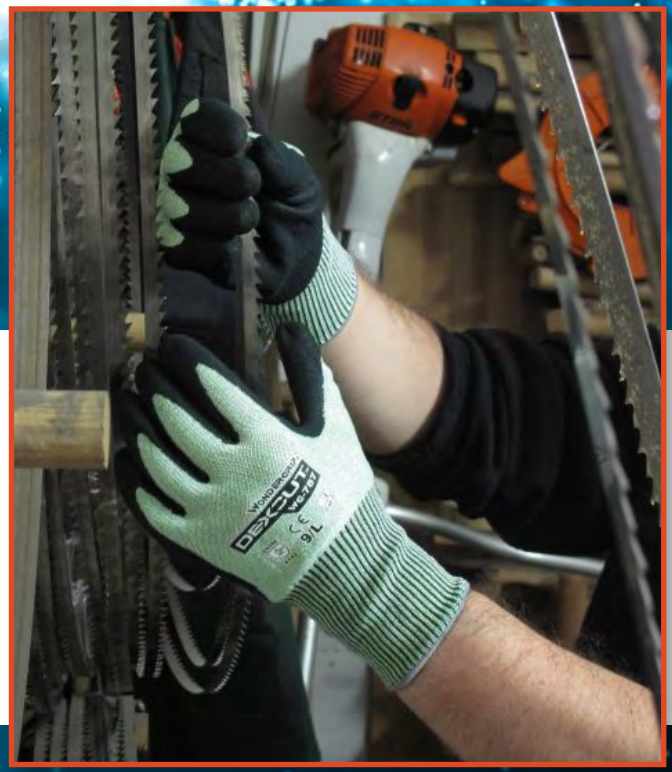
5. **Thermal hazards.** It is interesting to note that insulation works both ways. Thermal insulation protects against both extreme heat and extreme cold. It is the choice of the glove design and the insulation material being used that determine the right glove for the job. Worker comfort and protection from burns and frost bite are obviously the desired results.

6. **Impact hazards.** The occurrence of pinch and crush injuries has been noted for many years. Hammer strikes, rolling tubes, pipes and cylinders, and couplings all create difficult-to-avoid injury scenarios. Assembly of fitted units like scaffolds and pipe joints all can be hazards. One of the newest glove standards, ANSI/ISEA 138, measures the striking force of an object against back of hand protective cushions. There is now a wide variety of products available to reduce hand impact.

7. **ARC/flame and electrical shock hazards.** These injury hazards are being reviewed and cautioned more today than ever. While there have been long standing regulations of products used for preventing electric shock from close work with live current electricity, there has been continuous improvement in hand protection against electric arc flash and flame injury. With the advent of more electric vehicles, tools and electronic controls, this is an ever-increasing area for review and evaluation.

The best way the protect workers' hands is to get a qualified glove expert to evaluate the job, the hazards and the gloves currently used, as well as the workers compliance in using the gloves. It is proven that wearing the right glove on the job reduces injuries by at least 60%. It only makes sense to work toward compliance of use by getting the worker involved in glove choice, from testing and trying the right gloves for the job. Comfort, dexterity and picking the right glove for the hazards present will keep workers safe and productive. ***WMHS***

William Soellner is Director of Sales & Marketing at United Glove, a family-owned manufacturer of hand protection with sales throughout the U.S. He has more than 30 years' experience in the safety industry and has worked for seven major manufacturers and two major specialty industrial distributors. Soellner has a BA from Western Michigan University, a Certificate of Innovative Distribution from Purdue University and a Certificate of Developmental Sales Coaching from Richardson Sales Training (www.unitedglove.com).



The Wonder Grip Formula

PROTECTION + DEXTERITY + GRIP = SAFETY

At Wonder Grip®, we believe that optimal hand safety is the result of the combination of these three elements.

Always striving to perform beyond customers' expectations, our gloves offer the highest level of dexterity and grip in their categories. Wonder Grip® gloves are redefining hand protection. Wonder Grip® offers the best protection for the job at hand. Visit www.wondergrip.com/en for more info.

Ergonomics as Hand Protection

By: **Tracy Hansen**, *Contributor*

When we think of hand protection, we often think of gloves: gloves with myriad materials and surfaces and flex to protect working hands on the job. But, hand protection is more than what you put over the hands; it is also how you use them. If you are not working smartly; if you are not considering tools and workflows as a part of the analysis—hands are still at risk. Ergonomic considerations are just as important as glove considerations.

You do not need to go far to find proof. According to OSHA, work-related musculoskeletal diseases (MSDs) are the most frequent cause of lost or restricted work time. The Bureau of Labor Statistics reports that MSD cases account for 33 % of all worker injury and illness cases. MSDs are a group of repetitive task-related injuries with familiar names, like carpal tunnel syndrome, tendonitis or muscle/tendon strain.

Tools like an ultralight wearable barcode scanner from ProGlove provide an ergonomic approach to hand protection and leave hands free for other tasks. *(photo courtesy ProGlove)*

These are afflictions you probably would not think much about until you experience an MSD personally. This kind of injury can impact your life, your work productivity and even prevent you from playing favorite sports. For workers in many fields, it can mean time away from work and have an impact on livelihood.

DIRECT & INDIRECT COSTS OF MSDs

For businesses, the impact of an MSD is no less dire. According to the Northeast Business Group on Health, employers spend more on MSDs directly than any other condition. The indirect costs of MSDs are even higher and include absenteeism, disability claims, overuse or misuse of pharmaceuticals, and behavioral health treatment. By some estimates, this cost is in excess of $100 billion/year.

To address the consequences of MSDs, preventative measures are most essential. Get out in front of the problem before it happens. This is because once an injury occurs, the options for treatment—both surgical and non-surgical—have varying degrees of success. In both cases, it may take months or even years of treatment to arrive at an acceptable outcome.

It is important for organizations to actively evaluate tools and tasks in the work environment to help prevent MSDs. When safer alternatives are prioritized, it reduces costs; reduces worker downtime; and helps to prevent the onset of life-changing injuries.

EVALUATE TASKS

One of the simplest and most impactful measures to consider is an evaluation of repetitive tasks. The improper use of a mouse and keyboard is a well-known cause of hand strain and carpel tunnel syndrome. Instead of awkward angles and locations, make sure keyboards and workstations are situated properly for the task and the workflow.

Other key questions to ask: How often is the workstation needed? Is it shared between workers? At what height is it most easily accessed and used by the worker? Is typing so constant that an ergonomic keyboard with raised center section is required? Does a mouse or trackpad make the most sense in the working environment? Should the workstation be ditched altogether, in favor of a mobile smart phone device in the pocket of the worker? Look at the issue from every angle—there might be more than one obvious fix.

Repetitive strain in materials handling is another common source of injury. Much is written about best practices for the lifting and gripping of large, heavy objects. But, even the ergonomics of small tools can be a challenge. A perfect example of this: using a traditional,

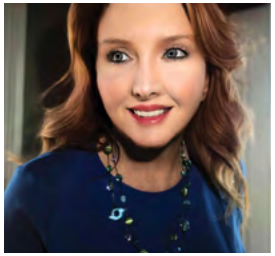
handheld barcode scanner in the process of moving goods. With each item in each step of a typical process, the scanner is lifted and gripped to capture a scan. An ultralight, wearable barcode scanner is a great alternative because, just like wearing a watch, it's always at arm's length when you need it. There's nothing additional to reach for, nor to grip, nor to lift.

In our own study of warehouse workers, we discovered that simply wearing a lightweight barcode scanner saved each worker from lifting approximately 1.5 tons per shift. That's equivalent to the weight of a small car! It also prevented the disruption of workflow by having to reach for a handheld scanner.

When frontline workers can move more naturally through their daily work operations, managers can expect fewer injuries and higher productivity. Among the top things managers can do is to partner with frontline workers in problem solving for ergonomics—to select the right tools and tactics to make the job safer. By fostering a culture of safety and ensuring a free-flowing environment of exchange and communication, you can expect a reduction in absences, worker compensation claims and employee turnover.

MSD-related injuries might be less visible than other kinds of hand injuries, but they're no less important. In any evaluation of hand protection equipment, don't neglect to consider the whole human in the process. ***WMHS***

Choosing an ergonomic solution for repetitive tasks with hands, like this wearable barcode scanner from ProGlove, can lessen strain on joints—and on workflows. *(photo courtesy ProGlove)*



ABOUT THE AUTHOR

Tracy Hansen is President of North America and Global CMO for ProGlove, a leader in ergonomic, wearable devices for industry. She brings more than two decades of strategic brand-building experience at startups, scale-ups and Fortune 500 firms to the role. She is a student of "disruptive innovation," championing ideas that stretch boundaries, mobilize teams and deliver business breakthroughs.

ADDITIONAL RESOURCES:

- https://www.proglove.com
- http://www.workplacepub.com/ppe/hand/beyond-gloves-seven-things-to-do-to-keep-your-hands-safe-at-work-2/
- https://www.humanscale.com/userfiles/file/return-on-investement_03272015.pdf
- https://ergoweb.com/ergonomics-roi-how-to-document-ergonomics-related-improvements-reprint/
- https://www.ccohs.ca/oshanswers/ergonomics/handtools/tooldesign.html
- https://www.ehstoday.com/ppe/hand-protection/article/21916874/hand-safety-in-simple-steps
- https://www.osha.gov/SLTC/ergonomics/
- https://www.proglove.com/blog/warehouse/you_might_be_lifting_the_weight_of_a_compact_car/

What to Consider When Looking for Cut-Resistant Gloves

By: **Rick Pedley,** *Contributor*

Not all work gloves are equally protective, which can make buying the right pair of safety gloves overwhelming. While you could buy the most protective cut resistant gloves on the market, most industries don't require extreme cut resistance. It would actually be more expensive, less efficient and sometimes more dangerous to buy gloves that aren't the correct rating for your job.

Most extremely cut-resistant gloves are very thick and low on dexterity, which makes them great for protection from severe lacerations but not for jobs that require fine motor skills. Think about the specific criteria you need before you make your glove choices.

GLOVE TYPES AND MATERIALS

Different materials will have different properties that make them better suited for different jobs. Gloves, liners and coatings offer different levels of cut resistance and other protections, like electrical conduction, abrasion resistance and flame resistance.

Dyneema and Kevlar are two high-performance fibers that see a lot of use in cut-resistant gloves on their own or as part of composite yarns with fiberglass, steel or other materials. Both materials are similar in terms of strength and cut resistance but are better suited to particular jobs.

Dyneema is breathable, moisture-wicking and light and cool to the touch. It can be laundered easily as long as you're using lower temperatures and it holds up well against abrasion. It's more sensitive to temperatures, though: while it's a great fiber to use if you're working in hot conditions, it doesn't offer actual heat resistance. Dyneema is a great fiber for gloves that you'll have to wear all day in jobs that require a lot of dexterity like food preparation and some construction and manufacturing work.

Kevlar, on the other hand, is very insulated: not as breathable as Dyneema, but the obvious choice in environments with extreme heat or cold hazards. While gloves made from Kevlar can be laundered, they can't be exposed to bleach. They're good for jobs with electrical hazards and have a great grip. For search and rescue, firefighting and cryogenics work, Kevlar gloves offer ideal protection against temperature extremes, cuts and other hazards.

SAFETY STANDARDS

There aren't OSHA standards that specifically address cut-resistant gloves: however, both CFR 1910.132 (protective equipment in general) and 1910.138 (hand protection specifically) both apply, as they require employees to use appropriate protection based on the work being performed. For North American companies, ANSI/ISEA 105-2016 provides guidance on test methods and performance levels for various hazards. Europe, South America, Asia and Australia use EN 388 groupings and test methods.

Whichever standard your industry uses, you can relax knowing that the gloves have been tested in extreme conditions and offer the best protection level for the job at hand. Make sure you know the necessary criteria and which standards apply and check the icons on your gloves to determine which standards yours have been tested to.

Comfort should be a consideration in glove selection, as gloves that aren't comfortable or don't fit right aren't going to be worn.

Gloves, liners and coatings offer different levels of cut resistance and other protections, like electrical conduction, abrasion resistance and flame resistance.

OTHER REQUIREMENTS

Odds are that you need your cut-resistant gloves to be well-suited for other job hazards as well. Gloves that are highly cut-resistant and protect against a wide array of other hazards will need to be thicker and therefore less dexterous. Comfort should also be a consideration: gloves that aren't comfortable or don't fit right aren't going to be worn.

Virtually every job will require gloves that resist some combination of cuts, punctures and abrasions. Everyone from doctors and nurses to oil rig workers, to mechanics could require the cut protection that Dyneema or Kevlar gloves provide. A lot of industrial workers could also benefit from anti-impact gloves or coating on cut-resistant gloves. For jobs that involve working with chemicals or biohazards, like in medicine, it might be best to layer disposable chemical-resistant gloves over your cut-resistant gloves to avoid contamination.

Finally, remember that while cut-resistant gloves are crucial PPE across industries, they do not replace administrative controls, and no glove will protect you from tools powered by electric motors. Your hands are some of the best tools you'll ever use, so make sure that protecting them is one of your biggest priorities. ***WMHS***

Rick Pedley is PK Safety's President and CEO. PK Safety is a supplier of occupational safety and personal protective equipment and manufacturer of its own new FR line Grit. The company has been operating since 1947 and takes OSHA, ANSI, PPE and CSA work safety equipment seriously (pksafety.com).

THANKS TO OUR SPONSORS

WORKPLACE Material Handling & Safety

An RDG Media Inc. Publication
PO Box 80915 Rochester, MI 48308
www.workplacepub.com