

Safety Services

Guidance on the Selection and Use of Disposable Gloves

Introduction

1. Protective gloves must be worn for all work involving handling of materials where contact may present a hazard to health and where risk of exposure cannot be avoided through more reliable means of control e.g. elimination, substitution or containment. There are many types of gloves available which vary in their properties and where disposable gloves are used, they must be suitable and appropriate for the task.
2. The use of powdered latex gloves is still prohibited. Where latex gloves are considered to be the appropriate gloves for the task, these must be powder free and low protein; sourced from a supplier who guarantees that they contain <math><50\mu\text{g}</math> latex proteins per gram, and <math><0.1\%</math>w/w residual accelerators. Even with the use of low protein latex gloves there is still a risk to those who are sensitized to latex and those individuals must take advice from Occupational Health.
3. There is anecdotal evidence that some individuals may become sensitive to the alternatives to latex gloves which may be related to the accelerators used in the manufacturing process. However, on balance the risk of developing sensitisation to latex is more firmly established and therefore it is preferable to avoid the use of even low protein latex gloves where possible unless the nature of the work demands a level of manual dexterity than cannot be achieved with the alternatives; the risk assessment must dictate why latex is the glove of choice for the task.

Responsibilities

Principal Investigators and Supervisors

4. The choice of protective glove will be dictated by the risk assessment. Where employees/students need to wear protective gloves, and where latex is the material of choice, this should be indicated in the risk assessment. Principal Investigators and Supervisors must ensure that non-powdered low protein latex gloves are used and that alternatives to latex are always available for the use of sensitised employees/students. Laboratory personnel must be given information about the potential risk of latex allergy as well as the potential risks from the alternative glove material initially at induction and then on a regular basis. Principal Investigators/Supervisors should direct their reportees to Occupational Health if symptoms of glove allergy arise. Where latex gloves are used the [Guidance on Latex](#) must be followed

Employees/Students

5. Employees/Students should report promptly to their manager and to Occupational Health any skin conditions or other allergic response which may arise, and adhere to the advice subsequently given to them regarding the management of their skin condition. Any symptoms indicating possible allergic conditions should always be referred to Occupational Health. Actions that help to keep skin in good condition

include regular use of moisturizers, covering cuts with waterproof plasters, and removing gloves and washing and drying the hands thoroughly at the earliest opportunity. However hand creams or lotions, especially if oil based, should not be used under latex gloves as they cause deterioration of the glove.

Occupational Health Staff

6. Medical assessment of glove users at pre-employment medicals and pre-course health interviews to identify possible "high risk of allergy" users e.g. atopics. (However, it is never possible to predict 100% accurately who will develop an adverse response).
7. Advising person's who are allergic to latex or to substances which cross react with latex, for example, Kiwi fruits, bananas, avocados, chestnuts, mangoes, tomatoes, potatoes, etc. to avoid the use of any latex gloves or other latex-based equipment.
8. On-going health surveillance of identified "high risk of allergy" employees/students as considered appropriate.
9. OH Staff will follow PPE Gloves Protocol & Guidance, Skin & Respiratory Code of Practice & Guidance & other relevant protocols when advising staff/students.

Glove Selection and Use

10. Under the COSHH Regulations, there is an absolute duty to prevent exposure to substances which are hazardous to health. Where this cannot be achieved, exposure must be reduced as far as reasonably practicable. Ideally exposure will not occur by eliminating the use of the hazardous substance(s), or reduced by substitution for less hazardous substances.

Glove Selection

11. Gloves vary in design, material and thickness. No glove will protect against all substances and no glove will protect forever.
12. The COSHH assessment for the use of chemicals will have a bearing on the type of gloves used. Some of the factors to be considered are:
 - The nature of the substances to which exposure might occur
 - The concentration and/or temperature of the substance(s), both of which can affect penetration rates
 - The frequency and duration of contact with the substance(s)
 - The requirement for the glove material to be robust and resistant to physical damage such as tearing or abrasion or where sharps injury risks exist, when using biological materials
 - The need for dexterity and "feel" with the glove on
 - The extent of protection - hand only or wrist and forearm as well

13. At the same time, gloves should not be used as a substitute for good working procedures which, as far as is practicable, should keep contamination well clear of all skin contact including hands.
14. All gloves purchased, whether made of latex or other materials, should comply with appropriate British or European Standards; see [Appendix 1](#) - Summary of Glove Standards.

NB. Gloves used to protect the user against micro-organisms in laboratories must comply with the Personal Protective Equipment Directive (PPE), EN 374 which protect the wearer. They should also have an acceptable quality level of 0.65. Those labelled EN 455 comply with the Medical Devices Directive and are designed to protect the patient.

Glove Materials

15. Chemically resistant gloves come in a variety of materials such as natural rubber, latex, butyl rubber, neoprene, nitrile, polyethylene, PVC, PVA etc. sometimes in combination and in differing thickness and style. Each material protects well against certain substances but poorly against others. The choice of material and its thickness depends on its resistance to permeation taking into account the factors listed above: - commonly, manufacturers' literature and performance tables have to be consulted to find this information.
16. Manufacturers' tables of glove performance often refer to the following indicators:
 - Breakthrough Time ~ the time, in minutes, for a measurable amount of chemical to pass through the glove material, one side of the glove being immersed in that chemical
 - Permeation Rate ~ is a measure of the rate at which a chemical will pass through the gloves; - the units are milligrams per square metre per minute
 - Degradation ~ Loss of physical quality, perhaps becoming brittle or soft. May be measured as change in tensile strength after fixed periods of immersion
 - Useful Time ~ A parameter combining permeation and degradation data.

Consult the relevant Material Safety Data Sheet (MSDS) which may recommend a particular glove material.

Some Rules for Glove Use

17. Select gloves of the correct size and fitting; gloves that are too small are uncomfortable and may tear whereas overlarge gloves may interfere with dexterity. In some cases, such as use of Hydrogen Fluoride (HF), it may be advisable to select gloves that can be removed very rapidly in an emergency.
18. Before use, check gloves (even new ones) for physical damage such as tears or pin-holes and for previous chemical damage: this is especially important when dealing with dangerous materials such as HF.

19. Some gloves, especially lightweight disposables, may be flammable: keep hands well away from naked flames or other high temperature heat sources.
20. Latex gloves of any type should not be used for catering, domestic services or any other work activities where there is no contact with blood or body fluids but substituted with an alternative appropriate glove material and adhere to the general principle of good glove management.

Never wear possibly contaminated gloves outside of the work area or to handle telephones, computer keyboards, etc.

Glove Removal and Disposal

21. Gloves must be removed in a way that avoids contamination of the skin; See [Appendix 2](#) -Glove Removal.
 - Gloves should be changed regularly
 - Wash hands after removing gloves.
 - Gloves must be disposed of via the appropriate disposal route.
 - Do not attempt to re-use disposable gloves.
22. Employees should visually check their own skin and report any problems promptly to their line manager and a referral made to Occupational Health.

Skin Care

- Skin care will help to protect the skin by reducing the effects of exposure. Hands can sweat inside gloves, making the skin over-hydrated (which can lead to dermatitis) and the gloves uncomfortable to wear. Removing gloves for a minute or so before hands get too hot and sweaty, can help air the hands. The gloves should be disposed of and replaced with a new pair.
- Accidental contamination should be washed away promptly.
- Areas of skin that may have been exposed to hazardous substances should be washed immediately. Skin should also be washed at breaks and after work, with warm water and dried thoroughly, preferably with a clean, dry, disposable soft towel.
- Pre-work creams can be applied before starting work or on returning from a break except where latex gloves are used as the cream may cause them to degrade.
- After-work creams should be used to replace the natural oils that the skin can lose when washed or when it comes into contact with detergents.

Training requirements

- Explanation of the risks present and why the gloves are needed
- Performance and limitations of the gloves
- Instruction on the correct selection

- Factors affecting protection – e.g. personal factors, working conditions, incorrect fitting & use and defect, damage and wear
- Recognising defects
- Reporting procedures for defects
- Disposal of used/damaged gloves
- Practice in putting on, wearing and removal of gloves

Bibliography

Managing Skin Exposure at Work. <http://www.hse.gov.uk/pubns/priced/hsg262.pdf>

Skin and respiratory sensitizers

<http://documents.manchester.ac.uk/display.aspx?DocID=11519>

Appendix 1- Summary of Glove Standards

BS EN 374-2	Protection against micro-organisms
BS EN 374-3	Protection against chemicals
BS EN 388	Protection against mechanical hazards
BS EN 407	Protection against thermal hazards
BS EN 421	Protection against ionizing radiation
BS EN 511	Protection against low temperature

Further information will also be shown on the packaging.

- The CE mark is a declaration by the manufacturer that the product meets all the appropriate provisions of the relevant legislation implementing certain European Directives. A four digit number should be present under the CE mark indicating that the manufacturer is audited by a notified body. If there are no digits the manufacturer is self-declaring the gloves credentials.
- A pictogram will be accompanied by a sequence of numbers indicating the product's performance in the various tests of the particular standard indicated by the pictogram.

The pictograms indicate protection from the following hazards:



micro-organisms



chemicals



cold



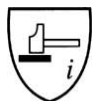
impact cut



static electricity



Thermal



mechanical



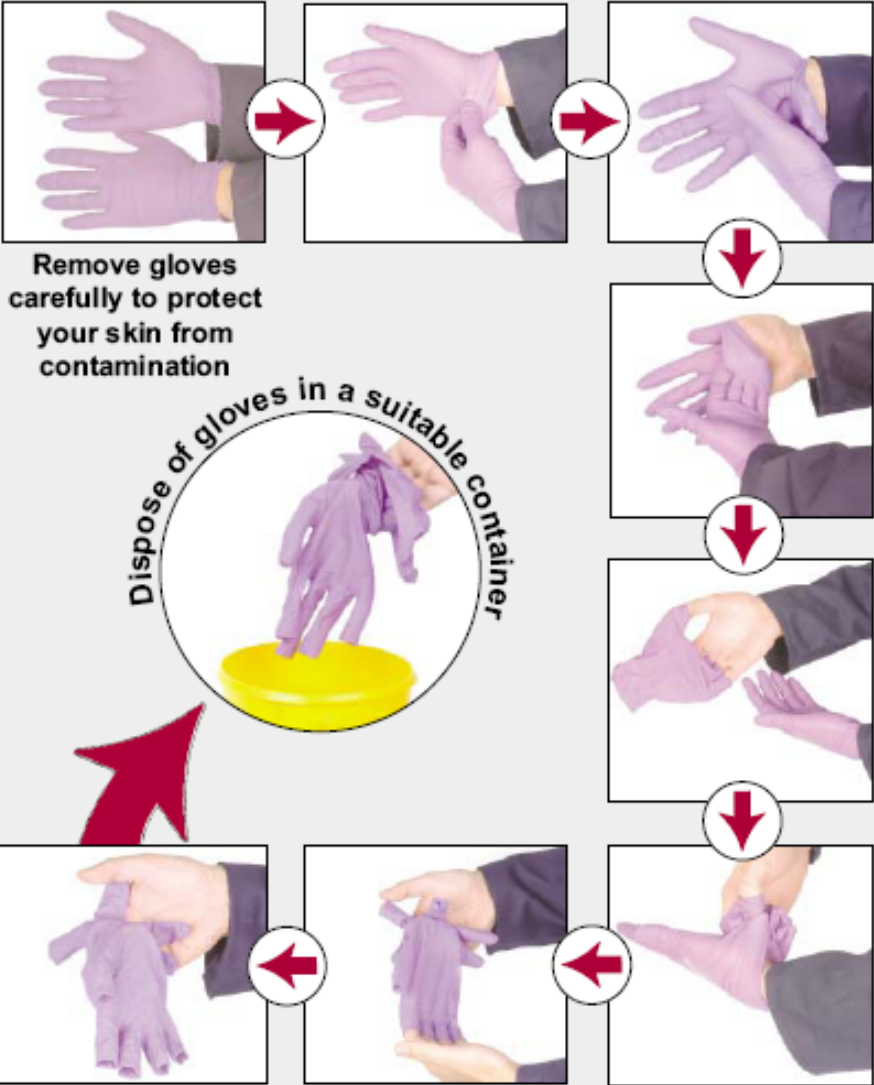
ionizing radiation



Correct removal of gloves

Single use gloves (splash resistant)

Follow the steps shown



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