POLICY FOR HEALTH, SAFETY AND WELFARE

PART C ARRANGEMENTS

SECTION 26

DANGEROUS SUBSTANCES AND EXPLOSIVE ATMOSPHERES

2014

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1. INTRODUCTION

Council operations involve a wide variety of hazardous materials. To safeguard employees and others this arrangement sets out;

- legal compliance
- establishes practical guidelines to minimise the risk of fire and explosion from hazardous materials though controlled storage, use and disposal and
- establishes the corporate standard on which Delivery Units should operate.

The health aspects of most materials are covered by the Control of Substances Hazardous to Heath Regulations (COSHH) - see Section 11 of the Corporate Health and Safety Policy. More specific legislation exists for a few hazardous materials such as lead and asbestos.

Safety aspects (relating to the risk of fire and explosion) of most materials are subject to the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).

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. They can be found in many workplaces and include such things as solvents, paints, adhesives, battery charging, treating swimming pools with trichloroisocyanuric acid, varnishes, flammable gases, such as liquid petroleum gas (LPG), dusts from machining and sanding operations and dusts from foodstuffs.

Petrol and liquefied petroleum gas (LPG), bottled gas cylinders used for temporary heating, solvents by school science departments and white spirit by maintenance departments are materials commonly used during council activities that are covered by DSEAR.

2. APPLICATION AND DEFINITIONS

This arrangement applies to all council premises and activities where dangerous substances, as defined by DSEAR, are used, produced or stored. Dangerous substances are defined as;

a) any substance which meets the criteria in the approved classification and labelling guide for classification as;
    - explosive
    - oxidising
    - extremely flammable
    - highly flammable
    - flammable

b) any substance not included above which creates a risk because of the way it is present or is used (for example diesel is not covered in the above classification but creates a risk if used at elevated temperature).

c) any dust (including solid particles and fibres) which can form an explosive mixture with air.

DSEAR does not apply to

a) areas used directly for and during the medical treatment of patients

b) normal gas appliances used for cooking, heating and water heating (unless specifically designed for use in an industrial process).

3. RESPONSIBILITIES

Directors have a delegated duty to ensure that adequate and appropriate management arrangements are established within their Delivery Unit that these arrangements meet the requirements of this policy.

The premises controller and those carrying out work have a duty to comply with this policy and with local policies and safety instructions.

4. DUTIES UNDER DSEAR - RISK ASSESSMENT

Where a dangerous substance is, or is likely to be, present at a workplace, a suitable and sufficient **risk assessment must be carried out** taking into account;

a) the hazardous properties of the substance
b) safety information provided by the supplier including the safety data sheet
c) the circumstances of the work undertaken including;
    - the work processes
    - the quantity of the substance
    - chemical or physical interaction with any other substances present
    - safe handling, storage, transport and disposal
d) maintenance activities
e) likelihood that an explosive atmosphere will occur
f) the likelihood that ignition sources, including static electricity, will be present
g) the scale of anticipated effects of a fire or explosion
h) risk to adjoining areas from fire and explosion.

Risk assessments must be recorded and reviewed regularly and must be completed **before** any new activity involving a dangerous substance is allowed to start. If the workplace is altered or modified or if explosive atmospheres could result from **new** processes, the zoning requirements become applicable immediately.

5. CONTROL MEASURES

General Safety Measures

The following general safety measures are specified in the regulations and must be applied, so far as is reasonably practicable, as long as they are consistent with the risk assessment and the nature of the activity or operation.

- The workplace must be designed, constructed and maintained to reduce the risk.
- Work processes must be designed, provided and used to minimise risks.
- Work processes must be maintained so that they are efficient and in good repair.
- Provision of equipment and systems to maintain a safe state and prevent additional risk in the event of a power failure.
- Means of manual override must be possible, operated by employees competent to do so, for shutting down automatic equipment that deviates from intended operating conditions, provided that the provision or use of such means does not compromise safety.
- On operation of emergency shutdown, accumulated energy must be dissipated or disconnected as quickly as possible.
- Measures must be taken to prevent confusion between connected devices.
- Appropriate systems of work, including written instructions and permits to work, must be applied where the work activity is carried out in hazardous places or involves hazardous activities.

Prevention of explosions

Risks must be eliminated or reduced, as far as is reasonably practicable, using the following controls in order of preference.

- Avoid the presence of a dangerous substance by replacing it with a substance or process that eliminates or reduces the risk.
- Reduce the quantity of dangerous substances to a minimum.
- Avoid or minimise the release of a dangerous substance.
- Prevent the formation of an explosive atmosphere, for example, by provision of appropriate ventilation.
- Ensure that any release is suitably collected, contained, removed to a safe place or rendered safe.
- Avoid ignition sources, including electrostatic discharge.
- Avoid adverse conditions (for example heat, vibration, impact).
- Segregation of incompatible dangerous substances.

Mitigation (measures to make an explosion less likely or less serious)

Where significant risks still remain, the following measures, in order of preference, should be taken to mitigate the effects.

- Reduce to a minimum the number of employees exposed.
- Avoid the growth and spread of fires and explosions, for example, by use of flame retardant materials, clearing fallen leaves, etc.
- Provision of explosion pressure relief.
- Provision of explosion suppression equipment.

- Provision of plant constructed to withstand the likely pressure of an explosion.
- Provision of suitable personsal protective equipment.

Service areas must ensure that all control measures implemented to reduce the risk of fire or explosion are checked and maintained.

6. FURTHER DUTIES

Arrangements must be made for the safe handling, storage and transport of dangerous substances and waste containing dangerous substances.

The general safety measures specified in appendix 1 must be applied in so far as they are consistent with the risk assessment and the nature of the activity being undertaken.

7. CLASSIFICATION OF WORKPLACES

Typically, not all areas of a workplace will carry the same degree of risk. In any workplace where an explosive atmosphere could occur, each area must be classified as hazardous or non-hazardous. The hazardous areas must be further classified into zones based on the likely duration of the explosive atmosphere.

For combustible gases, vapours or mists the zones are;

Zone 0 An explosive atmosphere is present continuously or for long periods.

Zone 1 An explosive atmosphere is likely to occur occasionally during normal operations.

Zone 2 An explosive atmosphere is not likely to occur during normal operations but if it does occur it will persist for a short period only.

For a cloud of combustible dust in air the zone definitions are similar but the classifications are 20, 21 and 22 respectively.

Layers, deposits and heaps of combustible dust must be considered as other sources of materials which could form an explosive atmosphere.

Equipment and protective systems for use in these zones must be selected as required by the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations unless the risk assessment finds otherwise.

In particular the following categories of equipment must be used.

Zone	Equipment Category
0 or 20	1
1 or 21	1 or 2
2 or 22	1, 2 or 3

The following warning sign must be displayed at all places where explosive atmospheres may occur.

Before first use of a workplace classified as hazardous, its overall explosion safety must be verified by a person competent (by experience, professional training or both) in the field of explosion protection.

Only appropriate work clothing which does not give rise to electrostatic discharge is to be worn in hazardous zones.

8. ARRANGEMENTS TO DEAL WITH ACCIDENTS, INCIDENTS AND EMERGENCIES.

Every council site, where dangerous substances are present, must produce arrangements to deal with accidents, incidents and emergencies. Arrangements proportionate to the risk should provide:

a) emergency procedures
b) first aid facilities
c) practice drills (which must be tested at regular intervals)
d) information on hazards, and arrangements for identifying hazards
e) information on specific hazards likely to arise at the time of an incident
f) suitable warning and communication systems
g) escape facilities and rescue operations
h) equipment and clothing for emergency personnel dealing with any incident

Relevant information must be displayed at the workplace and made available (in advance) to the emergency services.

10. INFORMATION, INSTRUCTION AND TRAINING.

Delivery Unit Managers **must** provide employees with:

a) suitable and sufficient information, instruction and training on the precautions and actions to be taken in order to safeguard themselves and others.

b) the details of any dangerous substances, including its name and why it is dangerous

c) access to safety data sheets

d) details of legislative provisions which concern the dangerous substance

e) details of the findings of the risk assessment.

11 FURTHER INFORMATION

Managers should also be aware of the existence of a Joint Industry Project (JIP), led by the Health and Safety Laboratory and due to report in early 2008, which is looking to provide new zoning data which will be suitable for use in risk assessments and which may lead to many well ventilated areas being given lower classifications

For more information about health and safety in the management of dangerous substances and explosive atmospheres, contact the Safety Health and Wellbeing team at shaw@barnet.gov.uk or on 020 8359 7955
Information can also be sought from the HSE website,

www.hse.gov.uk/fireandexplosion/index.htm