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The top considerations
for lab glove selection:

Protection, Precision and Comfort

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The top considerations for lab glove selection: Protection, Precision and Comfort

Gloves are one of the most critical elements of personal protective equipment (PPE) in a lab environment. Not only do they protect scientists and researchers from known and unknown risks, they also protect the scientific process.

Consider these statistics:

- Wearing gloves has been proven to reduce the relative risk of injury by 60%.¹
- 30% of people who experienced a hand injury were wearing the wrong type of glove.²
- The indirect costs of an injury can be 4-10 times the amount of direct medical costs.³
- The average time off work for a hand injury is six days.⁴

The anatomy of the hand is complicated. With bones, tendons, nerve fibers and blood vessels protected by a thin layer of muscle and fat, hands are especially vulnerable to injury. This makes the task of selecting the correct glove an important and challenging consideration. According to *Health & Safety International*, “even small deficiencies in glove design may reduce grip, strength and manual dexterity.” The glove must also be well-suited for the intended purpose without compromising protection, precision or comfort.

For example, thicker gloves may provide the right level of chemical protection, but they can reduce dexterity and impact the user’s ability to perform a specific task. As a result, scientists may select thinner alternatives, providing adequate dexterity,

Glove use is proven to reduce injury risk by

60%¹

but compromising on protection or even requiring more frequent replacements. Worse still, they may choose to not wear gloves at all, risking injury or chemical exposure.

Effective glove selection respects the balance between protection, precision and comfort, while being suitable for the end-use application.

These three attributes are critical, but are challenging to realize through a single hand protection solution.

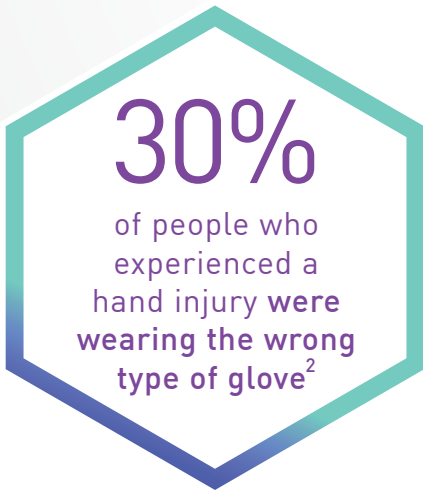
Glove Selection Criteria

On first inspection, many choosers of hand protection solutions might find it difficult to distinguish between the myriad of options available.

Not all gloves can protect the integrity of your science and the safety of your scientists. Appearances can be deceiving which makes it crucial to perform an adequate risk assessment prior to selecting the desired solution.

Important considerations for glove selection include the following criteria:

- **Protection.** Laboratory workers are regularly exposed to a range of chemical agents. According to an international safety study, 21 percent of respondents indicated that they had



been injured on more than one occasion in the lab.⁵ And, in a recent laboratory PPE poll, 85% of respondents said that compliance – getting people to protect themselves from exposure to chemicals or bloodborne pathogens – was their biggest challenge.⁶ This highlights the important role protection plays in glove selection. But protection is not one-size-fits-all. You also need to determine the level of protection required based on the use case. Here are some questions to ask:

- Is protection against a wide range of lab chemicals required, including cytotoxic drugs?
- Do the gloves need to offer chemical splash protection or full immersion protection?
- Are they manufactured using materials that reduce the risk of allergic reaction?
- Are tasks requiring high levels of durability performed – do they protect against injuries such as punctures and lacerations from broken glassware?

If the answer to all of these questions is “no,” continue your search. If the answer to all is “yes,” you can check the protection box. Now, it’s time to move on to the other two key considerations.

- **Precision.** Good ergonomics are crucial for glove performance and meeting user needs. Routine laboratory procedures such as pipetting,

working with microscopes, operating microtomes, and using cell counters and video display terminals can put researchers at risk for repetitive motion injuries. These injuries develop over time and occur when muscles and joints are stressed, tendons are inflamed and nerves are pinched and blood flow restricted.⁷

Select gloves with precision characteristics that reduce the risk of muscle fatigue and injury and promote good wet and dry grip.

Gloves that provide good grip can help prevent repetitive-type injuries such as tendonitis by requiring less force from the fingers to do the task.⁸ That’s why it’s essential to select gloves with precision characteristics that reduce the risk of muscle fatigue and injury and promote good wet and dry grip. For a lab environment, look for gloves that are thin, yet protective, and offer tactile sensitivity and enhanced dexterity through features such as textured fingertips.

- **Comfort.** Glove discomfort has been linked to reduced compliance and increased risk of injury, according to an article in *Health & Safety International*. The article further states that “uncomfortable glove materials may reduce blood circulation, cause numbness, limit finger and hand motion, cause muscle fatigue and reduce work performance.” Therefore, it becomes essential to consider a glove solution that applies ergonomic principles during the design stage, based on the needs and characteristics of the intended use.⁹ One method to ensure this is to select gloves that offer certified ergonomic comfort.

Gloves and sustainability

Because of their prevalence in labs and the fact that workers can go through several pairs in the course of a day, gloves are a big contributor to a lab's solid waste stream. For example, if a lab worker changes their gloves three times per day, that equates to 30 gloves per week or over 1,500 gloves per person per year, an amount equal to about 17 pounds. If a worker is double-gloving, the amount is even higher – over 30 pounds of gloves per worker, per year – an amount of waste that can really add up.

For example:

- An audit conducted by the University of Washington found that 22% of its research waste consisted of nitrile gloves.
- A University of California Santa Cruz laboratory waste assessment found that nitrile gloves made up a majority of laboratory waste destined for the landfill.

To reduce waste, look for a manufacturer-led program that diverts used gloves from the landfill through recycling.



There are solutions to help address this. Look for a manufacturer-led, auditable program that diverts used gloves from the landfill through recycling. The RightCycle™ Program from Kimberly-Clark Professional is one such program. Since 2011, it has enabled large global corporations, research facilities, universities, nonprofits and a range of businesses to collect their used nitrile gloves (as well as safety glasses and single-use apparel items) and have them turned into new plastic products and consumer goods. To date, the program has diverted more than 1431 metric tons of waste from landfills.

With a program like this, safety and sustainability truly do go hand-in-hand.

For more information about choosing hand protection that checks all the boxes for precision, protection, comfort and sustainability, visit www.kimtech.com.

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