

SAVVIILL HAND SAFETY GUIDE





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1. INTRODUCTION

Hand injuries are the #1 preventable injury across the world.

Common sawmill injuries are due to filing and changing saws, moving conveyors, splinters and crushes from handling lumber, and a changing work environment. Hands, wrists, and arms accounted for over 30% of all US incidents in 2020 while in Canada in 2019, there were over 4,000 lost time claims with hand injuries accounting for over 20% of them. An Alberta study found that sawmill claims are not representative of the actual incident rate and that the upper extremities are the most frequently injured region of the body at 45%.

Many hand injuries often go unreported but still affect both business and employees. Even injuries that are not categorized as lost time can have a significant effect on production, productivity, and on a worker's quality of life.

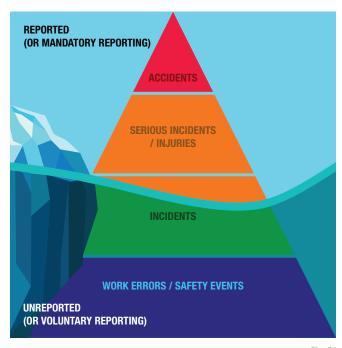


Fig. 01

2. GUIDE USE AND APPLICATION

This guide provides employers, workers, and others with practical information to improve hand safety. You should always start with an assessment of hazards to workers' hands which, once identified, should be reduced or eliminated by following the hierarchy of controls (See section 4). If personal protective equipment (PPE) gloves will be used to minimize the risk, glove trials should be conducted along with worker training.

3. OHS LEGISLATION

Employers and workers should refer to the Occupational Health and Safety (OHS) Legislation in their region for a full understanding of their responsibilities for hand safety and PPE. Compliance with the regulations is mandatory and being unaware of them cannot be used as a defense for noncompliance.

This guide collects the industry's best practices to promote hand safety beyond the minimum regulatory requirements. We encourage employers to set standards that exceed regulation, advance industry best practices, and supports a culture of safety.







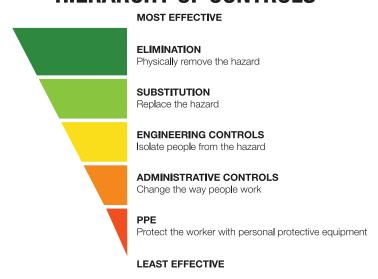
4. HAZARD ASSESSMENTS

Job and field level hazard assessments are opportune times to identify hand dangers using the hierarchy of safety controls. Listed by priority, from most effective to least, the safety controls are elimination, substitution, engineering controls, administrative controls, and personal protective equipment (PPE).

To address the risks to hands more fully, hazard assessments must describe the nature of the hazards. These include spinning or moving parts, repetitive manual handling, abrasion, punctures, cuts, heat and cold, etc.

PPE is the last line of defense. Hand safety is more than just wearing gloves, it is preventing risks to hands in the first place.

HIERARCHY OF CONTROLS



5. SAFE WORK PRACTICES / SAFE JOB PROCEDURES

Employers should establish safe work practices (SWP) and safe job procedures (SJP) to address significant hazards or risks for routine tasks. SWP outlines the safety procedures of how to perform a task with minimum risk to people, equipment, materials, environment, and processes. SJP are the series of specific steps that guide a worker to complete a task from start to finish. Both SWP and SJP should also detail what types of gloves are required. Together, they reduce risk by minimizing potential exposure to dangers in performing a task.

It is management's responsibility to provide training for workers to follow these practices or procedures. Both management and workers should be involved in developing safe work practices.

6. FOSTERING SAFETY CULTURE AND DECISION MAKING

While hazard assessments, safe work practices, and operating instructions are important to guide and keep workers safe, they often reflect optimistic work conditions. Workers seldom operate in the ideal environments that these instructions were developed for, challenging workers and supervisors to balance the competing pressures of schedule, quality, cost, and safety. They are often reduced to doing their best to satisfy the pressures of one or more at the expense of sacrificing the others.

Employers who foster a culture of safety and have systems to help workers assess hazards will better balance these pressures and reduce lost time due to accidents. Employers will be rewarded with more engaged employees, higher productivity, and fewer incidents when workers are trained to exercise good judgment and are treated fairly when mistakes happen.



7. TRAINING AND COMPETENCY

For workers to be competent in the health and safety aspects of their work, they must possess the following:

- Be qualified to do the assigned work by having the appropriate knowledge, training, and experience
- Have knowledge of the hazards and risks associated with the job or tasks
- Able to recognize, evaluate, and control these hazards and risks by knowing which precautions to take or which controls to use / have been put in place
- Able to work in a way that won't place their or others health and safety in danger
- Have knowledge of the laws and regulations that apply to the work being done

For more information about legislation and the requirement(s) to be competent, always check with your jurisdiction for the exact legal interpretations.

Two effective and easy-to-use training concepts to prevent hand injuries include:

Hand placement training – this is very specific task training that is usually done 1-on-1. It models hand placements, illustrates why hands need to be placed correctly, and what the risks are if placed incorrectly.

Tool Box Talks – a group discussion on a specific topic. Here are some samples of areas that can be covered:

- Discuss hazards and brainstorm potential ways to eliminate, substitute, or change work processes to increase hand safety
- Demonstrate and discuss how to use and handle equipment safely and properly
- Discuss how to communicate with each other on a job site when noisy, through varied weather, or through ever-changing site conditions



Hand placement: Think about the best placement of your hands to avoid injuries from hazards.

 Discuss how and when to use personal protective equipment (We designed many of the role pages in this guide for use as a Tool Box Talk)

It is also vital to monitor and follow up, verifying that training was effective and has contributed to improving worker performance. Manufacturers and suppliers typically have useful information and training that can be tailored for individual employer use.

Sources: CCOHS website https://www.ccohs.ca/oshanswers/legisl/competent.html, Superior Glove Hand Safety Training, and ReThinking Hand Safety







8. WORKPLACE INSPECTIONS

Workplace inspections are an opportunity to talk with workers and supervisors to listen to their hand safety concerns. Important things to discuss with workers include:

- Are workers getting the right gloves for the tasks / hazards / environmental conditions?
- Are the gloves effective at protecting workers' hands?
- Are workers getting the right sizes of gloves?
- Is there a supply of gloves available at the work location for when they need to be replaced?
- Is there anything that could be done to improve hand safety?

Important things to look for include:

- Verifying workers gloves are not being worn past their service life. If replacement gloves are not readily accessible, workers will continue wearing compromised gloves putting their hands at risk
- Verifying workers remove gloves when they can be a hazard around tools and equipment due to entanglement hazards

Who conducts inspections can be very important to identifying system weaknesses and recommending improvements. Consider the benefits of including management, manufacturers, suppliers, and Occupational Health and Safety (OHS) Inspectors in your workplace inspections.

- The more management understands and appreciates the challenges faced by workers, the more capable they will be of assisting workers in doing their tasks safely
- Manufacturers and suppliers understand their products best. Incorporate them in your workplace inspections
- Despite the fear some employers and workers have for OHS Inspectors, they share similar responsibilities and goals of ensuring safe workplaces. Invite your OHS Inspector to your workplace for an inspection. Take advantage of their knowledge and experience, having them share their opinions on workplace safety

Effective workplace inspections will result in a higher level of engagement and understanding of the work, improving safety and productivity.





9. INCIDENT REPORTING AND INJURY TREATMENT

Learning from Incidents and Establishing Useful Metrics

Workers should report all hand injuries and near misses to employers for treatment and investigation. Injury data is a lagging indicator which measures a company's health and safety performance by tracking accident statistics. Examples include:

- Injury frequency and severity
- Lost workdays
- Incidents and near misses
- Workers' compensation costs

These metrics evaluate the overall past effectiveness of your workplace health and safety program.



Leading Indicators

Leading indicators focus on future safety performance and continuous improvement. These measures are proactive and report what employees and management are doing regularly to prevent injuries.

Leading indicators that are connected to specific occupational health and safety program goals introduce a real level of accountability. It's important to establish metrics based on impact. For example, don't just track the number and attendance of safety meetings and training sessions—measure the impact of the safety meeting by determining the number of people who met the key learning objectives of the meeting / training.

Regarding leading indicators for hand safety, consider tracking when gloves were:

- Not worn when they should have been
- Worn near entanglement hazards or contrary to company rules and equipment specifications
- Worn past their service life or are damaged
- Not appropriate for the hazard
- Reviewed in Safety Meetings and Tool Box Talks
- Efficacy at preventing hand injuries and, if ineffective, then why?

It's easy to focus on negative results and non-compliance when reviewing performance. However, focusing on the negative may discourage workers who could become apathetic to safety initiatives and programs. Finding a way to interpret data in a positive light can be beneficial for moral. For example, 2.5% of workers not wearing gloves also means that 97.5% were wearing gloves.

Sources: CCOHS website and ReThinking Hand Safety





10. STRETCHING AND MSI INJURY PREVENTION

A MSI (Musculoskeletal Injury) is an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue. They include sprains, strains, and inflammation that work related tasks may cause or aggravate.

Hands, fingers, and wrists are susceptible to MSIs. To prevent sprains and strains from becoming debilitating injuries, supervisors and workers must be familiar with the risk factors and symptoms, along with controls and mitigations, of potential MSI's.

Risk Factors

The risk factors that contribute to potential MSIs include:

- Force: lifting / lowering, carrying, pushing, pulling, pinching or power gripping. Examples: holding a hammer, lifting a heavy box
- Repetition: using the same muscles over and over without rest or recovery. Examples: loading shotcrete, replacing hydraulic hoses on bolters, electricians pulling cable
- Awkward posture: any position where a body segment is angled outside the mid-point range of motion for that joint. Example: installing overhead attachments (e.g. pipe supports) into the rock face
- Contact stress: pressure from a hard or sharp object can damage nerves and tissues beneath skin Examples: ridges / hard edges of hand tools pressing into hand, or sharp edges digging into wrists
- Vibration examples: vibrations from power tools (e.g. Hilti® drills, pneumatic jack leg drills)

Often a task will expose workers to several risk factors, creating a cumulative effect and potential for injury not only to their hands or wrists but also to their arms and backs.

Controls and Mitigations

To reduce the potential for injury:

- Identify and document risk factors in Job Hazard Assessments and Field Level Hazard Assessments
- Implement controls to reduce the potential for injury

Typical controls include using mechanical aids (screw gun instead of a screwdriver), reducing duration of work, having breaks, using ergonomically designed tools, and using specially designed



gloves. Be aware that implementing controls to reduce one risk factor may expose workers to another.

Try doing stretches at the start of each shift. Follow a series of hand stretches to lessen the likelihood of developing hand injuries from work.

Warm Up (R, G, V): No holding positions.



Repetitive Strain Injuries = R Excessive Gripping Injuries = G Vibration Oriented Injuries = V



Repetitive Strain Injuries = R | Excessive Gripping Injuries = G | Vibration Oriented Injuries = V

Symptoms

Workers should monitor their health for symptoms for MSIs and notify their supervisor if any develop. Slight MSI symptoms can develop into significant injuries suddenly and without warning.

Symptoms include numbness, tingling, pain, swelling, redness, and / or difficulty moving hands, fingers, or wrists. Untreated early symptoms can progress to:

- Tendinitis swelling of a tendon
- Carpel tunnel syndrome pressure on a nerve in the wrist, resulting in numbness, tingling, pain or weakness
- Hand arm vibration syndrome (HAVS) reduced blood flow results in blanching of skin, numbness or tingling, and loss of sensation

Hand Exercises

The following exercises can help workers based on the hazard(s) they may encounter. They can do these hand exercises at breaks or between tasks for good hand health.

Range of Motion (R, G)

Hold positions for 10-15 seconds.



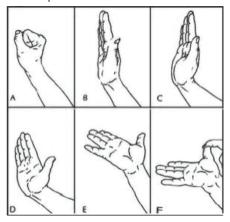
Self Mobilization / Massage (G, V)

Repeat each exercise for 10 seconds.



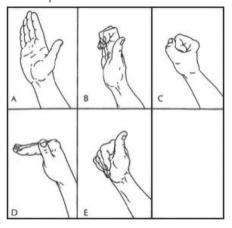
Nerve Gliding Exercises (R, G, V)

Hold each position for 7 seconds.



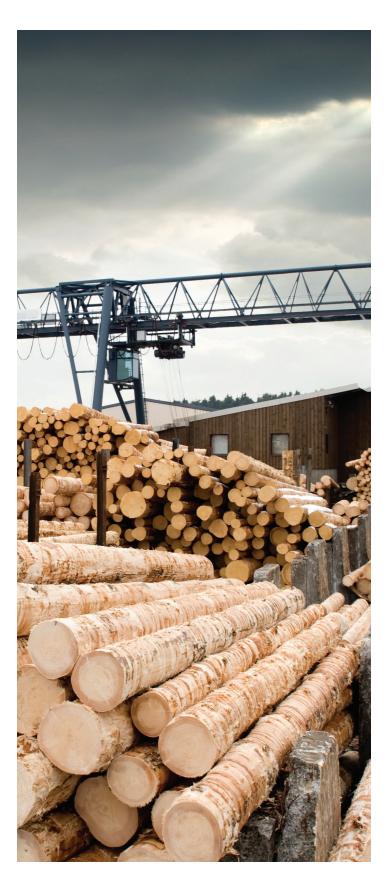
Tendon Gliding Exercises (R, G, V)

Hold each position for 7 seconds.





11. ROLE HAND RISK ASSESSMENTS



Roles:

Administration

11.1 Mill Managers and Visitors

Yard Log and Prep

- 11.2 Scalehouse Operators
- 11.3 Log Scalers and Graders / Log Yard

Managers

- 11.4 Loader Operators
- 11.5 Yard Utilities

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Shipping

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- 11.33 Lumber, Wood Chip, Sawdust, Bark, and Hog Fuel Shippers





ADMINISTRATION

11.1 MILL MANAGERS AND VISITORS

Mill managers lead, plan, and manage the delivery of the logs to the mill. They're in charge of running the mill and handle overall productivity, safety, and operational efficiency with an eye to maximize profitability. Visitors enter mill for inspections, audits, and tours.

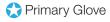
Glove and Sleeve Recommendations

Hi-Viz Supervisor & Visitor Glove: S18TAXFN

• Supervisor and Visitor Glove: S21TXUFN

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Observing, auditing, and coaching	Repetitive activity Cut Impact	Dexterity Touchscreen	Repetitive activity	Cut Impact		
Driving		Dexterity Grip				







11.2 SCALEHOUSE OPERATORS

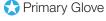
Monitors the entry and departure of all trucks and materials into the mill. Weighs trucks entering and leaving the site.

Glove and Sleeve Recommendations

- Waterproof with impact for material handling: STXWPNVB
- Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)
- Breathable with impact protection: STAGBLPVB
- Cool dexterous glove: S18TAXFN
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Data entry for truck measurements	Repetitive activity	Touchscreen Dexterity	Repetitive activity			
Inspecting logs and belt / chain / wire cables	Punctures Cut Impact Abrasion	Dry Dexterity Warm (winter)		Abrasion Impact Cut Punctures		







11.3 LOG SCALERS AND GRADERS / LOG YARD MANAGERS

Inventories logs with details of species, moisture, length, straightness, hearth content, and defects into the system. Log scaling can be done on the truck (ramp scaling) or with the logs on the ground (roll out scaling). Manages organization and flow of logs within the yard and into the sawmill.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

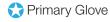
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Inventory and measuring during roll out scaling	Slips and trips Puncture Repetitive activity Impact Cut	Dry Warm (winter) Dexterity	Repetitive activity	Puncture Cut	Impact	
Directing trucks and loaders in the log yard	Impact	Dexterity Wet and dry grip		Impact		
Scaling logs	Impact Puncture	Wet and dry grip Dry Warm (winter)		Puncture	Impact	







11.4 LOADER OPERATORS

Off-loads trucks, trains, ships, or barges to the yard. Transfer logs to like inventory piles according to species, length, and other characteristics. Log movement is done with different equipment based on the sawmill set up: forklifts, knucklebooms, cranes, log gripper loaders, or booms. Also includes lumber transfer, kiln loading, finished lumber loading, and snow removal.

Glove and Sleeve Recommendations

♦ Waterproof with impact for material handling: STXWPNVB

Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

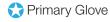
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating forklifts, loaders, grippers etc. to move logs, timber, and lumber	Repetitive activity Vibration Cut	Dexterity Warm (winter) Grip Dry	Vibration	Repetitive activity Cut		
Working with truck operators in the unloading process	Cut Impact	Dexterity Wet grip Dry Warm (winter)		Impact Cut		







11.5 YARD UTILITIES

Uses a chainsaw and trims limbs from logs which would interfere with the sawmill's operations. Cuts out any visible metal contamination.

Glove and Sleeve Recommendations

Chainsaw glove: 385CS

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

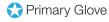
• Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Delimbing, trimming logs, and removing metal before entering the sawmill	Cut Puncture Vibration Impact Abrasion	Grip Dexterity	Abrasion	Puncture	Cut Vibration Impact	
Chainsaw maintenance and sharpening	Chemical Puncture Cut	Dexterity	Cut	Chemical Puncture		
Cleaning up cuttings	Puncture Cut Impact Abrasion	Dexterity Cool hands		Impact Cut	Abrasion Puncture	







11.6 CUT OFF OPERATORS

Cuts large lengths of logs into shorter, more usable logs. Inspect and operate wood sawing machines.

Glove and Sleeve Recommendations

♦ Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

• Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating cut saw and ensuring no jams or pile ups	Repetitive activity Abrasion	Dexterity Touchscreen	Repetitive activity	Abrasion		
Inspecting saw	Cut Puncture Abrasion	Dexterity Dry and wet grip		Cut Puncture Abrasion		







11.7 DEBARKER OPERATORS

Removes the bark from logs prior to sawing or chipping. Debarking also removes soil and rocks from the logs.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

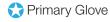
• Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating debarker and ensuring no jams or pile ups	Repetitive movements Abrasion	Dexterity Touchscreen	Repetitive movements	Abrasion		
Inspecting debarker	Cut Puncture Abrasion	Dexterity Dry and wet grip		Cut Puncture Abrasion		







11.8 SAWYERS (DECANTER OR HEAD SAW / RESAW)

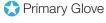
Converts logs into boards by either a canter or a combination of a head saw or hew saw followed by a resaw. A tail operator often works in this area to pick up loose pieces during operation and ensures wood is flowing.

Glove and Sleeve Recommendations

- Clearing around shut off saws: S15KGV30N (Option with impact protection: S15KGVNVB)
- Cool dexterous glove: S18TAXFN (Can be worn inside S15KGV30N when working around saws for convenience)
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Watching the monitors / log flow and running the controls	Repetitive activity	Dexterity Touchscreen		Repetitive activity		
Troubleshooting saws	Cut Impact Abrasion Repetitive activity	Dry Dexterity	Abrasion Repetitive activity	Impact	Cut	







11.9 CHIPPERS

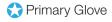
Operates the chipper which chips the debarked wood waste from the saws.

Glove and Sleeve Recommendations

- Clearing around shut off chipper: S15KGV30N (Option with impact protection: S15KGVNVB)
- Cool dexterous glove: S18TAXFN (Can be worn inside S15KGV30N when working around saws for convenience)
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Material handling	Cut Impact Puncture	Dexterity Wet and dry grip		Puncture	Impact Cut	







11.10 BOARD EDGER OPERATORS

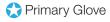
Trims the flitch edges, resulting in four-sided lumber.

Glove and Sleeve Recommendations

- Waterproof with impact for material handling: STXWPNVB (Option with impact protection: S15KGVNVB)
- Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)
- Cool dexterous glove: S18TAXFN
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating the edger	Repetitive activity	Dexterity	Repetitive activity			
Lumber selection and handling	Cut Impact Puncture Abrasion	Dexterity Warm	Abrasion	Cut Puncture	Impact	







11.11 TRIMMERS (DOUBLE EDGE TRIM OPERATORS)

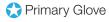
Optimizes lumber quantity at typical lumber lengths and squares the ends.

Glove and Sleeve Recommendations

- Cool dexterous glove: S18TAXFN (Can be worn inside S15KGV30N when working around trimmer for convenience)
- Clearing around shut off trimmer: S15KGV30N (Option with impact protection: S15KGVNVB)
- Breathable with impact protection: STAGBLPVB
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating trimmer and ensuring all saws and lasers are working	Repetitive activity	Dexterity	Repetitive activity			
Straightening lumber before trimming	Cut Impact Puncture Abrasion	Dexterity Wet and dry grip	Abrasion Impact	Cut Puncture		







11.12 LUMBER GRADERS

Ensures the quality of outgoing green or kiln dried lumber according to industry standards. Sometimes responsible for daily production, lumber quality control, lumber packaging, and data entry into site database.

Glove and Sleeve Recommendations

♦ Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

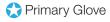
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Inspecting boards and writing grade on boards with chalk	Repetitive activity Puncture Cut Impact	Dexterity Grip		Puncture Cut Repetitive activity Impact		
Operating the conveyor panel, ensuring no jams, and that the laser reads chalk marks correctly	Repetitive activity	Dexterity	Repetitive activity			







11.13 SORTER OPERATORS / LUMBER HANDLERS (GREEN CHAIN)

Unloads lumber from the green chain as per the grade and places them in corresponding piles.

Glove and Sleeve Recommendations

★ Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

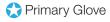
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Removing lumber from the green chain and placing in corresponding pile	Cut Puncture Impact Abrasion Repetitive activity	Dexterity Grip	Abrasion	Puncture Cut Repetitive activity	Impact	
Iln automated mills, overseeing the process from a parallel platform to the sorter	Repetitive activity	Dexterity	Repetitive activity			







11.14 STICKER / STRIP OPERATORS

Places or ensures machine has the stickers / strips to place between the boards that enables drying.

Glove and Sleeve Recommendations

♦ Waterproof with impact for material handling: STXWPNVB

Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

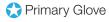
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Placing sticks between the layers and piling lumber to allow air flow between rows (manual)	Puncture Impact	Wet and dry grip		Puncture	Impact	
Ensuring the feeding hopper is filled with sticks (automated)	Vibration Repetitive activity	Dry grip			Vibration Repetitive activity	
Retrieving sticks from kiln area after lumber is dried	Puncture Impact	Dry grip	Puncture	Impact		







11.15 STACKERS / RESTACKERS

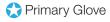
Stacks lumber going into the kiln with spacers to ensure proper air circulation. Re-stacks / bundles without spacers after drying.

Glove and Sleeve Recommendations

- Waterproof with impact for material handling: STXWPNVB
- Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)
- Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)
- Breathable with impact protection: STAGBLPVB
- Cool dexterous glove: S18TAXFN
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Stacking lumber into the correct lumber pile (manual)	Puncture Impact Cut	Wet and dry grip	Cut	Puncture	Impact	
Running control panel and ensuring lumber is lined up straight for the automated lumber stacker	Repetitive activity Puncture Impact Cut	Wet and dry grip Dexterity	Puncture Cut	Impact Repetitive activity		







11.16 SAW FILERS

Maintains saw equipment, performs machine / saw alignment, and provides preventive maintenance to saw filing machines.

Glove and Sleeve Recommendations

Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)

Welding: 399GKGL5 with PXN/KG18 sleeve

Waterproof with impact for material handling: STXWPNVB

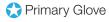
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Sharpening saw blades and teeth	Cut Impact Chemical Repetitive activity Abrasion	Dry (water and oil) Dexterity Wet and dry grip	Chemical Repetitive activity	Abrasion	Impact	Cut
Moving sawblades / bandsaw blades and teeth	Cut Impact Abrasion Repetitive activity	Dry (water and oil) Dexterity Wet and dry grip	Repetitive activity	Abrasion	Impact	Cut
Welding cracks in saw blades or welding on new teeth	Heat / burns Cut Impact	Dexterity		Impact	Cut Heat	







11.17 ELECTRICIANS

Prepares, assembles, installs, tests, and inspects electrical wiring, control devices, and related equipment.

Glove and Sleeve Recommendations

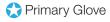
Arc flash with dexterity: S13FRNE

Waterproof with impact for material handling: STXWPNVB

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Construction: installing electrical wiring, equipment, sensors, lasers, conveyors, and ventilation equipment	Cut Abrasion Puncture Impact	Dry and wet grip Dexterity		Abrasion Impact	Cut Puncture	
Infrastructure: electrical and electronics inspection, preventative maintenance, and servicing	Cut Puncture	Dexterity Touchscreen			Cut Puncture	







11.18 MECHANICS

Troubleshoots, analyzes, repairs, services, and undertakes preventative maintenance of all sawmill, energy plant, kilns, and planer mills.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

★ Welding: 399GKGL5 with PXN/KG18 sleeve

Welding with no cut protection: 370CTIG

Breathable with impact protection: STAGBLPVB

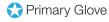
Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Troubleshooting and replacing parts on equipment	Puncture Cuts Impact Chemical Abrasion	Dexterity Tactile	Chemical	Impact Abrasion		Cut Puncture
Welding	Heat / burns Cuts	Dexterity		Cut	Heat	
Changing tires, loaders, etc. with impact tools	Long-term vibration exposure Impact Cuts Abrasion	Dexterity		Vibration Abrasion	Impact Cut	
Cleaning, lubricating, and changing fluids in machines	Chemical	Dexterity Wet and oil grip		Chemical		







11.19 MILLWRIGHTS

Plans, builds, and maintains equipment in the mill. Repairs hand tools and performs fabrication, including cutting and welding.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

Welding: 399GKGL5

Welding with no cut protection: 370CTIG

• Breathable with impact protection: STAGBLPVB

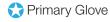
Wet conditions: S15KGV30N

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Mill compressors, dust systems, and pipe troubleshooting and repairs	Fluids Cold weather Cut Impact Electrical shock	Dry Dexterity Warmth Flexible in cold	Electrical shock	Cut Impact		Wet Cold
Troubleshooting, fabricating, and maintaining equipment	Cut Impact Heat / Burns Abrasion Repetitive activity	Dry Dexterity	Abrasion Repetitive activity	Impact	Cut Heat	
Welding	Heat / Burns Cuts	Dexterity		Cut	Heat	







11.20 PLANER / MOLDER TECHNICIANS

Installs, maintains, repairs, and modifies all planer machines and related equipment.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

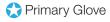
Wet conditions: S15KGV30N

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Repairing planers and molders, including working around and removal of knives for filing	Cut Impact	Dexterity Grip		Impact	Cut	
Installing equipment according to blueprints	Cut Impact	Dexterity Grip		Impact Cut		







DRY

11.21 LUMBER DIPPERS

Dips the lumber stacks with sticks into a chemical solution to prevent the wood from staining or decoloring.

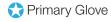
Glove and Sleeve Recommendations

Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)

• Chemical sleeve: SLPD16E

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Loading and re-loading the dip tank and operating forklifts or loaders	Repetitive activity Vibration Cut Impact	Dexterity Warm (winter) Grip Dry	Vibration	Repetitive activity Cut	Impact	
Ensuring the dip tank is filled at the right concentration	Chemical Impact	Dry Dexterity		Chemical Impact		
Operating the hoist, dip tank control panel, and tilting system	Repetitive activity Cut	Dexterity Warm (winter)	Repetitive activity Cut			







DRY

11.22 ENERGY PLANT OPERATORS / POWER ENGINEERS

Runs the energy plants and manages the ovens that burn the wood fiber.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

Waterproof with impact for material handling: STXWPNVB

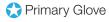
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN
 Arc flash with dexterity: S13FRNE
 Heat protection sleeve: KBKB1T18T

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Boiler and pipe troubleshooting and repairs	Fluids Impact Cut Heat / burns	Dry Dexterity		Cut Impact	Heat / burns Wet	
Predictive maintenance with focus on corrosion, vibration, steam traps, and boiler feeder water	Cut Impact Heat / burns Abrasion	Dry Dexterity	Abrasion	Impact	Cut Heat / burns	
Managing ovens for constant heat generation	Heat Cut Impact	Dry Dexterity	Cut Impact	Heat		







DRY

11.23 KILN TENDER / OPERATORS

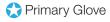
Manages the lumber rotation, kiln temperature, wood moisture levels, and humidity in the kiln.

Glove and Sleeve Recommendations

- Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)
- Waterproof with impact for material handling: STXWPNVB
- Breathable with impact protection: STAGBLPVB
- Heat protection sleeve: KBKB1T18T

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Kiln loading and unloading / operating forklifts or loaders	Repetitive activity Vibration Cut Impact	Dexterity Warm (winter) Grip Dry	Vibration	Repetitive activity Cut	Impact	
Managing pressure in the system to minimize energy loss	Heat / burns	Dexterity Grip			Heat / burns	
Running kiln with consistent steam load for even drying	Heat / burns	Dexterity Grip			Heat / burns	
Predictive maintenance with focus on corrosion, vibration, steam traps, and boiler feeder water	Cut Impact Heat / burns Abrasion	Dry Dexterity	Abrasion	Impact	Cut Heat / burns	







PLANING MILL

11.24 TILT HOIST OPERATORS

Lifts the wood load on an angle, which allows the top row of boards to slide onto the transfer chains.

Glove and Sleeve Recommendations

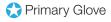
Waterproof with impact for material handling: STXWPNVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating tilt hoist control panel and ensuring no board jams	Repetitive activity	Dry Dexterity	Repetitive activity			
Untangling boards if jammed	Cut Impact Abrasion Repetitive activity	Dry Dexterity	Abrasion Repetitive activity Cut	Impact		







PLANING MILL

11.25 STICKER / STRIP OPERATORS

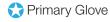
Places or ensures machine has the stickers / strips to place between the boards that enables drying.

Glove and Sleeve Recommendations

- Waterproof with impact for material handling: STXWPNVB
- Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)
- Breathable with impact protection: STAGBLPVB
- Cool dexterous glove: S18TAXFN
- Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating loader	Repetitive activity Impact	Dexterity		Repetitive activity Impact		
Material handling	Cut Impact Puncture	Dexterity Wet and dry grip	Puncture	Impact Cut		







11.26 PLANER / MOLDER FEEDER OPERATORS

Inspects the wood looking for cracks from the kiln and lines up the boards along the transfer chain for planing.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

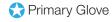
• Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Flipping and inspecting boards as they feed into the planer / molder	Puncture Cut Impact Abrasion	Dexterity Dry grip		Abrasion	Impact Cut Puncture	
Stopping transfer chain if there are any issues	Puncture Cut Impact	Dexterity		Cut Puncture	Impact	







11.27 TRIMMERS (DOUBLE EDGE TRIM OPERATORS)

Optimizes lumber quantity at typical lumber lengths, squares the ends, and stamps the end and the top of the boards. Tag glues or staples lumber with mill, specification, grade species, length, width, and thickness on the end of each board.

Glove and Sleeve Recommendations

Cool dexterous glove: S18TAXFN

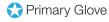
Water resistant leather with impact protection: 378GKGVB

Breathable with impact protection: STAGBLPVB

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Operating trimmer and ensuring all saws and lasers are working	Repetitive activity	Dexterity	Repetitive activity			
Straightening lumber if trimmer mis-feeds or jams	Cut Impact Puncture Abrasion	Dry grip		Abrasion Cut	Puncture Impact	
Tagging the lumber	Cut Impact Puncture Abrasion		Abrasion Impact	Puncture Cut		







11.28 LUMBER GRADERS

Ensures the quality of outgoing green or kiln dried lumber according to industry standards.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB

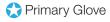
• Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Inspecting each board and writing the grade on the board with chalk	Repetitive activity Puncture Cut Impact	Dexterity Grip	Vibration	Puncture Cut Repetitive activity Impact		
Operating the conveyor panel, ensuring no jams and that the laser reads chalk marks correctly	Repetitive activity	Dexterity	Repetitive activity			







11.29 SORTER OPERATORS / LUMBER HANDLERS (SORT CHAIN)

Separates wood by grade and length into different slings, unloads lumber off of the sort chain, and places into corresponding piles with no spacers.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB

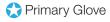
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Taking the lumber off of the sort chain and placing in corresponding piles	Cut Puncture Impact Abrasion Repetitive activity	Dexterity Grip	Abrasion	Cut Puncture Abrasion Repetitive activity	Impact	
In automated mills, overseeing the process from a parallel platform to the sorter	Repetitive activity	Dexterity	Repetitive activity			







11.30 STACKER OPERATORS

Stacks boards or runs the automated stackers and straightens boards when needed.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB

Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)

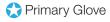
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Stacking lumber into correct piles	Puncture Impact Cut	Wet and dry grip	Cut	Puncture	Impact	
Running the control panel and ensuring lumber is lined up straight for the automated lumber stacker	Repetitive activity Puncture Impact Cut	Wet and dry grip Dexterity	Puncture Cut	Repetitive activity Impact		







WOOD TREATING

11.31 WOOD TREATERS

Inserts chemicals into the cellular structure of the wood.

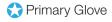
Glove and Sleeve Recommendations

Wet conditions: S15KGV30N (Option with impact protection: S15KGVNVB)

• Chemical Sleeve: SLPD16E

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Loading and unloading pressure treating vessel	Repetitive activity	Dexterity	Repetitive activity			
Measuring and filling chemicals	Chemicals	Dexterity Grip		Chemicals		
Monitoring vessel pressure	Heat / burns Impact	Dexterity	Impact	Heat / burns		







SHIPPING

11.32 BANDERS / WRAPPERS

Bands lumber with metal or plastic bands to hold the lumber in place, ensuring no discoloration, and keeps lumber clean during shipping.

Glove and Sleeve Recommendations

Water resistant leather with impact protection: 378GKGVB

Waterproof with impact for material handling: STXWPNVB

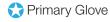
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Manually closing the steel or plastic bands	Puncture Cut Impact Abrasion	Dexterity Grip	Abrasion	Impact Puncture	Cut	
Operating automated bander	Repetitive activity	Dexterity	Repetitive activity			
Operating automated wrapper	Repetitive activity	Dexterity	Repetitive activity			







SHIPPING

11.33 LUMBER, WOOD CHIP, SAWDUST, BARK, AND HOG FUEL SHIPPERS

Loads and ships lumber, wood chips, sawdust, bark, and hog fuel on trucks, rail, barges, or ships.

Glove and Sleeve Recommendations

Waterproof with impact for material handling: STXWPNVB

• Water resistant leather with impact protection: 378GKGVB (Winter version: 378KGTVB)

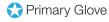
Breathable with impact protection: STAGBLPVB

Cool dexterous glove: S18TAXFN

Cool sleeve: KTAG18

OVERVIEW OF PRIMARY HAND TASKS, HAZARDS, AND RISK:

Primary Tasks	Primary Hand Hazard	Hand Requirements	Low	Moderate	High	Extreme
Positioning incoming trucks for loading	Cold (winter) Wet Repetitive activity	Warm Dry Dexterity	Wet	Cold Repetitive activity		
Operating loading equipment	Impact Cut	Dexterity Wet and dry grip	Cut	Impact		
Cleaning up area	Impact Cut	Dry	Impact	Cut		
Loading lumber with forklifts, crane, or sidelifts	Impact Cut Repetitive activity	Dry Dexterity	Repetitive activity	Impact Cut		





12. GLOVE & SLEEVE ROLE MATRIX

Impact	ш			_©		z	_©							ı.		
Special	NA NA	GVE	TVB	Ę.		V30	N.	NE NE	NH NH	빌	GL5	<u>ত</u>	G18	T18	ω	99 9
Chemical	STXWPNVB	378GKGVB	378KGTVB	STAGBLPVB	385CS	S15KGV30N	S15KGVNVB	S21TXUFN	S18TAXFN	S13FRNE	399GKGL5	370CTIG	PXN/KG18	KBKB1T18T	KTAG18	SLPD16E
Palm Coated	ST	37	37	S	38	S	જ	SS	જ	જ	39	37	<u>g</u>	五	도	SI
Welding / Heat		Ma	111	AMA	P38/8		,000	. Ma	980	044	1111	MA	4		-	
Sleeves	6		Very			175			- SOO		4					
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Primary Glove	7 - 12	6 - 12	6 - 12	7 - 12	8 - 10	7 - 11	7 - 11	5 - 12	6 - 12	5 - 11	7 - 12	7 - 11	S/M - L/XL 18"	2XS - 2XL 14" - 22"	L, 18"	L, 16"
						ADM	INISTRA	TION								
Mill Managers and Visitors									•						•	
						YARD	LOG &	PREP								
Scalehouse Operators	•	•	•	•					•							
Log Scalers and Graders / Log Yard Managers	•															
Loader Operators	0	•	•	•					•						•	
Yard Utilities		•			0											
						5	AWMIL	L								
Cut Off Operators	•		•													
Debarker Operators	•		•													
Sawyers (Decanter or Head Saw / Resaw)									•							
Chippers						②										
Board Edger Operators	0	•	•	•												
Trimmers (Double Edge Trim Operators)							•		•							
Lumber Graders	0	•	•	•					•						•	
Sorter Operators / Lumber Handlers (Green Chain)	•															
Sticker / Strip Operators	•	•	•	•					•						•	
Stackers / Restackers	0					0										
						MAI	NTENAI	NCE								
Saw Filers						•		0	•		•		•			
Electricians										•						
Mechanics	•			•			•		•		•		•			
Millwrights											•					
Planer / Molder Technicians	٥					٥			•						•	
							DRY									
Lumber Dippers						•	•									•
Energy Plant Operators / Power Engineers		•	•													
Kiln Tender / Operators		•	•											•		
						PLA	NING N	11LL								
Tilt Hoist Operators	•								•						•	
Spacer / Strip / Sticker Movers																
Planer / Molder Feeder Operators		•	•	•					•						•	
Trimmers (Double Edge Trim Operators)									•							
Lumber Graders		•							•							
Sorter Operators / Lumber Handlers (Sort Chain)		•							•							
Stacker Operators		•				•	•									
							D TREA	TING								
Wood Treaters						•	•									•
Pandara /\\\		^				S	HIPPING	G								
Banders / Wrappers Lumber, Wood Chip, Sawdust,		•														
Bark, and Hog Fuel Shippers																



13. GLOVE RECOMMENDATIONS





TENACTIV™ STXWPNVB | 7 - 12

Breathable waterproof and windproof gloves with high cut resistance and micropore nitrile palm coating for better wet grip

















Arc flash-rated multi-hazard gloves in premium leather

















ENDURA® 378KGTVB | XS - 3XL

Cold weather multi-hazard protection















TENACTIV™ STAGBLPVB | XS - 3XL

Leather ErgoHyde palms and extreme cut resistance













ENDURA® 385CS | M - XL

Hi-viz gloves that can halt a chainsaw's drive sprocket on contact







CHEMSTOP™ S15KGV30N | 7 - 11

Cut-resistant PVC gloves with nitrile palm coating plus heat protection up to 140°C / 284°













CHEMSTOP™ S15KGVNVB | 7 - 11

Hi-viz nitrile gloves with Level 2 impact resistance













TENACTIV™ S21TXUFN | 5 - 12

World's thinnest silicone-free glove with maximum cut protection



















TENACTIV™ S18TAXFN | 6 - 12

Hi-viz ultra-thin gloves with excellent sense of touch and foam nitrile palm coating for better wet grip















DEXTERITY® S13FRNE | 5 - 11

Arc flash-rated plus heat protection up to 80°C / 176°F and neoprene palm coating for grip



















ENDURA® 399GKGL5 | S - 3XL

MIG welding gloves with heat protection up to 200°C / 392°F and 6" cuffs for added wrist and forearm protection

















Everyday TIG welding gloves











CONTENDER™ PXN/KG18 | S/M - L/XL, 18"

Arc flash-rated sleeves with high cut protection









CONTENDER™ KBKB1T18T | L, 18"

Black cut-resistant sleeves with heat protection up to 140°C / 284°F











TENACTIV™ KTAG18 | L, 18"

Cut-resistant sleeve that is cool to the touch





SUPERIOR® SLPD16E | L, 16"

White protective sleeves that resist chemicals, oils, and grease





14.1 FULL TIME GLOVE USE

Experience has shown that when workers wear gloves, they are better protected from other incidental hazards like slivers and abrasive or sharp surfaces.

Gloves should only be removed when they can cause entanglements or other hand injuries in accordance with hazard assessments, SWP, SJP, or manufacturer/supplier operating instructions.



14.2 COMFORT AND FUNCTIONALITY FACTORS

Comfort and functionality factors are important to workers and directly impact their use of gloves directly and should be part of the evaluation to determine gloves that are appropriate for workers. These factors include fit, grip, breathability, flexibility, tactile sense, dexterity, and touch screen compatibility. If a worker's gloves lack these factors, workers may be inclined to remove their gloves or not wear their gloves and expose their hands to hazards unnecessarily. Glove trials are a helpful step in finding the rights gloves especially with regards to comfort and functionality.

14.3 HAZARD PROTECTION STANDARDS

Worldwide, there are two cut standards: the American ANSI 105-2016 standard and the European EN388 standard. Many employers and workers may be unfamiliar with these standards.

The following guide to standards can help employers and workers identify glove performance as it relates to task hazards. The five main glove performance guidelines cover cut, impact, heat, abrasion, and puncture.



Cut Test

A glove's ability to protect against cuts and lacerations is tested using ASTM F2992-15 as required by the ANSI/ISEA 105-2016 standard.



Impact Test

A glove's ability to protect hands against impact injuries is tested using the ANSI/ISEA 138-2019 standard.



Heat Test

Rates the glove material between level 1 (under 176°F) and level 5 (608°F). While the test stops at 608°F, the glove may have higher thermal protection.



Abrasion Test

A glove's ability to protect hands against injury from abrasions is tested using ASTM D3389 as required by the ANSI/ISEA 105-2016 standard.



Puncture Test (Hypodermic needle)

A glove's ability to protect hands against fine puncture injuries (e.g. hypodermic needles) is tested using ASTM F2878 as required by the ANSI/ISEA 105-2016 standard.



Puncture Test (Probe)

A glove's ability to protect hands against large puncture injuries (e.g. screws and nails) is tested in accordance with clause 6.4 of EN 388:2003 as required by the ANSI/ISEA 105-2016 standard.



14.4 GUIDE TO ANSI & ASTM RATINGS



Cut Resistance | Which Cut Level do | Choose?



















NUISANCE Cut Hazards

200 - 499 grams to cut

Paper Cuts, Material Handling Parts Assembly

IOW **Cut Hazards**

500 - 1,499 grams to cut

Material Handling, Small Parts Handling, General Purpose, Warehouse, Construction

MODERATE Cut Hazards

1,500 - 2,199 grams to cut

Bottle & Glass Handling, Drywalling, Electrical, HVAC, Automotive Assembly, Metal Handling

Cut Hazards

2,200 - 3,999 grams to cut

Sharp Metal Stamping, Metal Recycling, Pulp & Paper, Automotive, Aerospace Industry, Meat Processing

EXTREME Cut Hazards

4,000 - 6,000+ grams to cut

Sharp Metal Stamping, Butchering, Pulp & Paper, Oil & Gas. Industrial Pipe Fitting, Sheet Metal. Steel Cable Handling, Food Processing

Abrasion Resistance | Which Abrasion Level do | Choose?

Coated gloves provide better grip in wet and dry conditions and let your hand move more freely than a leather glove. But if you're dealing with high abrasion like pulling ropes, palm coatings may wear down too

Leather gets a bit of a bad wrap. But when it comes to abrasion resistance, leather is amazing. It will protect your hands, take a beating, and will have a longer lifespan than a coated glove

The best thing about glove innovation is that you get the best of both worlds. Like our Clutch Gear® Goatskin Mechanics Glove. It features nylon backing for freedom of movement and a double leather palm for amazing abrasion resistance

Tested at 500g of Force



> 100

Abrasion

Revolutions





> 3.000 Abrasion Revolutions

Tested at 1,000g of Force

> 10.000 Abrasion

> 20.000

Puncture Resistance | Which Puncture Level do | Choose?

Most puncture gloves only protect the palm area of the hand, which is okay for many applications — just be aware of this. Full-coverage puncture gloves are available, but they tend to be more expensive and offer less comfort and dexterity.

ASTM F2878: Fine object puncture threat



> 2 Newtons of Puncture



> 4 Newtons of Puncture



Newtons



Newtons of Puncture



> 10 Newtons of Puncture





> 500 Abrasion Revolutions

Revolutions

Revolutions

Abrasion Revolutions







> 6 of Puncture



> 8



> 10 Newtons of Puncture

EN 388:1994: Large object puncture threat



> 20 Newtons of Puncture



> 60 Newtons of Puncture

Glass, Recycling (without risk of needles), Lumber



> 100 Newtons of Puncture

> 150 Newtons of Puncture

Waste Handling, Law Enforcement, Pulp & Paper, Recycling (risk of needles)



Heat Resistance | Which Heat Level do | Choose?

HEAT TESTING

Heat testing measures the conductive heat resistance of a material to determine its thermal insulation properties for contact with hot surfaces.

The glove's rating is determined by the highest contact temperature where time to second degree burn is over 15 seconds and time to pain is over 4 seconds.

STANDARD TEMPERATURE

The standard rates the material between level 1 (under 176°F) and level 5 (608°F). Note: While the test stops at 608°F, the glove may have higher thermal protection

Highest contact temperature (°F) at which both time to 2nd degree burn > 15 seonds and alarm time > 4 seconds



< 176°F

Heat



176°F

Heat

Temperature







284°F

Heat

Temperature



392°F

Heat

Temperature



500°F

Heat

Temperature



Heat

Temperature

Temperature

Impact Resistance | Which Impact Level do | Choose?

ANSI / ISEA 138 is the first impact standard for the North American market and goes above and beyond the requirements in the European standard, EN 388. Under the new standard, both the knuckles and fingers are tested and the lowest impact protection level achieved is the one assigned to the glove. It is the only standard that requires testing be conducted by a third-party in an accredited lab, a first for PPE protection standards.



Mean < 9

All Impacts ≤ 11.3 kN



Mean < 6.5 All Impacts ≤ 8.1 kN



Mean < 4 All Impacts ≤ 5 Kn

These recommendations are of a general nature and are not specific to everyone's needs. Always ensure your selected glove complies with the mandated safety standard recommended for your application.





14.5 WORKING WITH HAZARDOUS SUBSTANCES

If a task includes handling hazardous products or substances, employers and workers must verify that the gloves they intend to wear are appropriate. Because of the potential for material to spill or splash, additional arm or wrist protection may be required.

Refer to the product's safety data sheets (SDS) and exposure control plans (ECP) to understand the hazardous properties and hand PPE requirements.

Chemicals will degrade the material components of gloves, so it is important for workers to inspect their condition for any potential compromises to glove integrity.

Choosing the correct chemical-resistant glove can be a complex process. We intend the following chart as a guideline for the initial evaluation of chemical appropriate gloves. Employers should discuss their glove choices with the manufacturer about getting the right glove.

Ensure workers have the correct size and are correctly donning and removing gloves (without touching a glove's outer surface to avoid contamination). After handling chemicals, they should follow the exposure control plan (ECP) for disposal, decontamination, or cleaning. A best practice is to always wash hands thoroughly before the next task and especially before eating.



14.6 SIZING GUIDE

GLOVE SIZING GUIDE

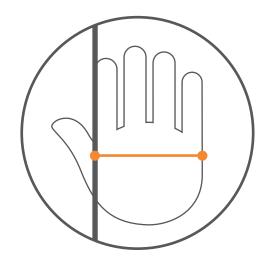
A proper fit is extremely important. An uncomfortable fit causes hand fatigue and ultimately could lead to a potential workplace hazard.

Measure the width of your hand from the base of your first finger and across your knuckles.

5 / 2XS 50 mm / 2 inches 6 / XS 63 mm / 2.5 inches 7 / S 75 mm / 3 inches

88 mm / 3.5 inches

9/L 101 mm / 4 inches 10 / XL 113 mm / 4.5 inches 11 / 2XL 126 mm / 5 inches 12 / 3XL 140 mm / 5.5 inches



SLEEVE SIZING GUIDE

To find the best fit, measure the circumference of your bicep and choose sizing according to the chart below.

Sleeves come in multiple lengths.

2XS 250 mm / 9.75 inches

XS 260 mm / 10.25 inches

S 265 mm / 10.5 inches

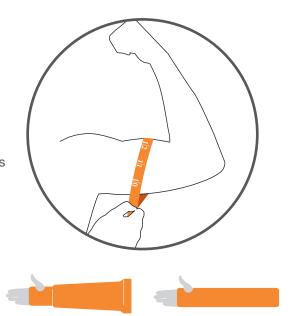
M 280 mm / 11 inches

L 295 mm / 11.75 inches

XL 370 mm / 14.5 inches

2XL 450 mm / 17.5 inches

For a more natural fit, sleeves come in a tapered version which provide better comfort and staying power. Tapered sleeves are designed to fit the contours of your arm and won't lose shape due to stretching









14.7 GLOVE GAUGE GUIDE

A glove's gauge designates the number of stitches per inch in a knitted glove. The higher the number of stitches per inch, the thinner, more dexterous, and flexible the glove becomes.

Our 7-gauge gloves are the coarsest and employ the largest needles to stitch gloves together. In contrast, smaller needles are needed to make our 21-gauge gloves since the yarn used to make them is much thinner. The density/tightness of the knit also increases as they go up in glove gauge.

In general, it used to be that lower gauges were recommended for more safety against hazards since the thicker the glove, the more protection they would provide. Thanks to engineered yarn technology, glove manufacturers are now able to offer protection against multiple types of hazards while still keeping the glove thin and dexterous. Using engineered yarn to make our gloves allows us to offer the same valuable cut protection and durability that used to only be available in lower gauges in thinner, more comfortable dexterous shells.

7 GAUGE GLOVE

7 stitches per inch



21 GAUGE GLOVE

21 stitches per inch



14.8 REPLACING GLOVES

A work glove's longevity depends on the work, the type of glove being used, the materials it's constructed from, and the duration of the task or application.

Wear and tear are the clearest signs for replacement as any area of damage reduces the level of protection. If a knitted glove with a cut rating snags and pulls, for example, it will alter the construction of the glove. The glove may still offer cut protection but not at the original level which increases the chance of injury.

Examples of gloves being worn on work sites that should be replaced and never worn to this level of wear.









14.9 GLOVE LAUNDERING

Our gloves are designed and built to out-perform and out-last the competition—but you can get even more out of your investment with proper care.

Guidelines

For a professional clean, our customer service representatives can recommend the best launderers in your area. If you would rather wash your gloves yourself, keep in mind that different materials require different treatments. The following are general guidelines for laundering different materials that you can use to extend the useful life of your gloves.



TENACTIV™ OR DYNEEMA®

TenActiv™ and Dyneema® can be washed, dry cleaned, or bleached, all without affecting the materials' specific properties. You may wash and re-use the gloves multiple times as standard detergents, ammonium, sodium hydroxides, and hydrochloric acids are not known to affect the performance of the fiber.

Washing:

- 1. Wash in cold water of 104°F/40°C or less only
- 2. Tumble dry with low or no heat

One limitation of fibers such as these is hot temperatures—the fibers will not withstand temperatures (wet or dry) over 291°F/144°C



PARA-ARAMID

The cut-resistant qualities of aramid materials are inherent and remain unchanged over the life of the glove. Para-aramids can be washed over and over with no effect on shrinkage, weight loss, or changes in tensile strength.

Detergent Wash:

- 1. Use approximately five pounds of commercial laundry soap or detergent per 100 pounds of para-aramid
- 2. Wash in hot water (170°F/75°C)
- 3. Wash for 20 minutes
- 4. Rinse with hot water
- 5. If necessary, repeat steps 3 and 4
- 6. Rinse in cold water
- 7. Tumble dry for 35 minutes at 155°F/70°C

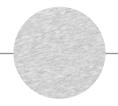
Dry Clean:

- 1. Pre-wash using perchloroethylene for 5 minutes
- 2. Drain
- 3. Wash for 20 minutes using perchloroethylene and twelve ounces of anionic surfactant per 100 pounds of Kevlar®
- 4. Tumble dry at 140°F/60°C or less

While resistant to many chemicals and solvents, para-aramids must never be bleached (oxygen 'bleach' can be used in place of chlorine bleach)



LAUNDERING OTHER MATERIALS



COTTON/POLYESTER

- Wash with warm water (105°F/40°C) and regular detergent
- 2. Tumble dry at medium heat



NYLON

- Wash with warm water (105°F/40°C) and regular detergent
- 2. Tumble dry at low or no heat



W00L

- 1. Only use cold water (70°F/20°C or less)
- 2. Gently wash with a mild detergent
- 3. Tumble dry at low or no heat



LEATHER

- 1. Always dry clean leather
- 2. Think of leather as much like your own skin (it is in effect an animal's skin); soap and water will remove leather's natural oils and cause the gloves to become stiff and brittle



COATED

- 1. Wash in cold water (85°F/30°C or less)
- 2. Use a mild detergent
- 3. Tumble dry at low or no heat
- 4. Bleach is not recommended

Tips:

- When washing palm coated gloves, you can turn them inside out to tumble dry or air dry
- If you are washing your gloves with your other work clothes, be sure to not cross contaminate and clean appropriately to all laundering requirements

Cost Savings

If you're using gloves made from high-quality leather, TenActiv™, Dyneema®, or para-aramids, laundering your gloves can significantly increase their lifecycle and result in substantial cost savings without impeding performance.





