## MAXIMIZING PROTECTION: The Essential Role of Cut-Resistant Gloves in Workplace Safety



Hands help workers perform pulling and lifting movements. They work together, allowing them to perform basic tasks. If a worker injured their hands and lost the ability to use them, it would significantly impact the guality of their life.

Global Market Insights anticipates the glove market to increase from \$7.5 billion to \$13.5 billion by 2032. This projection comes from increased worker hazards anticipated across industries, expanding the need for mechanical gloves, chemical and liquid protection, thermal gloves, and special protective gloves such as ones with cut-level protection.

Gloves shouldn't limit a worker's ability to perform work duties safely. For instance, workers in the meatpacking industry wear metal mesh gloves while working with sharp knives and saws and need finger dexterity to grip the knife. Cut-resistant gloves or leather ones reinforced with metal stitching can be worn while handling rough or abrasive materials.

## WHAT DOES OSHA SAY ABOUT USING CUT-RESISTANT GLOVES?

### OSHA expects employers to perform a PPE assessment to determine which types of hand PPE will offer adequate protection from cuts and lacerations.

According to OSHA regulations, under 1910.138(a), General Requirements, employers are required to select and ensure that workers use proper hand protection when their hands are exposed to hazards, including skin absorption of harmful substances, severe cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, and extreme temperatures.

Under 1910.138(b), Selection, **employers must choose the appropriate hand protection based on an assessment of the hand protection's performance characteristics** in relation to the tasks to be performed, the conditions present, the expected duration of use, and the identified hazards and potential risks.

Most companies follow the American National Standards Institute (ANSI) and the International Safety Equipment Association (ISEA) standard for hand protection – ANSI/ISEA 105-2016 – as their guideline, which was recently updated in 2024. This standard establishes cut levels based on the amount of gram weight needed to cut through a fabric swatch with a 20-millimeter pass (approximately three-quarters of an inch).





### WHAT DOES ANSI SAY ABOUT CUT-LEVEL PROTECTIONS?

Originally, there were only five levels of cut protection for workers under ANSI/ISEA. In 2016, ANSI expanded its five cut-level protections into four additional categories under its ANSI/ISEA 105 standard, Hand Protection Selection Criteria. These additional categories are A6 through A9. You'll also see an EN 388 infographic on cut-resistant gloves.

Like ANSI 105, an EN 388 cut rating correlates with cut resistance levels used outside the United States in the European Union Countries. In North America, though, ANSI 105 cut resistance ratings are used.

Industry consensus standards can also help assess employer responsibilities under Section 5(a)(1) of the OSH Act, commonly referred to as the General Duty Clause. This provision mandates that employers must: "furnish to each of [its] employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to [its] employees."

These consensus standards can serve as evidence that a particular industry acknowledges a hazard and that effective methods are available to address and correct it.

**ANSI/ISEA** 

**STANDARDS** 

### ANSI/ISEA 105-2016

CUT LEVEL	CUT FORCE (GRAMS)
A1	200-499
A2	500-999
A3	1,000-1,499
Α4	1,500-2,199
A5	2,200-2,999
A6	3,000-3,999
Α7	4,000-4,999
A8	5,000-5,999
A9	6,000+

## DOES MY COMPANY NEED TO FOLLOW ANSI STANDARDS?

**OSHA laws and government standards are always mandatory, whereas ANSI/ISEA standards are generally voluntary.** Organizations like ANSI/ ISEA are typically private entities composed of industry representatives, technical experts, and policymakers.

These groups collaborate in committees to reach a consensus on safety issues. However, they are not government organizations and do not have the authority to compel employers to follow their standards. Their role is limited to making recommendations.

Although ANSI/ISEA standards are generally voluntary, they can become mandatory through a process known as incorporation by reference. This occurs when an OSHA standard refers to an ANSI Standard and requires compliance with it.

As a result, the ANSI standard effectively becomes part of the law, meaning failure to follow it could lead to prosecution and fines. OSHA has not incorporated ANSI/ISEA 105 by reference.



OSHA LAWS

## WHAT'S NEW IN THE ANSI/ISEA 105-2024 VERSION?

### The new ANSI/ISEA 105-2024, American National Standard for Hand Protection Classification, aims to standardize how manufacturers display the protection levels of gloves.

While ANSI/ISEA 105-2024 does not introduce major changes to test methods or protection levels, it brings a significant update in product labeling.

### The new standard mandates the use of a pictogram label in the form of a pentagon badge, which displays the glove's abrasion, cut, and puncture ratings inside.

The label's elements are organized within the pentagon as follows:

- The cut rating symbol is positioned at the top center.
- The abrasion rating symbol appears on the left.
- The **puncture rating** symbol is on the **right**. An 'X' can be used to indicate that a classification was either not tested or is not applicable.
- Although the test results determining protection levels remain unchanged, the way these results are displayed has evolved. Previously, manufacturers used their own individual shields and graphic systems to convey protection levels. **The new pentagon badge system brings uniformity and predictability to the industrial hand-protection market.**

Any glove conforming to ANSI/ISEA 105-2024 will feature the new pentagon label with the protection levels clearly shown, helping buyers and end users easily identify whether a glove is suitable for a particular task.



30% of all workplace injuries involve cuts or lacerations.



U.S. Bureau of Labor Statistics

## WHAT DO THE CUT-LEVEL PROTECTION NUMBERS MEAN?

What do all those numbers mean that are imprinted on cut-resistant rated work gloves? They correlate to how resistant the gloves are to abrasions, cuts, tears, or punctures. Data from the U.S. Bureau of Labor Statistics show that 70% of cuts and lacerations occur to workers' hands and fingers – another reason workers need to wear cut-resistant gloves.

Considering that 30% of all workplace injuries involve cuts or lacerations, using cutresistant gloves with nitrile and polyurethane coatings or steel fibers are workers' best defense in preventing these kinds of injuries.

**Remember, cut-resistant gloves are not cut-proof but are made and tested to resist a cut from a blade or sharp object.** A higher cut rating means that the glove material resisted higher cutting force during testing.

**Cut Level A2 and A3 gloves offer protection from light/medium cut hazards,** including the job tasks under A1 but with increased cut force resistance. **Level A1 is rated for light-cut hazards** like material handling, packaging, or small parts assembly.

**Cut Level A5 Gloves are ideal for medium cut hazards** like food prep/processing, appliance manufacturing, and automotive assembly.

**Levels A6 through A9 offer increasing protection from high-cut hazards** like metal stamping, glass manufacturing, changing slitter blades, and window manufacturing.



# ARE METAL MESH GLOVES SAFER TO USE THAN CUT-RESISTANT GLOVES?

When considering safety gear for workers working with saws, the use of metal mesh gloves may seem like a logical choice to prevent lacerations. However, it's essential to evaluate the potential risks that these gloves can introduce. While they are designed to protect against cuts, they can also pose a serious hazard in specific environments.

**Metal mesh gloves could become entangled in the teeth of a moving blade.** If this happens, it could prevent the worker from quickly removing their hand from the danger zone, potentially leading to severe injury. In situations where a band saw is in use, the risk of this entanglement is heightened due to the continuous motion and power of the machine.

In such scenarios, opting for cut-resistant gloves made of non-metallic materials could be a safer alternative. These gloves can still provide protection from cuts and lacerations without the risk of snagging on machinery. Cut-resistant gloves made from materials like Kevlar or high-performance polyethylene offer a high level of protection against sharp edges while allowing for greater dexterity and reducing the chance of entanglement with moving parts.

**Ultimately, safety should prioritize the risk of entanglement in addition to preventing cuts.** Employers should assess the specific machinery being used, the tasks at hand, and the types of gloves that provide the best balance of protection and safety for their workers. In some cases, it may be safer for workers to wear cut-resistant gloves instead of metal mesh gloves to avoid potentially devastating accidents.



## HOW WILL I DETERMINE IF MY WORKERS NEED CUT-RESISTANT GLOVES?

It is important for employers to institute all feasible engineering and work practice controls to eliminate and reduce the hazards before using personal protective equipment (PPE) to protect workers.

For many workplaces, machine guards or modified work procedures are sufficient to eliminate the risk of injury to workers' hands. When these measures fail to eliminate the hazards, however, protective gloves are the primary means of protecting workers' hands. **The nature of the hazards and the operation your workers perform typically determine the selection of gloves.** 

Most accidents involving hands are classified under four main hazard categories: chemicals, abrasions, lacerations, and heat. There are gloves available that can protect workers from any of these individual hazards, but there is no one type of glove that will protect against all workplace hazards.

The variety of potential occupational hand injuries may make selecting the appropriate pair of gloves more difficult than choosing other PPE. So, if your workers are exposed to cut hazards and could suffer a laceration, cut-resistant gloves should be used.



Main Hazard

**Categories:** 

**CHEMICALS** 

ABRASIONS

CERATIONS

## HOW WORKERS CAN AVOID GETTING CUT WHILE USING A UTILITY KNIFE.

To prevent injuries, it's important to note that utility knives are a common cause of cuts among workers. To reduce these risks, ensure workers follow these essential guidelines when handling a utility knife:

Always FULLY RETRACT THE BLADE into the handle when the knife is not in use.

**REPLACE DULL OR BROKEN BLADES** immediately.

**SECURE THE MATERIAL BEING CUT PROPERLY** to prevent it from shifting or moving. The force used to hold the material should exceed the force used to make the cut.

**STAY FOCUSED** on the material and keep a close watch on the blade at all times.

APPLY CONSISTENT, FIRM (BUT NOT EXCESSIVE) PRESSURE while making the cut.

Always **CUT AWAY FROM THE BODY** and ensure the area is clear of others.

**EXERCISE CAUTION** when replacing dull or damaged blades.

WEAR APPROPRIATE PPE when necessary.

DISPOSE OF USED BLADES IN AN APPROVED CONTAINER to prevent accidents.

Ultimately, employers are responsible for maintaining the safety of tools and equipment, but workers are in the best position to identify potential hazards.

**Employers should provide training on the proper use of all tools, including utility knives.** Workers must recognize the hazards associated with these tools, adhere to all safety guidelines, and promptly report any concerns or issues.

## HOW CAN GLOVE MANUFACTURERS HELP COMPANIES CHOOSE THE CORRECT CUT PROTECTION?



OSHA's injury data and technical reports show injuries have occurred to workers who were not wearing PPE, as well as to workers who were. Clearly, despite the use of PPE, workers still are injured. Often considered an affordable and simple solution for hand protection, gloves could be pointing the way to yet another workplace hazard.

The best solution is to rely on the glove manufacturer to educate you on both the benefits and drawbacks of the cutresistant glove you need to effectively protect your workers. This information can also be used to train workers on the proper use, fit, and maintenance of gloves. Surely, your workers will applaud your efforts.





### **KEY TAKEAWAYS**

**Cut-resistant gloves are a crucial investment for protecting workers from injuries caused by sharp objects and tools.** By choosing the right pair of cut-resistant gloves, employers can significantly reduce the risk of cuts, enhance workplace safety, and promote a culture of care and responsibility.

Remember, the safety of your team should always come first – equip them with the protection they need to work confidently and safely.

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#### RAY CHISHTI, EDITOR, J. J. KELLER & ASSOCIATES, INC.

Ray Chishti joined J. J. Keller in 2017 as a Workplace Safety Editor. He has 15 years of EH&S experience in a variety of industries, including EPC projects, construction, railway, fossil fuel power plants, gas distribution and transmission, electrical transmission, and retail. His experience includes working knowledge in OSHA safety, environmental, HR, workers' compensation, and DOT topics. As a safety professional, his previous roles included auditing and leadership positions with new construction, existing facilities, and large EPC projects valued between one million and two billion dollars. His experience includes positions within law enforcement as a police officer and fraud specialist.

His degrees include a Bachelor of Arts (BA) in Law Enforcement, a Master of Business Administration (MBA), and a Juris Doctor (JD) – with a certificate in Occupational Safety and Health. Ray also participated as an intern in his law school's Innocence Project – part of the Innocence Network, which has been credited with the release of over 350 wrongfully convicted prisoners, mainly through the use of DNA testing. His training in environmental, health, safety, and DOT topics includes certifications as a construction and general industry OSHA Outreach Instructor, in root cause analysis (Sologic), basic first aid, CPR, and AED use.

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