



Laboratory Gloves and Latex Allergy

 UNIVERSITY OF ABERDEEN	Laboratory Gloves and Latex Allergy	Document No.	HS-GN-016
		Date	14.06.23
		Pages	2 of 6
		Revision	Rev 1


Revision Record

Issue	Date	Reason for Review
Draft 1	July 2023	Due for review & transferred onto new document template

 UNIVERSITY OF ABERDEEN	Laboratory Gloves and Latex Allergy	Document No.	HS-GN-016
		Date	14.06.23
		Pages	3 of 6
		Revision	Rev 1

Contents

1.0	Purpose of the Guidance	4
2.0	Scope of Guidance	4
3.0	Latex Allergy and Other Health Problems.....	4
4.0	Using Gloves Which Do Not Contain Latex	5
5.0	Using Latex Gloves	6
6.0	Protection From Chemicals.....	6

 UNIVERSITY OF ABERDEEN	Laboratory Gloves and Latex Allergy	Document No.	HS-GN-016
		Date	14.06.23
		Pages	4 of 6
		Revision	Rev 1

1.0 Purpose of the Guidance

Latest guidance from the Health and Safety Executive is that laboratory workers should not wear latex gloves if suitable alternatives are available.

Schools should ensure that:

1. Those who use gloves are aware of the allergic reactions which can result from the wearing of latex gloves
2. Wherever possible, gloves which do not contain latex are used
3. Where single-use disposable latex gloves must be used, the gloves which are provided are powder-free and hypoallergenic (that is with a low extractable protein content which is less than 50 micrograms/gram).

2.0 Scope of Guidance

This guidance applies to all activities carried out by the University of Aberdeen and all staff, students and visitors who are required to wear gloves as part of their activities.

3.0 Latex Allergy and Other Health Problems

There was a steady increase in the number of reported cases of asthma and skin complaints attributed to latex during the 1990s, particularly in health care and bioscience laboratories.

There were a number of reasons for this, including:

- increased awareness of the problem leading to increased reporting of cases
- increased use of latex gloves following concerns about blood-borne viruses
- the purchasing by many organisations of cheaper powdered latex gloves with high levels of extractable proteins

Latex exposure can lead to a number of health problems including:

Type I allergic reaction

Symptoms include:

- localised or generalised rash (urticaria or hives)
- inflammation of the mucous membranes in the nose (rhinitis)
- red and swollen eyes with discharge (conjunctivitis)
- asthma-like symptoms

It is now well established that latex allergy is caused by contact with certain proteins in the latex. Repeated contact over a period of time can result in an individual becoming sensitised. The time

Document No.	HS-GN-016
Date	14.06.23
Pages	5 of 6
Revision	Rev 1

and extent of exposure required for sensitisation varies from person to person. (It can vary from weeks to years.) Once someone has been sensitised, contact with a small amount of latex protein can result in the symptoms of the allergy appearing very quickly. The process of sensitisation is usually irreversible - an individual is sensitised for life. In rare cases it may result in a very severe reaction known as anaphylactic shock.

Wearing gloves can also lead to:

Irritant contact dermatitis

Symptoms include redness, soreness, dryness or cracking of the skin in areas exposed to the glove. This type of reaction is not an allergic reaction to the latex proteins. It can be due to a number of factors including the washing of hands with detergents before or after wearing gloves and the drying effects of powders used with some gloves along with sweating or rubbing under the gloves. The symptoms never extend beyond the margins of the gloves.

Once the irritant agent has been identified and contact with it ceases, the symptoms will disappear and not recur.

Type IV allergic reactions

Symptoms include dermatitis and itching with oozing red blisters, which are usually localised to the hands and arms. These occur between 10-24 hours after exposure and can get worse over the next 72 hours. This is an allergic response to the chemical additives, known as accelerators, used in the manufacturing process and not to the proteins in the latex. Type IV allergic reactions can also occur with gloves made from other materials, such as nitrile, if the accelerator content is high. At present only a few manufacturers state which accelerators they use in the manufacture of their gloves and the residual levels in the gloves so it is difficult for users to compare different gloves.


Laboratory workers who experience skin problems which they think might be due to the wearing of gloves should seek help from the University's Occupational Health Service with the diagnosis of the condition and advice on possible solutions.

4.0 Using Gloves Which Do Not Contain Latex

Because of the problems of latex allergy, the latest advice from the Health and Safety Executive is that latex gloves should be avoided completely unless there are compelling reasons for using them.

In the laboratory, because of the physical properties of latex, disposable latex gloves are often still the preferred gloves to protect wearers against infection. For many purposes however, gloves made from other materials such as nitrile can and should be used. (As the standards of manufacturing of gloves made from alternatives to latex improve, the arguments for using latex are diminishing.)

Schools should ensure that alternatives to latex gloves are available in laboratories and that laboratory workers understand the circumstances in which different types of gloves should be used.

 UNIVERSITY OF ABERDEEN	Laboratory Gloves and Latex Allergy	Document No.	HS-GN-016
		Date	14.06.23
		Pages	6 of 6
		Revision	Rev 1

5.0 Using Latex Gloves

Single use disposable gloves are a particular concern because of the close contact between the glove and the hand.

Because of the concerns about latex allergy, where single use disposable latex gloves must be used in the laboratory, the gloves which are provided should be powder-free and hypoallergenic (that is with a low extractable protein content which is less than 50 micrograms/gram).

Natural latex contains latex proteins. During the manufacturing process for gloves the latex is refined and some, but not all, of the proteins are removed. Cheaper gloves are often made from latex which is less refined and contains higher levels of proteins than more expensive gloves. Corn starch powder is often dusted on the inside of cheaper gloves to make them easier to put on and take off. The latex proteins then attach themselves to the powder and are then transferred more easily to the skin. Studies have shown a substantially higher incidence of latex allergy among users of powdered latex gloves when compared with users of powder-free latex gloves.

The link between latex allergy and the use of cheap powdered gloves is now well established beyond doubt. As well as promoting the transfer of latex proteins to the skin, glove powder can also become airborne when gloves are removed. The dust, with the proteins attached, can then be inhaled by others in the laboratory.

Note: As well as prohibiting the use of powdered latex gloves, Schools should ensure that laboratory workers do not bring their own powder (such as talcum powder) to the laboratory to dust the powder-free gloves which are provided with a view to making it easier to put them on and take them off.

Latex gloves should have a protein content less than 50 micrograms/gram. If the manufacturer describes a glove as "hypoallergenic" or "low protein" but does not quote the protein content, the glove should be avoided.

6.0 Protection From Chemicals

Laboratory workers should be aware that disposable gloves provide only minimal protection against chemicals and in some cases provide no protection at all. If gloves are being used with chemicals, checks should be made to ensure that the gloves will provide adequate protection. A fatal accident occurred in 1997 to a researcher in the USA. Her death occurred as a result of a single exposure to dimethylmercury. She spilt one or several drops of dimethylmercury estimated to total 0.1ml to 0.5ml on her disposable latex gloves during a transfer procedure in a fume hood. During tests conducted after the incident it was found that maximum permeation of the chemical through the glove took place in 15 seconds.