Glove Selection Guide

Summary: Use this checklist to choose the appropriate type of protective glove for your job. The Glove Selection Chart also provides advantages and disadvantages for specific glove types. This guidance was prepared for laboratory researchers but may also be helpful for other people working with hazardous materials.

What to do	How to do it
1. Identify the hazards of the material(s) you'll be working with.	1. Base selection of glove type and material on the type of exposure and nature of the hazard. Some chemicals can easily penetrate gloves that work very well for other chemicals. **Consider these factors:** • Chemical type • Temperature extremes, cryogenic properties • Physical hazards (sharps, piercing objects) • pH • Toxicity • Infectious potential of biological hazards 2. **Read the** Safety Data Sheets (SDSs) for each chemical involved.
2. Determine if you'll have incidental or extended contact with the hazardous materials.	1. **Incidental contact** (little or no direct contact with the hazardous material) includes these situations: • Accidental spills or splashes • Accidental overspray from a dispensing device • Handling infectious agents that require barrier protection • To prevent contamination of materials during handling If you will have incidental contact, go to the Step 3. 2. **Extended contact** includes these situations: • Handling highly contaminated materials • Submerging hands in a chemical or other hazardous substance • Need for physical protection from temperature extremes or sharp/piercing objects If you will have extended contact, go to Step 4.
3. For incidental contact, follow these selection guidelines.	1. Type of glove: Disposable, surgical-type gloves are appropriate for incidental contact. 2. Nitrile gloves are preferred over latex because of their chemical resistance, their tendency to visibly rip when punctured, and to prevent possible latex allergies.

	See the Glove Selection Chart below for advantages and disadvantages of commonly used surgical-type gloves. 3. Disposable glove usage: • Check for rips or punctures before use. • Remove and replace gloves immediately with new ones when a chemical spills or splashes on them. • Never wash or reuse disposable gloves. • Always remove glove before touching common objects such as doorknobs, phones, or elevator buttons.
4. For extended contact, follow these guidelines.	1. **Type of glove:** More substantial gloves are required for extended use. Norfoil gloves are recommended for highly toxic materials and materials that are absorbed through the skin. See the Glove Selection Chart below for advantages and disadvantages of commonly used gloves for extended contact. 2. **Reusable glove usage:** Many gloves intended for extended contact are reusable. Check the gloves for: ▪ Rips or punctures before and after each use ▪ Prior contamination ▪ Signs of degradation (change in color or texture) ▪ Replace gloves as soon as signs of degradation appear. ▪ Wash after removal and air dry in the laboratory. ▪ Consider wearing inner surgical gloves for extra protection.
5. Dispose of used and damaged gloves according to whether or not they're contaminated with a hazardous material.	1. Follow the appropriate guidelines below: • **No contamination:** Place in regular lab trash. • **Radioactive materials:** See the EHS web page. • Chemical contamination: See the EHS web page. • Biohazardous materials: See the EHS web page. **ALWAYS wash your hands after removing gloves.** **Watch a short video on correct hand washing.**

Once selected, glove use requirements for your lab should be posted in your Chemical Hygiene Plan under the **Standard Operating Procedures section.**

Questions about glove selection?
Please contact the Office of Environment, Health and Safety at x82565

Glove Comparison Chart

Summary: Consult this chart for an overview of commonly used glove types for laboratory use and their general advantages and disadvantages.

Read: Glove Selection and Usage above for more information on how to select the right glove for a job.

Once selected, glove use requirements for your lab should be posted in your Chemical Hygiene Plan under the Standard Operating Procedures section. Questions about glove selection? Please contact EHS x82565.

Note: These photos are examples. Glove colors and appearances will vary. Many other models are commercially available in each glove category. EH&S does not intend inclusion of any specific glove to be an endorsement.

Glove material	Intended use	Advantages and disadvantages	Example Photos
Latex (natural rubber)	Incidental contact	Good for biological and water-based materials. Poor for organic solvents. Little chemical protection. Hard to detect puncture holes. Can cause or trigger latex allergies	
Nitrile	Incidental contact (disposable exam glove) Extended contact (thicker reusable glove)	Excellent general use glove. Good for solvents, oils, greases, and some acids and bases. Clear indication of tears and breaks. Good alternative for those with latex allergies.	
Butyl rubber	Extended contact	Good for ketones and esters. Poor for gasoline and aliphatic, aromatic, and halogenated hydrocarbons.	

Neoprene	Extended contact	Good for acids, bases, alcohols, fuels, peroxides, hydrocarbons, and phenols. Poor for halogenated and aromatic hydrocarbons. Good for most hazardous chemicals.	
Norfoil	Extended contact	Good for most hazardous chemicals. Poor fit (Note: Dexterity can be partially regained by using a heavier weight Nitrile glove over the Norfoil/Silver Shield glove.	
Viton	Extended contact	Good for chlorinated and aromatic solvents. Good resistance to cuts and abrasions. Poor for ketones. Expensive.	
Polyvinyl chloride (PVC)	Specific use	Good for acids, bases, oils, fats, peroxides, and amines. Good resistance to abrasions. Poor for most organic solvents.	

Polyvinyl alcohol (PVA)	Specific use	Good for aromatic and chlorinated solvents. Poor for water-based solutions.	
Stainless steel **Kevlar** **Leather**	Specific use	**Cut-resistant gloves.** Sleeves are also available to provide protection to wrists and forearms. (If potential for biological or chemical contamination: wear appropriate disposable gloves on top of your cut-resistant gloves and discard after use).	  

Cryogenic Resistant Material **Leather**	Specific use	For use with cryogenic materials. Designed to prevent frostbite. Note: Never dip gloves directly into liquid nitrogen.	

Additional Resources

Summary: Use these additional resources for information on specific chemicals or glove materials.

Chemical compatibility and permeation charts

- AnsellPro.com
- Environmental Protection Agency (Guidance for pesticide use)

Vendor Web sites

- Fisher Scientific
- Lab Safety Supply Inc. (now is Grainger)
- Kimberly-Clark Professional
- MAPA Professional
- Honeywell Safety Gloves
- SHOWA Gloves
- VWR Gloves

Latex information

- NIOSH Alert: Preventing Allergic Reactions to Natural Latex Rubber in the Workplace (June 1997)
- NIOSH's Latex Allergy Prevention Guide

Other types of personal protective equipment (PPE)

- Cole-Palmer Instrument Co. (chemical compatibility search page)
- NIOSH Recommendations for Chemical Protective Clothing