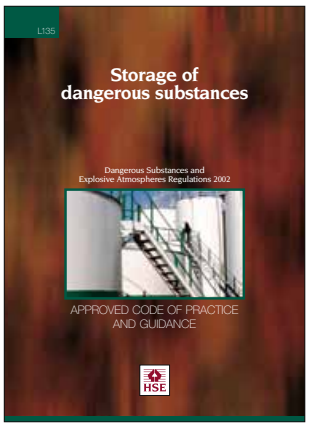
Storage of dangerous substances

Dangerous Substances and Explosive Atmospheres Regulations 2002

Approved Code of Practice and guidance



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This publication is part of a series of Approved Codes of Practice and guidance intended to support The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).

The Code of Practice provides practical advice on what employers have to do to meet the requirements of regulations 5 and 6 of DSEAR (on assessment and control of risks) at any place where dangerous substances are stored. Guidance is provided on reducing risks during the storage at bulk facilities, process areas and workrooms and also on the safe disposal of waste materials.

DSEAR is concerned with protection against risks from fire, explosion and similar events arising from dangerous substances used or present in the workplace. They set minimum requirements for the protection of workers from fire and explosion risks related to dangerous substances and potentially explosive atmospheres. The Regulations apply to employers and the self-employed at most workplaces in Great Britain where a dangerous substance is, or could be, present.

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This Code has been approved by the Health and Safety Executive, with the consent of the Secretary of State. It gives practical advice on how to comply with the law. If you follow the advice you will be doing enough to comply with the law in respect of those specific matters on which the Code gives advice. You may use alternative methods to those set out in the Code in order to comply with the law.

However, the Code has a special legal status. If you are prosecuted for breach of health and safety law, and it is proved that you did not follow the relevant provisions of the Code, you will need to show that you have complied with the law in some other way or a Court will find you at fault.

Contents

Preface

This publication contains an extract from the Dangerous Substances and Explosive Atmospheres Regulations[1] (regulations 5 and 6 and Schedule 1), together with an Approved Code of Practice and supporting guidance.

For convenience, the text of the Regulations is set out in *italic* type, with the ACOP in **bold** type and the accompanying guidance in normal type.

Notice of Approval

By virtue of section 16(1) of the Health and Safety at Work etc Act 1974 and with the consent of the Secretary of State for Work and Pensions, the Health and Safety Commission has on 13 May 2003 approved the Code of Practice entitled 'Storage of dangerous substances'.

The Code of Practice gives practical guidance with respect to regulations 5 and 6 of the Dangerous Substances and Explosive Atmospheres Regulations 2002 with regard to safe maintenance, repair and cleaning procedures where dangerous substances are or may be present.

The Code of Practice comes into effect on 27 October 2003.

Signed

MARK DEMPSEY
Secretary to the Health and Safety Commission
3 October 2003

Introduction

1 The Dangerous Substances and Explosive Atmospheres Regulations 2002[1] (DSEAR) are concerned with protection against risks from fire, explosion and similar events arising from dangerous substances used or present in the workplace. They set minimum requirements for the protection of workers from fire and explosion risks related to dangerous substances and potentially explosive atmospheres. The Regulations apply to employers and the self-employed and apply at most workplaces in Great Britain where a dangerous substance is, or could be, present.

2 DSEAR revokes, repeals or modifies a large amount of old legislation relating to flammable substances and dusts. Safety standards will be maintained through a combination of the requirements of DSEAR and ACOPs (Approved Codes of Practice) reflecting good practices in the old legislation.[2-6]

3 The key requirements in DSEAR are that risks from dangerous substances are assessed and eliminated or reduced. This ACOP provides practical advice on what employers need to do to meet the requirements of regulations 5 and 6 of DSEAR (on assessment and control of risks) at any place where dangerous substances are stored and includes the safe disposal of waste materials.

4 This publication is part of a series of publications intended to support DSEAR. Other activity-related ACOP and guidance material is available in the following publications:

(a) *Dangerous substances and explosive atmospheres*[2] - This provides an overview of how employers can meet their duties under DSEAR.
(b) *Design of plant, equipment and workplaces*[3] - This gives practical advice on assessing the risk from, and the design and use of, plant, equipment and workplaces which handle or process dangerous substances. It includes measures for making redundant plant and equipment safe.
(c) *Control and mitigation measures*[4] - This gives practical advice on the requirements of regulations 5 and 6 to identify the hazards arising from the dangerous substance and put into place adequate ventilation, ignition control and separation measures to control risks.
(d) *Safe maintenance, repair and cleaning*[5] - This gives practical advice on identifying hazards and implementing appropriate control measures and systems of work during maintenance and other similar non-routine activities. It includes advice on hot work and on permit-to-work systems for those activities identified as high risk.
(e) *Unloading petrol from road tankers*[6] - This gives practical advice and contains a code of practice in respect to regulation 6 with regard to the safe unloading of petrol tankers at petrol filling stations.

5 In addition, the free leaflet *Fire and explosion - How safe is your workplace?*[7] provides a short guide to DSEAR and is aimed at small and medium sized businesses.

6 Information on DSEAR can also be accessed via HSE's website: www.hse.gov.uk, which is regularly updated.

Regulation

5

Assessment of the risks

Regulation 5

(1) Where a dangerous substance is or is liable to be present at the workplace, the employer shall make a suitable and sufficient assessment of the risks to his employees which arise from that substance.

(2) The risk assessment shall include consideration of -

(a) the hazardous properties of the substance;
(b) information on safety provided by the supplier, including information contained in any relevant safety data sheet;
(c) the circumstances of the work including -
(i) the work processes and substances used and their possible interactions;
(ii) the amount of the substance involved;
(iii) where the work will involve more than one dangerous substance, the risk presented by such substances in combination; and
(iv) the arrangements for the safe handling, storage and transport of dangerous substances and of waste containing dangerous substances;
(d) activities, such as maintenance, where there is the potential for a high level of risk;
(e) the effect of measures which have been or will be taken pursuant to these Regulations;
(f) the likelihood that an explosive atmosphere will occur and its persistence;
(g) the likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective;
(h) the scale of the anticipated effects of a fire or an explosion;
(i) any places which are or can be connected via openings to places in which explosive atmospheres may occur; and
(j) such additional safety information as the employer may need in order to complete the risk assessment.

ACOP

7 As part of the risk assessment employers must assess any place where dangerous substances are stored. This should be done before the storage area is brought into use. The assessment should be reviewed regularly, particularly when it is proposed to change the storage conditions or change the dangerous substances stored.

8 The assessment should identify the hazards arising from storage of the dangerous substance and determine measures that will:

(a) avoid or minimise the potential risk of a spillage or release of a dangerous substance;
(b) minimise the risk of a fire or explosion occurring at the storage location;
(c) protect the storage area from fires occurring elsewhere;
(d) mitigate the consequences of such incidents.

Guidance

9 All relevant factors should be taken into account when assessing the storage installation including:

(a) the properties of the substances, including any waste materials being stored;
(b) information provided by the supplier of the substance;
(c) the quantities being stored;
(d) the method of storage eg in bulk tanks or in containers;
(e) the temperature and pressure of the stored substances;
(f) location of the storage area in relation to other features including: the site boundaries, occupied buildings, means of escape, process areas, heat sources, fixed sources of ignition, other dangerous substances and vehicle thoroughfares;
(g) the design standards for the installation;
(h) the possibility of corrosion;
(i) activities on adjacent premises;
(j) training and supervision of site operatives;
(k) frequency of deliveries;
(l) loading and unloading operations;
(m) inspection and maintenance;
(n) incidents and emergencies; and
(o) security.

10 Liaison with the Environment Agency (EA) or the Scottish Environmental Protection Agency in Scotland (SEPA) is advised where spillage of the dangerous substance, including dispersion of this in water or other media used to wash it away or in fire fighting, may have potential environmental impact. At such sites subject to the Control of Major Accident Hazards Regulations (COMAH),[8] the emergency plans should have written instructions covering such situations and for contacting and liaising with EA or SEPA.

Regulation

Elimination or reduction of risks from dangerous substances

Regulation 6

(1) Every employer shall ensure that risk is either eliminated or reduced so far as is reasonably practicable.

(2) In complying with his duty under paragraph (1), substitution shall by preference be undertaken, whereby the employer shall avoid, so far as is reasonably practicable, the presence or use of a dangerous substance at the workplace by replacing it with a substance or process which either eliminates or reduces the risk.

(3) Where it is not reasonably practicable to eliminate risk pursuant to paragraphs (1) and (2), the employer shall, so far as is reasonably practicable, apply measures, consistent with the risk assessment and appropriate to the nature of the activity or operation -

(a) to control risks, including the measures specified in paragraph (4); and
(b) to mitigate the detrimental effects of a fire or explosion or the other harmful physical effects arising from dangerous substances, including the measures specified in paragraph (5).

(4) The following measures are, in order of priority, those specified for the purposes of paragraph (3)(a) -

(a) the reduction of the quantity of dangerous substances to a minimum;
(b) the avoidance or minimising of the release of a dangerous substance;
(c) the control of the release of a dangerous substance at source;
(d) the prevention of the formation of an explosive atmosphere, including the application of appropriate ventilation;
(e) ensuring that any release of a dangerous substance which may give rise to risk is suitably collected, safely contained, removed to a safe place, or otherwise rendered safe, as appropriate;
(f) the avoidance of -
(i) ignition sources including electrostatic discharges; and
(ii) adverse conditions which could cause dangerous substances to give rise to harmful physical effects; and
(g) the segregation of incompatible dangerous substances.

(5) The following measures are those specified for the purposes of paragraph (3)(b) -

(a) the reduction to a minimum of the number of employees exposed;
(b) the avoidance of the propagation of fires or explosions;
(c) the provision of explosion pressure relief arrangements;
(d) the provision of explosion suppression equipment;
(e) the provision of plant which is constructed so as to withstand the pressure likely to be produced by an explosion; and
(f) the provision of suitable personal protective equipment.

6

Regulation

6

(6) The employer shall arrange for the safe handling, storage and transport of dangerous substances and waste containing dangerous substances.

(7) The employer shall ensure that any conditions necessary pursuant to these Regulations for ensuring the elimination or reduction of risk are maintained.

(8) The employer shall, so far as is reasonably practicable, take the general safety measures specified in Schedule 1, subject to those measures being consistent with the risk assessment and appropriate to the nature of the activity or operation.

Schedule

1

General safety measures

Schedule 1

1. The following measures are those specified for the purposes of regulation 6(8).

Workplace and work processes

2. Ensuring that the workplace is designed, constructed and maintained so as to reduce risk.

3. Designing, constructing, assembling, installing, providing and using suitable work processes so as to reduce risk.

4. Maintaining work processes in an efficient state, in efficient working order and in good repair.

5. Ensuring that equipment and protective systems meet the following requirements -

(a) where power failure can give rise to the spread of additional risk, equipment and protective systems must be able to be maintained in a safe state of operation independently of the rest of the plant in the event of power failure;
(b) means for manual override must be possible, operated by employees competent to do so, for shutting down equipment and protective systems incorporated within automatic processes which deviate from the intended operating conditions, provided that the provision or use of such means does not compromise safety;
(c) on operation of emergency shutdown, accumulated energy must be dissipated as quickly and as safely as possible or isolated so that it no longer constitutes a hazard; and
(d) necessary measures must be taken to prevent confusion between connecting devices.

Schedule

1

Organisational measures

6. The application of appropriate systems of work including -

(a) the issuing of written instructions for the carrying out of the work; and
(b) a system of permits to work with such permits being issued by a person with responsibility for this function prior to the commencement of the work concerned,

where the work is carried out in hazardous places or involves hazardous activities.

Guidance

Control measures

11 Where a work activity involves a dangerous substance, regulation 6 requires employers, where it is reasonably practicable, to eliminate risks, preferably by substituting the dangerous substance with one that is not dangerous. However, in many cases the nature of the business or activity means that substitution is not possible. In these circumstances employers must reduce risks, so far as is reasonably practicable, by applying the measures in regulations 6(3) and 6(4).

ACOP

Containment

12 Dangerous substances that are gases, liquids or liquefied gases should be stored in closed tanks, cylinders or containers constructed to an appropriate national or international standard. Liquefied petroleum gases (LPG) and natural gas can also be stored in suitable underground reservoirs and caverns.

13 For liquids stored above ground there should be a means to contain leaks and prevent them spreading to other parts of the premises, or off-site. Underground storage tanks for liquids should be provided with secondary containment or a leak detection system that is capable of identifying leaks before a hazardous situation can arise.

14 Liquid leaks from fixed vessels containing liquefied gasses should be directed away from the vessel and other vulnerable locations and populations, on and off-site, to an area where the vapours evaporating from the leak can readily and safely disperse.

15 Dangerous substances that are solids or powders should be stored in closed vessels (eg hoppers, bins, silos), or the containers used to transport them to site (eg sacks, large bags). Containers and vessels should be constructed to an appropriate national or international standard. Where there are no relevant standards, the containers should be constructed in accordance with accepted good practice.

Guidance

16 Many granular materials contain a proportion of dust that is a dangerous substance. These types of products may be stored in designated compounds that are not closed (eg flat floor storage) provided that there are good controls over dust that is likely to be released during material transfer.

17 Further guidance on containment can be found in the documents listed in the ‘Further information’ section at the end of this document.

ACOP

Separation

18 Storage areas should be adequately separated from site boundaries, occupied buildings, process areas, fixed sources of ignition and other dangerous substances. The separation should be sufficient to allow people to escape from a fire at the store and should also be sufficient to protect the store from fires that may occur elsewhere including on the boundary. The separation should prevent or delay the spread of fire allowing sufficient time for emergency procedures to be mobilised.

Guidance

19 For outdoor storage, adequate separation can be achieved by locating the storage facility at an appropriate distance from other specific features or potential hazards. Alternatively, a physical barrier such as a fire-resisting wall or partition can be used.

ACOP

20 Where dangerous substances that are liquids or gases are stored inside buildings, the storeroom should be a dedicated building or a separate room within a building. The store should be located in a safe position adequately separated from other buildings, workrooms and other potential hazards or be a fire-resisting structure.

Guidance

21 Details on adequate separation distances and fire-resisting structures are contained in the DSEAR ACOP, *Control and mitigation measures*.[4] For products which are dusts, or contain a proportion of dusts, these issues are covered in *Safe handling of combustible dusts*.[9]

ACOP

Segregation

22 Incompatible dangerous substances should be segregated and adequately separated to minimise the risk of interaction.

Guidance

23 Materials defined as dangerous substances will include those materials that have been classified because of hazardous properties such as accelerated burning or because they can release flammable gas products. Where mixtures of substances, whether they are dangerous substances or not, are incompatible, they should be separated or segregated to minimise the risks. For example, a risk arises where corrosive materials are stored if a release of the corrosive material could cause the containers for dangerous substances to fail. General guidance on storing packaged dangerous materials is contained in *Chemical warehousing: The storage of packaged dangerous substances*[10] which also makes reference to other guidance for specific dangerous materials.

ACOP

Ventilation

24 Good ventilation should be provided in areas where flammable liquids or gases are stored in order to ensure that any such gases or vapours given off from a spill, leak or release are rapidly dispersed. Preferably, storage areas should be located in well-ventilated positions, in the open air. If a storage area is located within a building, adequate natural or mechanical ventilation should be provided.

Guidance

25 Fixed tanks and vessels used for the storage of LPG should be located in a safe, well-ventilated position in the open air, or below ground. Where underground vessels are used, no part of the vessel should be beneath any building or similar structure where a dangerous accumulation of gas could occur.

Guidance

26 Where underground reservoirs or caverns are used for the storage of LPG or natural gas, the surface of the ground above the storage area should not be beneath any building or similar structure where a dangerous accumulation of gas could occur.

27 Further information on ways to achieve adequate ventilation is contained in the DSEAR ACOP, *Control and mitigation measures*.[4]

ACOP

Identification of storerooms, tanks, vessels and containers

28 The contents of tanks, vessels and containers, used for the storage of dangerous substances should be clearly identified so that people who use them or come into contact with them are aware of their contents and hazards. The contents of cupboards, compounds and storerooms should also be clearly identified.

Material transfer

29 Where dangerous substances are transported to a storage area, or carried or conveyed from a storage area or between work areas, they should be carried in closed vessels or conveyed in a totally closed system incorporating pipelines and pumps or similar appliances. The contents of pipes, fill points and discharge points should be identified in accordance with regulation 10. Where it is not reasonably practicable to use a totally enclosed system, dangerous substances should be carried or conveyed in closed containers or vessels that minimise the risk of spills or releases.

30 Process activities such as dispensing or decanting should not be carried out in a storage area where they would create a risk of fire involving the stored materials.

31 Loading and unloading facilities should be designed, located and operated to avoid or minimise the risks of fire and explosions at either the transfer facility or the storage installation. The facility should include measures to minimise the risks of leaks, spills and overfilling plant and equipment.

Guidance

32 Protective measures, such as physical barriers, will help to prevent damage to containers, vessels, pipework and other equipment. Systems of work or explosion-protected vehicles may be necessary when vehicles are used in or near to storage areas.

ACOP

33 Unloading facilities should be designed and operated to minimise the risks of a fire, an explosion or the unintended release of a dangerous substance arising from the inadvertent mixing of incompatible materials.

Guidance

34 Such events may occur if a dangerous substance is sent to the wrong tank; if the contents of a delivery vehicle are not the same as the dispatch note or are out of specification; or if a tank is used to store a new material before the residues of the previous contents are adequately cleaned out. The risks may be controlled by measures such as: clear labelling of transfer lines; provision of dedicated transfer lines rather than temporary flexible hoses with complex valve manifolds; use of different types of couplings for incompatible products; simple checks on the contents of incoming road tankers and written systems of work concerning tank cleaning.

ACOP

Control of ignition sources

35 Areas in and around storage facilities where potentially explosive atmospheres could be formed should be designated as hazardous zones according to the principles of Hazardous Area Classification. Definitions of hazardous zones are set out in Schedule 2 of DSEAR.[1] Employers should implement measures to prevent the ignition of dangerous substances and the flammable atmospheres in the hazardous zones arising from their storage.

Guidance

36 Further information on Hazardous Area Classification and potential ignition sources are contained in the DSEAR ACOP, *Control and mitigation measures*.[4]

ACOP

Storage in process areas and workrooms

37 The quantity of any dangerous substance present within process vessels, pipelines, pumps, plant and any other associated equipment should be as small as is reasonably practicable with respect to the process and operations being carried out.

Guidance

38 Where a material is a dangerous substance only because it can give rise to a dust explosion hazard, the process and handling operations should be designed to limit the extent of any explosive atmosphere that may be formed both inside and outside of any plant or equipment.

ACOP

39 Only the minimum amount of dangerous substances needed to carry out the work activity should be kept in process areas, workrooms, laboratories and similar working areas. Material that is not in use should be returned to the designated storage area. Small quantities of flammable liquids in closed containers can be stored within the workroom in a suitably placed cupboard or bin which is of fire-resisting structure and is designed to retain spills.

Guidance

40 For flammable liquids that have a flashpoint above the maximum ambient temperature (normally taken as 32 °C), this small quantity that may be stored in the workroom is considered to be an amount up to 250 litres. For extremely and highly flammable liquids and those flammable liquids with a flashpoint below the maximum ambient temperature the small quantity is considered to be up to 50 litres.

41 At retail premises, where products are present in closed or sealed containers, the quantity of dangerous substance at the point of sale should be kept to a minimum consistent with the needs of the business.

42 Further advice on keeping dangerous substances in workrooms and retail premises is contained in the reference documents listed at the end of this publication.

ACOP

43 Containers that are nominally empty but may still contain residues of dangerous substances should be removed from the workroom and stored in the same manner as full containers.

44 All openings in cupboards, bins, tanks, vessels and containers, whether containing a dangerous substance or nominally empty, should be kept closed except as necessary for their use, operation or maintenance.

ACOP

Security

45 Employers should ensure that adequate security arrangements are provided to prevent any unauthorised access to dangerous substances and their associated storage equipment.

Guidance

46 The level of security for the storage area will depend on the consequences of a fire and the general security already provided for the premises. Security measures will need to take into account the possibility of arson and vandalism and at the same time take full account of the fire precautions and control measures required at the site. Examples of security measures include locks on storeroom doors, welded mesh or chain link fencing, intruder alarms, security patrols and lockable covers to filling and discharge connections.

ACOP

Maintenance

47 Storage facilities must be maintained in a safe condition. They should be subject to an appropriate inspection programme to establish that they remain fit for purpose. This should be carried out by a competent person.

Guidance

48 The inspection and examination of the storage facility should include checking for leaks, operation of valves, gauges and other safety or protective equipment, integrity of primary and secondary containment facilities, testing electrical equipment and housekeeping. The period between inspections and the need for any integrity testing of tanks, containers and hoses should be determined by the competent person. The continued integrity of parts of the storage facility which are impracticable to examine, for example buried tanks, may be assessed by other means, such as suitable leak detection systems. Any faults identified during the inspection or during normal operation should be rectified as soon as possible and before a hazardous situation can arise.

49 Inspection and maintenance of equipment to ensure that it remains in a safe condition is also a requirement of the Provision and Use of Work Equipment Regulations 1998 (PUWER).[11]

ACOP

Disposal of waste materials

50 When assessing and controlling the risks from dangerous substances employers should take into account the risks arising from the handling, storage, treatment and disposal of waste materials and any by-products that are themselves dangerous substances. When assessing the risks employers will need to take into account the hazardous properties of the waste materials.

Guidance

51 Where it is not possible to ascertain the properties from known data employers should carry out additional testing.

52 From the assessment employers should decide upon and implement appropriate control measures to ensure the safety of employees and others during the handling, storage and disposal of waste materials.

53 Employers must provide effective control measures to minimise the risk of fires and explosions from waste materials and by-products that are themselves dangerous substances or which contains a dangerous substance. The measures should include disposing of waste. Also, disposal should take account of relevant environmental legislation.

ACOP

54 Prior to disposal or reprocessing, waste materials must be stored safely. Employers should ensure that they are stored in suitable containers and according to their hazardous properties. Containers should be labelled or otherwise identifiable so that all who handle them are aware of their contents and hazardous properties.

55 Waste streams from different sources, having different compositions should not be mixed together without consideration of possible dangerous interactions. Employers should establish procedures and precautions for the safe collection and mixing of waste materials.

56 Nominally empty drums, gas cylinders and other reusable containers should be stored according to the requirements of the full containers and be returned to the supplier or disposed of as soon as is reasonably practicable. Valves, bungs and lids should be kept closed. The name of the product they last contained should remain legible unless they have been effectively cleaned.

57 Where a dangerous substance is to be disposed of by burning, it should be burnt:

(a) in plant, equipment or a location that is suitable for the purpose; and
(b) by a competent person and in a safe manner.

Guidance

58 Employers should also be aware of, and take account of, other legislation covering the disposal of waste, including:

the Environmental Protection Act 1990;[12]

the Groundwater Regulations 1998 ;[13]

the Water Resources Act 1991;[14]

the Environmental Protection (Duty of Care Regulations) 1991;[15]

the Special Waste Regulations 1996;[16]

the Anti-pollution Works Regulations 1999;[17]

the Control of Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991.[18]

References and further reading

1 *The Dangerous Substances and Explosive Atmospheres Regulations 2002* SI 2002/2776 The Stationery Office 2002 ISBN 0 11 042957 5

2 *Dangerous Substances and Explosive Atmospheres. Dangerous Substances and Explosive Atmospheres Regulations. Approved Code of Practice and guidance* L138 HSE Books 2003 ISBN 0 7176 2203 7

3 *Design of plant, equipment and workplaces. Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance* L134 HSE Books 2003 ISBN 0 7176 2199 5

4 *Control and mitigation measures. Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance* L136 HSE Books 2003 ISBN 0 7176 2201 0

5 *Safe maintenance, repair and cleaning procedures. Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance* L137 HSE Books 2003 ISBN 0 7176 2202 9

6 *Unloading petrol from road tankers. Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance* L133 HSE Books 2003 ISBN 0 7176 2197 9

7 *Fire and explosion: How safe is your workplace? A short guide to the Dangerous Substances and Explosive Atmospheres Regulations* Leaflet INDG370 HSE Books 2002 (single copy free or priced packs of 5 ISBN 0 7176 2589 3)

8 *The Control of Major Accident Hazards Regulations 1999* SI 1999/743 The Stationery Office 1999 ISBN 0 11 082192 0

9 *Safe handling of combustible dusts: Precautions against explosions* HSG103 HSE Books 2003 ISBN 0 7176 2726 8

10 *Chemical warehousing: The storage of packaged dangerous substances* HSG71 (Second edition) HSE Books 1998 ISBN 0 7176 1484 0

11 *The Provision and Use of Work Equipment Regulations 1998* SI 1998/2306 HSE Books 1998 ISBN 0 11 079599 7

12 *The Environmental Protection Act 1990* Ch 43 The Stationery Office 1990 ISBN 0 10 544390 5

13 *The Groundwater Regulations 1998* SI 1998/2746 The Stationery Office 1998 ISBN 0 11 079799 X

14 *The Water Resources Act 1991* Ch 57 The Stationery Office 1997 ISBN 0 10 545791 4

15 *The Environmental Protection (Duty of Care Regulations) 1991* SI 1991/2839 The Stationery Office 1991 ISBN 0 11 015853 9

16 *The Special Waste Regulations 1996* SI 1996/972 The Stationery Office 1996 ISBN 0 11 054565 6

17 *The Anti-pollution Works Regulations 1999* SI 1999/1006 The Stationery Office 1999 ISBN 0 11 082464 4

18 *The Control of Waste (Registration of Carriers and Seizure of vehicles) Regulations 1991* SI 1991/1624 The Stationery Office 1991 ISBN 0 11 014624 7

Further reading

The storage of flammable liquids in containers HSG51 (Second edition) HSE Books 1998 ISBN 0 7176 1471 9

Chemical warehousing: The storage of packaged dangerous substances HSG71 (Second edition) HSE Books 1998 ISBN 0 7176 1484 0

Energetic and spontaneously combustible substances: Identification and safe handling HSG131 HSE Books 1995 ISBN 0 7176 0893 X

Storage and handling of industrial nitrocellulose HSG135 HSE Books 1995 ISBN 0 7176 0694 5

The storage of flammable liquids in tanks HSG176 HSE Books 1998 ISBN 0 7176 1470 0

The bulk storage and handling of medium and high strength potable alcohol 3rd edition Scotch Whisky Association 1997 available from the Scotch Whisky Association, 20 Athol Crescent, Edinburgh EH3 8HF, tel: 0131 222 9200

Storing and handling ammonium nitrate Leaflet INDG230 HSE Books 1996 (single copy free)

Bulk LPG Storage at Fixed Installations Code of Practice 1 LP Gas Association available from LP Gas Association, Pavilion 16, Headlands Business Park, Salisbury Road, Ringwood, Hampshire BH24 3PB, Fax 01425 471131

Storage of full and empty LPG Cylinders and Cartridges Code of Practice 7 LP Gas Association 1998 available from LP Gas Association, Pavilion 16, Headlands Business Park, Salisbury Road, Ringwood, Hampshire BH24 3PB, Fax 01425 471131

The Dangerous Substances and Explosive Atmospheres Regulations 2002. A short guide for the offshore industry HSE Offshore Division Operations Notice 58 available online at http://www.hse.gov.uk/hid/osd/notices/on_index.htm

The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 1996. A short guide for the offshore industry HSE Offshore Division Operations Notice 59 available online at http://www.hse.gov.uk/hid/osd/notices/on_index.htm

Guidance for the design, construction, modification and maintenance of petrol filling stations Association for Petroleum and Explosives Administration/Institute of Petroleum 1999 ISBN 0 85293 217 0 available from Portland Customer Services, Commerce Way, Whitehall Industrial Estate, Colchester CO2 8HP, tel: 01206 796 351, fax: 01206 799 331, e-mail: sales@portland-services.com, website: www.portlandpress.com

Model Code of Safe Practice in the Petroleum Industry. Part 2 Design, construction and operation of distribution installations Institute of Petroleum 1998 ISBN 0 85293 204 9 available from Portland Customer Services, Commerce Way, Whitehall Industrial Estate, Colchester CO2 8HP, tel: 01206 796 351, fax: 01206 799 331, e-mail: sales@portland-services.com, website: www.portlandpress.com

Further information

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