

Biological Safety Series

July 2019

Safety Management of Biological Material

‘The Numbers Game’

A Brief Guide for Laboratory
Workers

Occupational Health and
Safety Service
HSD106B (rev 4)



UNIVERSITY OF
CAMBRIDGE

This leaflet contains important information about using: animals, plants and micro-organisms whether genetically modified (GM) or not.

Departmental Arrangements

To comply with the law there must be:

- (a) Local/departamental Biological/GM Safety Committees (with an approved structure)
- (b) Biological Safety Officer (BSO)
- (c) Written risk assessments
- (d) Suitable laboratory and associated facilities as required by (c)
- (e) Adequate training, instruction and supervision
- (f) Involvement of the University Occupational Health Service where appropriate
- (g) Appropriate registration of GM work with the Health and Safety Executive (HSE)
- (h) Licences from Defra and other agencies as appropriate

THE ‘NUMBERS GAME’

Don't confuse the classification systems relating to biological safety

- (a) Known ('approved') human pathogens are assigned to **Hazard Groups (HG) 2,3,4**

– approved –

HG	1	2	3	4
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- (b) Work with genetically modified micro-organisms (including plant pathogens) will fall into one of 4 **Classes**

CLASS	1	2	3	4
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- (c) Under **SAPO** (Specified Animal Pathogens Order) certain animal pathogens are categorised

– specified –

Hazard GROUP	1	2	3	4
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These Groups are not equivalent to human HGs as only some animal pathogens are included ('specified'). A Group 1 (non-SAPO) animal pathogen cannot automatically be a class 1 GMM, it will depend on the **risk assessment**.

- (d) Work with these must be carried out at the corresponding **Containment Level (CL)*****

CL	1	2	3	4
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- (e) **Don't** confuse the above systems with the classification of microbiological safety cabinets (MSC)

CLASS	I	II	III
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Class I - protects the user only

Class II - protects product and user

Class III - (glove box) gives highest level of protection for user

Class of cabinet has no bearing on CL to be used at.

Don't confuse MSCs with **LAMINAR FLOW CABINETS [HOODS]** that have a flow of air towards the user. These are for product protection only and **MUST NOT be used for protection of the worker.**

RISK ASSESSMENT

How do I categorise what I'm doing?

- (a) Refer to the Approved List of biological agents to determine the **Hazard Group of human non-GM organisms and potential Schedule 5 list**. If you wish to use a possibly hazardous organism that is not in the list you must contact the University Safety Office for advice. The department **must** notify the HSE prior to the first time you use agents in **Hazard Groups 2, 3, 4** [Form CBA1, available from HSE website: <https://www.hse.gov.uk/forms/notification/cba1.pdf>]
- (b) If you intend to **genetically modify** any **micro-organisms** you must carry out a risk assessment in line with the GM Contained Use Regulations 2014. The outcome of this will be a classification of your **PROJECT** as Class 1, 2, 3 or 4. You must notify the HSE the first time you use new premises; also when agents of classes 2, 3, 4 are used.
- (c) For **GM animals and plants** classification into GM Class 1-4 does not apply. Consideration is given as to whether the GMO is of greater risk to human health and/or the environment than the non-modified organism. Only those representing a greater risk to human health are notified to the HSE.
- (d) Under **SAPO**, the specified animal pathogens are now notified to the HSE who define conditions of their use.

The SAPO Licence Holder for the University of Cambridge is the Director of Health and Safety. All SAPO enquiries must be directed via Dr A Gilliland (see contact information).

Please note: the University of Cambridge has no CL4 facility!

Essential Reference Material

Control of Substances Hazardous to Health Regulations 2002 (as amended); Approved Code of Practice and guidance L5 (sixth edition) Available online:

<https://books.hse.gov.uk/bookstore.asp?FO=1356943&Action=Book&ProductID=9780717665822>

The Approved List of biological agents. Available online:
www.hse.gov.uk/pubns/misc208.pdf

Management and Operation of Microbiological Containment Laboratories (written by ACDP; 2018). Available online:

<http://www.hse.gov.uk/biosafety/management-containment-labs.pdf>

The SACGM Compendium of guidance
<http://www.hse.gov.uk/biosafety/gmo/acgm/acgmcomp/>

A Guide to the Genetically Modified Organisms (Contained Use) Regulations 2014 L29 (fifth edition). Available online:
<http://www.hse.gov.uk/pubns/priced/l29.pdf>

HSE: Animal Pathogens. Guidance for licence holders on the containment and control of specified animal pathogens (2015)
<http://www.hse.gov.uk/pubns/priced/hsg280.pdf>

***The precise measures required for each containment level vary depending on the regulations in operation.

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HSE Website
<http://www.hse.gov.uk/biosafety/index.htm>

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