

SECURITY MEMO

April 3rd, 2023 - Selection of Protective Gloves



Did you know?

Protective gloves

With 21 muscles and various nerves in each hand, our hands are essential tools in our daily lives. Hand-related injuries account for more than a quarter of all workplace injuries¹. After engineering techniques and administrative measures have been implemented, the wearing of protective gloves is the last risk control method and must be combined with a risk analysis to be valid.

Glove selection

The structure of the glove lets the various types be easily classified into four categories² (figure 1). However, a glove cannot be chosen only on the basis of its structure. It is necessary to identify the materials that are effective in relation to the risks identified for the performance of the task and perform an inspection before each use. Gloves that are worn, cut, ripped, or otherwise damaged will not provide protection and should be replaced.

Cutting Risk

The risk of getting cut is very common in the workplace and should not be underestimated. Kevlar® and Spectra® knitted gloves offer excellent cut resistance. Metal mesh gloves are also an option, but may limit dexterity.

Chemical or Biological Risk

There is no single protective glove that can deal with all chemical and biological hazards. Disposable nitrile or latex gloves are widely used, but they offer temporary and limited protection. Research is needed to find the right thickness, shape and material of gloves against the substances concerned.

Thermal Hazard

Hot or cold, our hands must be protected from high and low temperatures. Thermal gloves are often made of air-trapping materials to thermally insulate the hand or innovative materials with very low thermal conductivity such as ZetexPlus®. Aluminized materials are preferred for heat transfer by radiation. As basic protection, three-sided polyester gloves are often used, but offer limited protection normally between -25°C (77°F) and 65°C (149°F).

Electrical Risk

Working under voltage is dangerous and requires the use of insulating gloves. Rubber gloves are the standard for electrical hazards. Several standards such as ASTM D120-14 regulate and certify these protective gloves. They must be carefully inspected and pass the dielectric test at least once every six months. The use of leather over-gloves is recommended to limit the premature wear of rubber gloves.

Multiple Risks

When a task presents several risks simultaneously, protection against each of the risks is necessary. The use of multi-layered gloves or two gloves is often a good mechanism for protection. Nitrile-coated Kevlar® gloves are a good example of gloves for protection against mechanical and chemical hazards.



Figure 1: general image of safety gloves

Steps to Selecting Appropriate Gloves

- Analysis and assessment of unavoidable risks
- Identification of the features required of gloves according to the risks and the execution of the task
- Assessment of available relevant gloves
- Choice of gloves (interactive tool available)
- Introduction of gloves to users
- Control and maintenance
- Periodic re-evaluation of glove selection

¹ Statistics Canada, Health Reports, Vol.18, No.3. 29 Nov. 22.
<https://www150.statcan.gc.ca/n1/fr/pub/82-003-x/2006007/article/injuries-blessures/10191-fra.pdf?st=rcvFLwvZ>

² IRSST, Document d'information pour la sélection de gants de protection contre les risques mécaniques. 29 Nov.22
<https://www.irsst.qc.ca/gants/fr/InfoDocu.pdf>

