

Using the right terminology in risk assessments and reports

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Example extracts from Risk Assessments

Hazards identified: *n.b.* if your assessment includes substances hazardous to health use COSHH form.

Summary of work: The work includes in vitro infection of cells with influenza A X31 virus. All the reagents and solutions are prepared under sterile conditions in a hood, in cat 2 area.

Hazards identified and control measures to reduce the level of risk:

- (1) Influenza A X-31 virus has been prepared at the [REDACTED], where it is being routinely used for in vivo and in vitro infections.
- (2) To ensure sterile preparation of the reagents preparation and dilution of working solutions will be prepared under laminar flow in sterile conditions.



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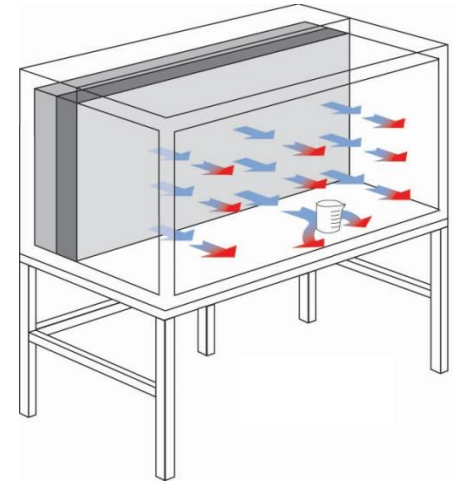
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Examples from Accidents/Incident reports

In a hood

We bombed
The hood

In the
cabinet

Class II
pathogen



The Cat 2
lab

Bug plates

The Class 2
Tissue culture room



Why is this important? “You know what I mean, you’re being a pedant!”

- **Accurate and efficient communication**
- **Risk assessments or reports with incorrect use of terminology might suggest a poor understanding by those writing them**
- **Auditing/assessment by outside agencies (HSE, DEFRA etc) – correct use of terminology is an expectation of an institution that understands what it is doing**
- **Professionalism**



Where does the terminology come from?



Health and Safety
Executive

The Approved List of biological agents

Advisory Committee on Dangerous Pathogens



Health and Safety
Executive

The management, design and operation of microbiological containment laboratories

Advisory Committee on Dangerous Pathogens



Health and Safety
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Guidance for licence holders on the containment and control of specified animal pathogens



Health and Safety
Executive

The Genetically Modified Organisms (Contained Use) Regulations 2014



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Biological Safety Series

April 2015

Safety Management of Biological Material

‘The Numbers Game’

A Brief Guide for Laboratory Workers

WEB VERSION

Occupational Health and Safety Service
HSD106B (rev 3)

Health and Safety Executive

Management, design and construction of microbiological containment laboratories

Advisory Committee on Dangerous Pathogens

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<https://www.safety.admin.cam.ac.uk/files/hsd106b.pdf>

Microbiological Safety Cabinets Class I, II, III



**Laminar
Air Flow**

protects the product only



Class I

protects the user only



Class II

protects product and user



Class III

(glove box) gives highest level
of protection for user



Containment laboratories (CL) Levels 1,2,3 and 4



Health and Safety
Executive

The management, design and operation of microbiological containment laboratories

Advisory Committee on Dangerous Pathogens

Containment level 1 (CL 1)
for **hazard group 1 (HG 1)**
and **activity class 1 (Class 1)**.

Containment level 2 (CL 2)
for **hazard group 2 (HG 2)**
and **activity class 2 (Class 2)**.

Containment level 3 (CL 3)
for **hazard group 3 (HG 3)**
and **activity class 3 (Class 3)**



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<http://www.hse.gov.uk/pUbns/priced/microbiologyiac.pdf>

Biological agents are classified into Hazard Groups (HG) 1,2,3 and 4



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Executive

The Approved List of biological agents

Advisory Committee on Dangerous Pathogens

“The Approved List provides the approved classification of biological agents as referred to in COSHH. It is relevant to risk assessment for work with biological agents and the application of appropriate control measures.”

Biological agents Hazard Groups (HG)

Bacteria	}	HG1
Fungi		HG2
Helminths		HG3
Protozoa		HG4
Prions		
Viruses		

Hazard Group 1

Unlikely to cause **human** disease.

Hazard Group 2

Can cause **human** disease and may be a hazard to employees (*and in our case, students*). It is unlikely to spread to the community and there is usually effective prophylaxis or treatment available.

Hazard Group 3

Can cause severe **human** disease and may be a serious hazard to employees (*and students*). It may present a risk of spreading to the community but there is usually effective prophylaxis or treatment available.

Hazard Group 4

(For completeness this definition has been included but no one in the University should be storing or working with a Group 4 biological agent, as there are no facilities for such work here.)

Causes severe **human** disease and is a serious hazard to employees. It is likely to spread to the community and there is usually no effective prophylaxis or treatment available.



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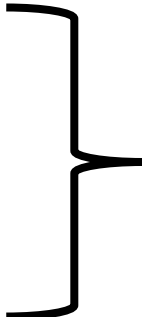
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The Approved List of biological agents

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Biological agents Hazard Groups (HG)

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Helminths
Protozoa
Prions
Viruses



HG1
HG2
HG3
HG4

eg. HG2

Legionella spp
Candida spp
Varicella-zoster
virus

eg. HG3

*Mycobacterium
tuberculosis*

West Nile
fever virus

eg. HG4

Ebolavirus

Genetically Modified Micro organisms classified as classes 1,2,3, and 4



Health and Safety
Executive

The Genetically Modified Organisms (Contained Use) Regulations 2014

Class: Contained uses are classified into one of four classes, as described in Schedule 1, based on the risk that the contained use presents to human health and the environment.

“The contained use class is derived from the outcome of the risk assessment and is only applicable to Genetically Modified Microorganisms (GMM) and is not used for larger GMOs.”

Class 1 - no or negligible risk

Class 2 - low risk

Class 3 - moderate risk

Class 4 - high risk



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<http://www.hse.gov.uk/pUbns/priced/l29.pdf>

Specified Animal Pathogens (SAPO) Groups 1,2,3 and 4



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Guidance for licence holders on the containment and control of specified animal pathogens

Group 1 – Disease-producing organisms which are enzootic (native in animals in this country) and do not produce notifiable disease.

Group 2 – Disease-producing organisms which are either exotic or produce notifiable disease, but have a low risk of spread from the laboratory.

Group 3 – Disease-producing organisms which are either exotic or produce notifiable disease and have a moderate risk of spread from the laboratory.

Group 4 – Disease-producing organisms which are either exotic or produce notifiable disease and have a high risk of spread from the laboratory.



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<http://www.hse.gov.uk/pubns/priced/hsg280.pdf>

Anti-terrorism Crime and Security Act 2001- Schedule 5 list- Categories A,B and C

Biological Safety Series

September 2010

Schedule 5

Anti-Terrorism Crime and Security Act

This leaflet indicates measures that need to be taken when someone is contemplating using or storing any pathogens (human or animal) or toxins listed in Schedule 5 of the Anti-Terrorism Crime and Security Act 2001

WEB VERSION

Occupational Health and
Safety Service
HSD165B (rev 1)

In addition to the usual risk assessments for Genetic Modification (GM), Control of Substances Hazardous to Health (COSHH), Specified Animal Pathogens Order (SAPO) etc, departments must consider if the pathogen is one listed in Schedule 5.

Eg A hazard group 3 pathogen, or a GM project assessed as class 3 clearly has to be used in a containment level (CL) 3 facility; but if the pathogen is listed in Schedule 5, stringent physical (and other) security measures over and above those required for CL3 will be required.

Categories A, B and C



Some Safety Office guides to classes, groups and levels

Biological Safety Series

April 2015

Safety Management of
Biological Material

‘The Numbers Game’

A Brief Guide for Laboratory
Workers

WEB VERSION

Occupational Health and
Safety Service
HSD106B (rev 3)

Biological Safety Series

July 2015

**Control of
Substances
Hazardous to Health
(COSHH)
Biological Agents
Hazard Groups**

WEB VERSION

Occupational Health and
Safety Service
HSD111B (rev 3)

Biological Safety Series

September 2010

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