

Statutory Instrument 2000 No. 2831

**The Genetically Modified Organisms (Contained Use) Regulations 2000**

Schedule 8

Containment Measures

Part II

Table 1a: Containment Measures for Activities Involving Genetic Modification of Micro-organisms in Laboratories

	Containment Measures	Containment Levels			
		1	2	3	4
12	Protective clothing	suitable protective clothing required	suitable protective clothing required	suitable protective clothing required; footwear required where and to extent the risk assessment shows it is required	complete change of clothing and footwear required before entry and exit

**Note:** bacteria, TC cell lines, etc are widely used in most SLS labs and they are almost always genetically modified in some way, so there is no escaping the fact that these regulations apply to us.

**Advisory Committee on Dangerous Pathogens (ACDP)**

**Biological agents: Managing the risks in laboratories and healthcare premises**

This publication provides guidance on our duties under the Control of Substances Hazardous to Health Regulations 2002 (COSHH) as they relate to biological agents (micro-organisms/infection risks).

Page 11

Information box 3

The COSHH hierarchy and work with biological agents

Although the principles of the hierarchical approach to control should be applied whenever practicable, there is a slightly different emphasis when working with biological agents. For example, all laboratory workers wear protective clothing in the form of a laboratory coat, but may not always need to use a microbiological safety cabinet. In addition, the physical control measures in place are underpinned by the principles of good microbiological practice, eg the use of good aseptic techniques. Such techniques need to be taught and practiced as part of the training for the work to ensure competence, both in terms of scientific technique and safe working practices. In the healthcare setting, reducing and controlling the risk of incidental exposure may be more reliant on safe systems of work and the use of PPE rather than the use of containment.

**ACDP**

**Categorisation of Biological Agents According to Hazard and Categories of Containment 4<sup>th</sup> Edition 1995**

Page 31

**Laboratory Containment Level 1**

Item 6: Laboratory coats or gowns should be worn when working in the laboratory and removed when leaving the laboratory suite.

**Note:** Laboratory Containment Level 1 applies when working with agents in Hazard Group 1. Such agents are defined as unlikely to cause human disease. Most TC and bacterial cells lines used in the lab fall into this category, although we do have an increasing amount of Hazard Group

2 equivalents being used, e.g. Gm viruses. Therefore, as an absolute minimum, Containment Level 1 applies all SLS labs where micro-organisms are being handled.

---

## University Safety Services Good Laboratory Practice

### Item 3: **Wear laboratory coat**

Same directive appears in many other SS publications, including those for safe working with radioactive material.

Legislation aside, employees, associate members of staff, students and visitors are all expected to follow University policy. It's not intended to be optional. Do personnel realize this?

---

### Additional Points

1. It's not just what *you* are working with that has to be taken into consideration. The activities of all personnel using the areas in which you work have to be considered. If they are working with hazardous substances there is always a chance that work surfaces/equipment may become contaminated. The next person to use the area/equipment is then at risk. In large, open plan labs with communal equipment areas this point is particularly relevant.
2. The hazard status of a chemical acquired from a commercial supplier will be clearly indicated on the container label. (Note: recent incident reports suggest that not all research personnel read these labels!) However, once a small amount of reagent has been removed from the stock and diluted, how to you determine the hazard status of the solution? Is it based on guess work, gut feeling or is it scientifically determined? Take Ethidium Bromide, a widely used, powerful mutagen, as an example: at what concentration would you deem it to no longer be mutagenic? If you can't answer this surely you must assume all solutions, no matter how dilute, to be potentially hazardous and take steps to avoid exposure, i.e. wear gloves, lab coat and, if splashing or spraying is likely, safety glasses.
3. When all staff wear lab coats it projects a professional image to visitors, especially those from industry where GLP is mandatory. Very recently we've had representatives from an investor express their dismay at the number of staff not wearing lab coats.
4. In a busy lab there is always the chance that you will pick contamination up on your clothing. If you wear a lab coat the contamination is left behind when you remove your lab coat. If you do not wear a lab coat, you carry this contamination around into non-lab areas, e.g. the café. Some personnel argue that you are most likely to pick up contamination on the soles of your shoes and these are not removed upon leaving the laboratory. Fair point, but how likely is it that you're going to accidentally brush against people with the soles of your shoes or have your feet on the tables in the café! Contamination on soles of shoes is more of an issue once you get home, especially if you have children crawling around on the floor. Whether you change into your house shoes as soon as you get home is up to you.
5. A lab coat acts as a physical barrier, to some degree at least, to hot liquids and also to sharps. We have had accident/incident accounts that support this.
6. A lab coat protects your own clothing from soiling/staining.
7. Go round your chemical store and look at the labels. How many chemicals can you find without a hazard warning label, i.e. that are non hazardous? There won't be many. How many have the potential to cause harm, especially via skin contact (e.g. certain carcinogens, mutagens, reproductive toxins, toxics and very toxics; corrosives; skin irritants; sensitizers; degreasers; radioactive material)?
8. Now, if your policy is to wear a lab coat only when working with hazardous substances, what proportion of the time do you think you'll be lab coat free?