



Title Use of Gloves		Author	Date created
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## Guidance on the use of Disposable Gloves

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## Introduction

This guidance has been produced to provide information relating to the use of gloves within St. George's University of London. This policy is designed as a prompt for Heads of Divisions and other staff where personal protection in the form of gloves is required.

The Control of Substances Hazardous to Health Regulations 2002 as amended (COSHH) require the use of chemicals and microbiological agents in the workplace to be controlled. Part of the control may involve the use of gloves. These gloves must comply with the Personal Protective Equipment Regulations 1992 (as amended). This regulation together with EU directives lay down a standard that the gloves must reach in order to be regarded as a protective device.

## Glossary

### ***Breakthrough time***

The amount of time required before a chemical will penetrate to the inside of the glove.

### ***CE Mark***

Mark indicating that gloves have reached a standard defined by the EU.

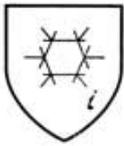
### ***BS EN***

British and European standard for gloves

<b>BS EN 420:2003</b>	General requirements for all gloves (Sizing, product and packaging information and marking, etc.)
<b>BS EN 374-2:2014</b>	Resistance to penetration by micro-organisms
<b>BS EN 374-3:2003</b>	Resistance to chemical hazards
<b>BS EN ISO 374-5:2016</b>	Resistance to Viruses
<b>BS EN 407:2004</b>	Protect against heat and fire
<b>BS EN 455-2:2015</b>	Medical gloves for single use
<b>BS EN 511:2006</b>	Protect against low temperature

More information is available of the SGUL [SHE](#) website.

## Markings on boxes of gloves

STANDARD	PICTOGRAM	DESCRIPTION	RATING
BS EN 374 – 2 Micro-organisms		Resistance to penetration by micro-organisms	1-6
BS EN 374 – 3 Chemical Hazards		Resistance to chemical permeation	1-3
BS EN 374 – 5 Micro-organisms Viruses		Resistance to penetration by micro-organisms	1-6
BS EN 407 Thermal Hazards		a) Burning behaviour b) Contact heat c) Convective heat d) Radiant heat	0-4 0-4 0-4 0-4 0-4
BS EN 455 Medical gloves for single use	No specific marking	Protective gloves, Surgical equipment, Sterile equipment, Disposable, Medical equipment	
BS EN 511 Protection from Cold		a) Resistance to convective cold b) Resistance to contact cold c) Permeability to water	0-4 0-4 0-1

The ratings given relate to how long the gloves will provide protection when immersed in a particular chemical or used for a particular process. The higher the rating the more protection will be offered

Each type of glove has a specific **Breakthrough time** which takes into account the chemical and thickness of the glove and the amount of time the glove will be immersed. This is given by the rating.

Gloves will start to degrade from the moment they are put on the hand. It is inadvisable to rely on the inside of the glove feeling wet as breakthrough may allow sufficient chemical inside the glove to cause skin damage without an appreciable build up taking place. It is

advisable for the gloves to be changed as soon as you notice that a chemical has landed on them as many chemicals are capable of causing burns, skin sensitisation, in some cases dermatitis as well as being toxic.

### Glove Chemical Compatibility

Glove Material	Example	Hazard
Nitrile	<a href="#">Ansell Touch N Tuff</a> <a href="#">Kimberly-Clark Purple Nitrile™</a>	Solvents, greases, dilute acids and bases  These gloves can be susceptible to rather rapid breakthrough by Acetone and will be dissolved by Acetonitrile.  Check before use.
Polyvinyl Alcohol PVA coated	Ansell Chemical Resistant Gloves	Certain aromatic and chlorinated solvents
Viton™	<a href="#">North Safety</a>	Chlorinated, aliphatic and aromatic solvents, aniline, benzene, chloroform  These chemicals have low workplace exposure limits and may have to be used in a fume hood.
Silver Shield™	<a href="#">North Safety</a>	Toxic and hazardous chemicals.  This is a laminate glove designed to prevent chemicals penetrating into the glove
Barrier	Ansell Barrier 2-100	Toxic and hazardous chemicals.  Laminate glove with improved dexterity
Neoprene / Chloroprene	Ansell Neoprene	Acids and bases, peroxides, fuels, alcohols, hydrocarbons, phenols  Be aware that phenols can cause severe skin problems.
Butyl Rubber	<a href="#">Best® Butyl</a>	Organic chemicals, acids, esters, ketones including Acetone, oxidizing chemicals, some corrosive vapours . gases.
Polyvinyl Chloride PVC	<a href="#">Sperian Protection Mainbis 27</a>	Acids base some organic chemicals, oils, fats, amines and peroxides.  Some peroxides are highly reactive and additional protection may be required

These are not recommendations but examples of gloves that can be used in certain

circumstances.

## Glove Materials

**Butyl** A synthetic rubber material that offers the highest permeation resistance to gas and water vapors.

**Neoprene** A synthetic rubber material that provides excellent tensile strength and heat resistance.

**Nitrile** A synthetic rubber material that offers chemical and abrasion resistance-a very good general-duty glove.

**PVC (polyvinyl chloride)** A synthetic thermoplastic polymer.

**PVA™ (polyvinyl alcohol)** A water-soluble synthetic material that is highly impermeable to gases. This glove cannot be used in water or water-based solutions.

**Viton®** A fluoroelastomer material.

**SilverShield®/4H** A lightweight, flexible laminated material.

## Gloves and Dexterity

Many individuals are able to use Nitrile gloves without problems for many types of work.

Molnlycke Health Care's non-latex [Biogel Surgical Gloves](#) are reported to allow fine movements.

If you find that Nitrile gloves do not allow you sufficient dexterity it may advantageous to try these gloves rather than using Latex. As with all gloves it is advisable to try them before use as different people find that they have different reactions to the glove.

## Guidelines for Using Gloves

- Select the gloves that are appropriate to the risks that you face. This should have been determined by the project risk assessment before work commences.
- When handling blood or other human body fluids it is important to choose gloves that have a low failure rate and a small mesh size so that microbes in particular blood borne viruses do not penetrate into the glove.
- Information on glove and chemical compatibility can be obtained from several sites such as [Ansell](#) or [Mapa](#)
- Gloves are sometimes worn to primarily protect the work e.g. reduction RNase contamination however you must ensure that other people must not be contaminated by the chemicals you have used. If samples need to be protected when transporting between laboratories place them in a suitable carry container. Wearing gloves is no guarantee that the sample will be protected as you may encounter people coming in the other direction.
- Gloves should not be regarded as the first line of protection and other methods of protection or control should be tried first.
- The use of Latex gloves **must** be avoided if possible as Latex is a known allergen.
- Make sure that the gloves you are using are of a suitable size. A large number of manufacturers will supply gloves in sizes from XS to XL. A glove sizing chart is available from the [HSE](#).
- If necessary wear two pairs of gloves provided that you can maintain dexterity and comfort.
- Change the gloves as required. All gloves should be changed frequently as they begin to degrade from the moment when they are placed on the hand especially if you are handling strong acids or alkalis.
- Do not attempt to re-use a disposable glove as they are likely to be damaged as you pull them on.
- If the glove has become contaminated or they have begun to leak they should be changed as soon as possible.
- If you have to immerse your hands during a procedure such as electrophoresis you should be aware of the potential for internal glove contamination occurring.
- **Never** wear gloves outside of the laboratory for example to open doors, use telephones, or operate keyboards.
- While some laboratory equipment is computer controlled it is advisable to reduce the likelihood of contamination occurring by removing gloves.
- **Always** take off gloves when moving between laboratories.

- When removing gloves take care not to contaminate yourself or others. A video on the safe removal of gloves is available from the [HSE](#).
- Dispose of gloves via clinical waste and not via domestic bins.
- Always wash your hands after wearing gloves and if necessary use hand-cream as this can aid in the prevention of [dermatitis](#) caused by wearing gloves for long periods.
- If you develop sore, red or itchy hands after using disposable gloves inform your line manager and contact the SHE office for help and information.
- The [HSE](#) has produced a range of posters relating to the use and [removal](#) of gloves.