

# Wilkins Safety Group

## Weekly Update Newsletter



Welcome to this issue - Friday 17<sup>th</sup> June 2011 - of our Update Newsletter

Please feel free to forward this newsletter to colleagues and friends.

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## DSEAR 2002



### **GUIDANCE ON THE APPLICATION OF THE DANGEROUS SUBSTANCES AND EXPLOSIVE ATMOSPHERES REGULATIONS (DSEAR) 2002**

#### **INTRODUCTION**

##### 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 and explosion. DSEAR puts duties on employers and the self-employed to protect people from risks to their safety from fires, explosions and similar events in the workplace, this includes members of the public who may be put at risk by work activity.

##### 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. They can be found in nearly all workplaces and include such things as solvents, paints,

varnishes, flammable gases, such as liquid petroleum gas (LPG), dusts from machining and sanding operations and dusts from foodstuffs.

3 DSEAR1 came into force in December 2002, updating or replacing existing legislation e.g. Highly Flammable Liquids Regulations 1972 (HFL). Most of the requirements are not new and there should be little extra work for businesses who were complying with previous legislation.

4 The main change is the requirement to carry out a risk assessment. Other supporting changes include -

- o hazardous areas (zones) where explosive atmospheres may occur must be classified and marked
- o equipment used in places where explosive atmospheres may occur must comply with the EPS2 Regulations, unless it was already in use before July 2003 and a risk assessment concludes its continued use is safe
- o storage of petrol, except for dispensing into vehicles, and petroleum products in a workplace no longer requires a licence from the Petroleum Licensing Authority. The safe storage of all dangerous substances is covered by DSEAR.

5 New Motor Vehicle Repair (MVR) workplaces or ones modified after 30 June 2003 must meet all the DSEAR requirements from the time they come into use. Those in use before that date had until July 2006 to meet the requirements of Regulation 7 i.e. zoning, marking and compliance with EPS2.



## **DANGEROUS SUBSTANCES AND EXPLOSIVE ATMOSPHERES**

6 Typical examples of a Dangerous substance in MVR include -

- Petrol storage/handling in drums/cans e.g. from draining fuel tanks/lines, and when working on vehicles
- Waste engine oil storage in drums/tanks and/or use in space (e.g. contaminated with heaters petrol)
- Other flammable liquids storage/use of paints, solvents, cleaning materials,
- Flammable gases welding/cutting equipment, LPG heaters, battery charging, LPG-fuelled vehicles, some aerosols
- Explosive dusts sanding organic fillers e.g. fibre-glass
- Other explosive materials air bags, seat belt pre-tensioners (see also INDG280 in Further Reading for the Registration of stores for these devices)

- Flammable materials in welding/cutting of diesel tanks, or near to special circumstances brake lines etc. An Explosive atmosphere is an accumulation of gas, mist, dust or vapour which, when mixed with air, has the potential to catch fire or explode.

## **MAIN REQUIREMENTS OF DSEAR**

7 Employers and the self-employed must -

- have carried out a risk assessment for all activities involving dangerous substances which should be reviewed before any changes or new processes are introduced
- provide measures to eliminate or reduce risks, as far as is reasonably practicable
- classify and mark places where explosive atmospheres may occur
- provide equipment which is suitable for use in explosive atmospheres
- provide equipment and procedures for accidents and emergencies
- provide information and training to employees

## **RISK ASSESSMENT**

8 The risk assessment should determine whether existing measures are sufficient or if any additional controls or precautions are necessary and take account of -

- the hazardous properties of the substances e.g. flammable, highly/extremely flammable, explosive, oxidising
- how and where they are used
- the quantities present
- the possibility of a hazardous explosive atmosphere occurring
- all potential ignition sources e.g. from welding, burning or other 'hot work'; process / equipment which may produce a spark or flame or other electrical/mechanical risk including vehicle batteries and hand lamps; static discharges

9 Where there are five or more employees, the significant findings of the risk assessment must be recorded e.g.

- measures taken to eliminate or reduce the risk
- sufficient information to show that the workplace and work equipment will be safe from risk of fire and explosion during use and maintenance
- details of any areas classified as hazardous
- in shared workplaces, any special measures to ensure coordination of safety requirements to protect workers.

## **Measures to eliminate or reduce risks**

### **(i) Substitution**

10 In some businesses such as an MVR there is no scope for substituting petrol or other vehicle fuel. It may be possible, however, to replace paints, solvents or cleaning materials classified as dangerous with ones that are less hazardous e.g. using a higher-flashpoint solvent or water-based materials. Where risk cannot be entirely eliminated, appropriate control and mitigation measures must be put in place.

### **(ii) Control Measures**

11 In order of priority, the following control measures should be adopted where reasonably practicable -

Reduce the quantity of dangerous substance to a minimum

DO keep stored quantities of petrol, and flammable paints, thinners and solvents, including wastes, as low as possible

DO keep numbers of gas cylinders to a minimum

Avoid or minimise releases

DO use fuel retrievers for draining petrol tanks/lines

DO use safety containers for flammable substances. Keep tops/lids on all containers and dispose contaminated cloths/rags safely

DO use a proprietary paint mixing system

DON'T spray flammable paints outside a ventilated booth/enclosure/ controlled spray space.

Control releases at source

DO use tools with built in extraction or local exhaust equipment when sanding organic body fillers

DO ensure that the booth/enclosure extraction is switched on before spraying

Prevent the formation of an explosive atmosphere

DO potentially dangerous work in safe and well ventilated areas e.g. in the open air

DON'T drain petrol tanks/lines over or close to an inspection pit, drain or other opening in the ground

DON'T carry out welding or other hot work on petrol or diesel tanks, unless they've been adequately cleaned and gas freed; nor near to brake lines.

Never attempt to repair an LPG fuel tank - seek specialist advice

Collect, contain and remove any releases to a safe place

DO maintain extraction/filtration equipment. Ensure it is capable of removing dangerous concentrations

Avoid ignition sources

DON'T smoke or carry out any hot work while draining petrol or where flammable vapours could be present -

DO ensure that equipment provided for inspection pits, spray booths and other zoned areas is suitable for use in explosive atmospheres

Avoid adverse conditions which could lead to danger

DO ensure that temperature controls on drying/ curing ovens are properly maintained

DON'T charge batteries at charging rates in excess of manufacturers' recommendations

DO keep airbags in properly secured containers

Keep incompatible substances apart

DON'T store oxygen and flammable gas cylinders together

### (iii) Mitigation Measures

12 Reasonably practicable mitigation measures to reduce the effects of any fire, explosion or similar event should be considered, including -

Preventing fires and explosions from spreading to other parts of the workplace

DO store petrol, paints, solvents, gas cylinders in safe places in the open air if possible, or in storerooms which are in safe positions or are fire-resisting structures

DO provide at least half-hour fire resistant isolation for spray booths and any storage area inside occupied buildings Reducing to a minimum the numbers of employees/

other

DON'T allow unauthorised persons into zoned areas e.g. spray booths/enclosures/persons who may be at risk spaces; inspection pits  
DO provide adequate and safe means of escape in case of fire e.g. from spray booths/ enclosures using flammable substances  
Providing plant and equipment that can safely contain or suppress an explosion, or vent

it to a safe place

DO provide and maintain explosion relief panels where required e.g. on those direct-fired drying/curing ovens working at temperatures over 80°C and on some in which air is re-circulated; and on dust collection plants

### **Hazardous area classification**

13 The Hazardous area classification of work premises is not simple.

However, whilst transient activities involving flammable substances e.g. use of aerosols can take place anywhere on site, the following are examples of places that would normally be considered to be hazardous include-

- areas for storing, mixing or for spraying flammable liquids
- body preparation areas where organic body fillers are sanded
- battery charging areas
- vehicle inspection pits

14 The special precautions that apply to hazardous places are -

- area classification (Zoning)
- selection of equipment (protection from sources of ignition)
- marking of entry points into zones
- provision of anti-static clothing, if deemed necessary by the Risk Assessment
- verification of the safety of plant, processes and equipment before being brought into use

#### **(i) Area classification (Zoning)**

15 Hazardous places are classified in terms of zones on the basis of the likelihood and duration of an explosive atmosphere e.g. Zone 0 / 20 - present continuously; or for long periods; or frequently e.g. inside of petrol tanks or containers

Zone 1 / 21 -likely to occur in normal operation but only occasionally e.g. spray booth, paint mixing

Zone 2 / 22 -not likely to occur normally; or for short periods only e.g. vehicle inspection pit

(0,1 & 2 apply to gases, vapours and mists; 20 21 & 22 to dusts)

#### **(ii) Selection of equipment (protection from sources of ignition)**

16 Equipment, both electrical and mechanical, used in the zones must meet the requirements of EPS2 though, if in use before July 2003 can continue to be used provided the risk assessment shows it is safe to do so and it is maintained in good condition. The following equipment categories apply to the above zones -

Zone 0 / 20 - Category 1 equipment

Zone 1 / 21 - Category 1 or 2 equipment

Zone 2 / 22 - Category 1, 2 or 3 equipment

Examples of equipment which might need protection include lighting (fixed and portable, even 12volt), hand-held drills, grinders, polishers, paint spray equipment, drying lamps.



### (iii) Marking of entry points into zones

17 'EX' warning signs should be displayed at the entrances to places which are used exclusively for an activity involving a flammable substance e.g. flammable paint/solvent stores, spray booths, body preparation grinding areas, and because of their unique hazard, inspection pits.

At other locations where the use of materials containing dangerous substances is transient e.g. aerosols, activities should be covered by risk assessment, appropriate control measures and strict adherence to procedures. Some businesses have decided to activate visual/audible warnings when potentially hazardous activities are taking place. Whatever measures are adopted, they must be fully understood by everyone in or entering the workshop.

### (iv) Provision of anti-static clothing

18 Employees who work in zoned areas should be provided with clothing, especially footwear, which minimises the risk of an electrostatic discharge igniting the explosive atmosphere.

### (v) Verification of safety before coming into use

19 All areas where hazardous explosive atmospheres may be present and coming into use for the first time after 30 June 2003, must be confirmed as being safe (verified). The person carrying out the verification must be competent to consider the particular risks at the workplace and the adequacy of control and other measures put in place.

## Emergency arrangements

20 Emergency arrangements, proportionate to the level of risk, should be prepared where the risk assessment concludes that an accident, incident or emergency could arise, e.g. a fire or significant spillage, because of the quantity of dangerous substance present. For example -

- o suitable warning (including visual and audible alarms) and communication systems
- o escape facilities
- o emergency procedures
- o equipment and clothing for essential personnel dealing with the incident

o practice drills

Information on emergency procedures should be given to employees and the emergency services advised that the information is available.

Information, instruction and training for employees and others 21 In addition to information on emergency procedures, employees and other persons who may be at risk should be provided with suitable information, instruction and training on the precautions and actions they need to take to safeguard themselves including -

o names of substances in use and the risk

o relevant safety data sheets

o any legislation applying to the hazardous properties of the substances

o significant findings of the risk assessment

Much of this information is already required by existing health and safety legislation.

Notices restricting entry by non-employees and others should be prominently displayed at the entrances to hazardous areas.

### **ENFORCEMENT ALLOCATION FOR PETROLEUM SPIRIT**

22 DSEAR introduces arrangements for the regulation of petroleum spirit. It removes licensing controls under the Petroleum Consolidation Act (PCA) 1928, except for any activity relating to fuelling of motor vehicles (and other specified vessels) with petroleum spirit, including the associated bulk storage. For activities relating to the fuelling of motor vehicles, DSEAR applies as well as PCA and Petroleum Licensing Authorities (PLAs) will enforce DSEAR in relation to such dispensing and bulk storage.

23 Regulation of the storage and dispensing of petrol which is not associated with the fuelling of vehicles, including storage in cans and drums, dispensing into (approved) containers or an engine test bed or the fuel tank of a generator etc., now come under DSEAR and enforcement responsibility has been allocated to HSE/Local Authority (LA) Environmental Health Departments.

24 The appropriate standards for drum or bulk storage of petroleum spirit which is not part of a licensed activity, are those currently applicable to the storage of highly flammable liquids in general in HSGs 51 or 176. However, for existing stores built to the Home Office Code there should normally be no need to provide explosion relief in accordance with HSG51.

For HSE Guidance on go to: <http://www.hse.gov.uk/fireandexplosion/dsear.htm>

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If you would like to discuss any of the issues highlighted in this newsletter, then drop an email to Jon on [jon@jonwilkins.co.uk](mailto:jon@jonwilkins.co.uk) or call the office 01458 253682



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