

Health and Safety Department

Dangerous Substances and Explosive Atmospheres (DSEAR) Policy

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1. Introduction

The purpose of this document is to ensure that materials or processes that are covered by the Dangerous Substances and Explosive Atmosphere regulations 2002 are effectively managed to a point where the associated risks are effectively controlled.

This policy is to be used in conjunction with the chemical safety policy. DSEAR substances by their nature are hazardous and so the general requirements in section 4.0 of the chemical safety policy must be followed.

1.1 What is DSEAR?

DSEAR stands for the Dangerous Substances and Explosive Atmospheres Regulations 2002. Dangerous substances can put peoples' safety at risk from fire, explosion and corrosion of metal. DSEAR puts duties on the employers to protect people from these risks including members of the public who may be put at risk by work activity.

1.2 What are dangerous substances?

Dangerous substances are any substances used or present at work that could, if not properly controlled, cause harm to people as a result of a fire or explosion or corrosion of metal. They can be found in nearly all workplaces and include solvents, paints, varnishes, flammable gases, dusts, pressurised gases and substances corrosive to metal.

1.3 What does DSEAR require?

Employers must:

- find out what dangerous substances are in their workplace and what the risks are
- put control measures in place to either remove those risks or, where this is not possible, control them
- put controls in place to reduce the effects of any incidents involving dangerous substances
- prepare plans and procedures to deal with accidents, incidents and emergencies involving dangerous substances
- make sure employees are properly informed about and trained to control or deal with the risks from the dangerous substances
- identify and classify areas of the workplace where explosive atmospheres may occur and avoid ignition source in those areas

1.4 Scope

This policy provides a framework for Schools and fulfil their statutory duties and ensure the health and safety of staff and students working in areas where DSEAR may apply.

The policy applies to:

- All staff, students and personnel (e.g. contractors and visitors) at workplaces under the control of Loughborough University.
- Hazardous substances as outlined in the Dangerous Substances and Explosives Atmospheres Regulations (DSEAR) 2002.
- Substances that due to their chemical properties or the way in which they are used or present in the workplace pose a risk of injury, fire or explosion.

2. Key legislative requirements

2.1 Dangerous Substances and Explosive Atmosphere Regulations 2002

The key areas covered in DSEAR are listed in the table below

Regulation	Duty	Comment
5	To assess all potential risks to employees and others whose safety may be affected by the use of dangerous substances at the workplace	This is met by the completion of the DSEAR risk assessment form
6	Eliminate or reduce risk to people safety from the presence of dangerous substances	See above
7	Requirement of competent identification of hazardous and non-hazardous zones before new work starts	The classification of zones must be completed by a competent person.
7(3) schedule 4	Warning signs to be installed where explosive atmospheres may occur	Refer to DSEAR guidance document
8	Arrangements to deal with accidents, incidents and emergencies	Suitable arrangements to deal with accidents and incidents should accompany the risk assessment and be in place before work begins
9	Information instruction and training	Information must be provided which explains the findings of the risk assessment and informs employees of the precautions that they must take to prevent harm to themselves or others. Information must be up to date and delivered in a manner that is understandable to the target audience

2.2 Other Key Legislation

- The Regulatory Reform (Fire Safety) Order 2005

3. Duty Holders

3.1 Deans of Schools/Heads of Professional Services shall

Deans of Schools/Heads of Professional Services shall:

- Ensure that all areas where DSEAR may apply have been correctly identified
- Ensure that risk assessments are in place for all DSEAR areas and activities
- Ensure that any required risk reducing measures, emergency arrangements etc, are implemented
- Ensure that adequate time and resources are available to implement the policy

N.B. Deans of Schools/Heads of Professional Services are also duty holders under the University Fire Policy

3.2 Fire Officer

The University Fire Officer shall:

- Provide advice to schools or services at their request concerning fire risks arising from departmental processes and use of buildings.
- Provide advice to schools or services at their request concerning suitable emergency arrangements.
- Providing fire training as appropriate

N.B. The University Fire Officer is also a duty holder under the University Fire Policy

3.3 The DSEAR Duty Appointed Person (DAP)

The DSEAR DAP shall:

- Provide advice to schools or services at their request concerning areas or processes where DSEAR may apply
- Provide advice to schools or services at their request concerning risk assessment

3.4 University Health and Safety Service

University Health and Safety Service shall:

- Monitor compliance with this policy
- Review the DSEAR policy
- Provide information, advice and training
- Liaise with regulators such as the Petroleum Licensing Officer, HSE Environment Agency and Leicestershire Fire and Rescue Service

3.5 School/Department Safety Officers

School/Departmental safety officers shall:

SSO's/DSO's shall monitor the effectiveness of any control measures and make recommendations to the Dean of School/Head of Service as necessary.

- Ensure that all areas or processes where DSEAR applies within the School/Service are effectively managed and compliant with this policy.
- A DSEAR inventory is produced and maintained.
- Audit DESAR assessment documentation to verify that suitable and sufficient assessments are in place and up to date.
- Ensure that that members of staff and students are trained in their safe use of any equipment needed to control the risk from any DSEAR material
- Verify that plant, equipment and engineering controls are maintained
- Report accidents of near misses involving DSEAR substances to the UH&SS and the University Chemical Safety Officer.

3.6 Line Managers/Academic Supervisors

Staff who are responsible for managing the activities carried out by students, staff or volunteers are considered laboratory or academic supervisors. As such they have a duty to ensure the health and safety of the students/staff they supervise and have responsibility where their students/staff handle Hazardous chemicals.

Line managers are responsible for the health and safety of the staff/students they manage and others who may be affected by their work.

Line Managers/Academic Supervisors will ensure:

- Personnel they manage/supervise are competent to work with substances covered by DSEAR and have been provided with sufficient information and training on the risk posed by the substances they use and the control measures in place.
- Equipment is used correctly and maintained in an efficient state and good working order.
- Risk assessments are reviewed and updated regularly, when significant changes occur or following an incident.
- Information must be given to DSO/SSO.

3.7 Facilities Services

Facilities services shall:

- Identify and compile a register of items of plant, equipment and engineering controls that have been installed following DSEAR assessment, whenever this apparatus forms part of the University estate.
- Support Schools/Services by providing technical advice on plant, equipment or engineering controls that is/shall be provided following a COSHH risk assessment.
- Keep records of inspection/testing for at least 5 years.

3.8 Employees and students

Employees and students shall:

- Attend training as requested by the SSO/DSO.
- Co-operate with the University to implement any control measures identified in the DSEAR risk assessments
- Report any defects or deficiencies in these measures (e.g. problems with PPE, or concerns regarding the effectiveness of LEV's)

4. Risk Assessment

All areas where flammable liquids, gases and dusts, or any substance with any of the following hazard phrases H220, H222, H224, H225 and H250 are used a DSEAR risk assessment must be completed. The risk assessment form is available on the university health and safety service website.

Where it is shown that DSEAR applies the DAP should be informed as a further assessment may be needed to effectively control the risks.

5. Guidance documents

There are 2 guidance documents that accompany the DSEAR policy. The DSEAR guidance document that outlines how to identify DSEAR areas, how DSEAR areas should be managed and how the risks can be minimised. This is accompanied by guidance on completing the DSEAR risk assessment form. The guidance can be found in the Appendix.

6. Technical references and further reading

- Dangerous substances and explosive atmospheres regulations approved code of practice L138
- 7 Steps to successful substitution of hazardous substances, HSG 110, HSE Books 1994 ISBN 0 7176 0695 3.
- Process Intensification, DTI Guide, DTI Publications Unit
- Equipment and Protective Systems for Use in Potentially Explosive Atmospheres Regulations 1996 (as amended), Statutory Instrument 192, 1996
- Energetic and spontaneously combustible substances: Identification and safe handling HSG131 HSE Books 1995 ISBN 0 7176 0893 X
- Safe handling of combustible dusts: Precautions against explosions HSG103 HSE Books 2003 ISBN 0 7176 2726 8
- Safe use and handling of flammable liquids HSG140 HSE Books 1996 ISBN 0 7176 0967 7
- The storage of flammable liquids in containers HSG51 (second edition) HSE Books 1998 ISBN 0 7176 1471 9
- Use of LPG in small bulk tanks Chemical Information Sheet CHIS 4 HSE Books 1999
- Small-scale use of LPG in cylinders Chemical Information Sheet CHIS 5 HSE Books 1999
- Keeping of LPG in cylinders and similar containers LPGA Cop 7 (replaces CS 4, HSE Books ISBN 0 7176 0631 7)
- Fire safety: An employer's guide (Home office, Scottish Executive, Department of the Environment (Northern Ireland) for HSE) HMSO 1999 ISBN 0 11 341229 0
- Fire and explosion - How safe is your workplace? A short guide to the Dangerous Substances and Explosive Atmospheres Regulations 2002 INDG370 HSE Books

7. Appendix A - Guidance for use of the “Dangerous Substances and Explosive Atmosphere Regulations 2002 Template assessment to ascertain whether DSEAR applies to an area” Form

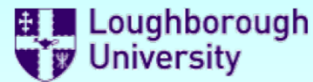
This guidance document will assist with the completion of the DSEAR assessment tool that can be found on the university health and safety service website. The form is designed to determine whether DSEAR applies to an area where DSEAR material is used or stored. The completed form may also serve as a DSEAR assessment, however for materials and activities with a higher associated risk a more detailed assessment may be required.

You will need to fill the form in if:

- You have returned the DSEAR Register form answering Yes to the use of flammable gases or liquids.
- There is potential for fire or explosion in the work area: eg Labs, Stores, Gas systems.
- Such a work area does not have a current DSEAR assessment.
- The work area is new or refurbished and will be using or storing flammable liquids or gases.
- A new process or experiment uses or generates flammable liquids or gases or an existing such process is changed.

Complete the form with details of the person completing the work or responsible for the area and the relevant school/service or department as shown below. Please fill in all the fields ensuring the location is indicated and there is a brief description of the process.

Loughborough University



Dangerous Substances and Explosive Atmosphere Regulations 2002 Template assessment to ascertain whether DSEAR applies to an area

(To be used only in conjunction with published guidance)

Please give responses to ALL questions.

Area / Process / Equipment under Assessment	
Name	<input type="text" value="<Insert name of worker>"/>
eMail	<input type="text" value="name@lboro.ac.uk"/>
School or Service	<input type="text" value="<Insert name of school or service>"/>
Department	<input type="text" value="<Insert name of department>"/>
Area / Process / Project	Process type: <input type="text"/>
<input type="text"/>	

IMPORTANT

Please read each question carefully
Use information from SDS, references and SOP's and risk assessments to help complete the assessment.

Select the appropriate Yes/No responses to the questions in sections 1,2 and 3. (you need to double click on each response)

A Yes response to any of the questions in sections 1,2 or 3 will show that a DSEAR assessment will be required and the full DSEAR Risk Assessment will open.

1. For any proprietary product (substance), including flammable gases, used in the area, does the hazard information contained within the material Safety Data Sheet, or on the labelling on the product packaging denote that it is, (or has):	2. For any substance generated as a result of an in-house process, or as a by-product of such a process, is that substance, including flammable gases, (so far as may be deduced) is (or has):
explosive <input type="button" value="No"/>	explosive <input type="button" value=""/>
oxidising <input type="button" value="Yes"/> <input type="button" value="No"/>	oxidising <input type="button" value=""/>
extremely flammable <input type="button" value="No"/>	extremely flammable <input type="button" value=""/>
highly flammable <input type="button" value="No"/>	highly flammable <input type="button" value=""/>
flammable <input type="button" value="No"/>	flammable <input type="button" value=""/>
a flashpoint below 32°C <input type="button" value="No"/>	a flashpoint below 32°C <input type="button" value=""/>
capable of release of sufficient vapour/gas which may produce an explosive atmosphere <input type="button" value="No"/>	capable of release of sufficient vapour/gas which may produce an explosive atmosphere <input type="button" value=""/>
3. Does this process create a dusty environment? (e.g. Wood, Plastic, Flour etc.) <input type="button" value="No"/>	
4. Does any substance held or used decompose or react exothermically with any other material present in the area? <input type="button" value="No"/>	
5. To your knowledge, has this process/activity given rise to a fire, explosion or release of a dangerous substance within the past five years . If yes, please give brief details and date below <input type="button" value="No"/>	

List all the dangerous substances in use – one on each line. Further lines can be added by clicking on the green + on right of the form, indicated with the red circle in the image below.

DSEAR Risk Assessment

Please list all dangerous substances used, stored or made in the table below		<input type="button" value="+"/>
Name	Hazard comment	
<input type="text"/>	<input type="text"/>	<input type="button" value="x"/>

Answer all the questions in sections 5-10 using the drop-down responses (Yes/No/Don't know) and add any comments, explanations or details, eg providing details of any precautions or control measures. The sections mentioned previously cover

- Storage and use of dangerous materials
- Workplace
- Storage
- Emergency procedures
- Transport and waste disposal
- Information, instruction and training

An example of one of the sections is given below.

7. Storage

1. Are all flammable substances kept in suitable fire resistant storage?	<input type="text"/>	
2. Are quantities of flammable materials in excess of 50l in total volume kept in the work room?	<input type="text"/>	
3. Are quantities of flammable materials in excess of 50l in total volume kept in dedicated and appropriately protected flammable stores - away from the work room?	<input type="text"/>	
4. Are incompatible substances stored separately from each other?	<input type="text"/>	
5. Where appropriate, have storage areas been designed to provide explosion relief/resistance?	<input type="text"/>	

The Zone Classification can be estimated considering all the hazards, precautions and controls and the justification entered in the comment field. Select the type of hazard with the drop-down menu, then select the duration where the hazard will be present and the zone and comment will be automatically calculated.

Zone Classification

Using the information from above, estimate whether an explosive atmosphere will or will not exist and if it does, for how long. This information will be required to determine the zoning of the area.

Type	Duration	Zone	Comment
Chemical Vapour <input type="text" value="Yes"/>	<input type="text" value="Up to 1 min"/>	No hazard zone	A place in which an explosive atmosphere is not likely to occur in normal operation.
Dust <input type="text"/>			

In the case of a Zone 0, 1 or 2 being identified the process should not commence until further investigation has been undertaken and any necessary extra controls are identified and implemented.

If you are unsure about applying a Zone Classification then further guidance should be sought.

Please send the completed form to o.preedy@lboro.ac.uk