

STATUTORY INSTRUMENTS

S.I. No. 258 of 2003

Safety, Health and Welfare at Work (Explosive Atmospheres) Regulations 2003

To be made by the Minister of State
at the Department of Enterprise, Trade
and Employment

(PRN 444)

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I, Frank Fahey, Minister of State at the Department of Enterprise, Trade and Employment, in exercise of the powers conferred on me by section 28 of the Safety, Health and Welfare at Work Act 1989 (No. 7 of 1989) in relation to the matters set out in paragraphs (2), (5), (20), (25), (28), (30), (32) and (35) of the Fourth Schedule to that Act, the Labour (Transfer of Departmental Administration and Ministerial Functions) Order 1993 (S.I. No. 18 of 1993), (as adapted by the Enterprise and Employment (Alteration of Name of Department and Title of Minister) Order 1997 (S.I. No. 305 of 1997)), and the Enterprise, Trade and Employment (Delegation of Ministerial Functions) Order 2003 (S.I. No. 156 of 2003), and after consultation with the National Authority for Occupational Safety and Health, and for the purpose of giving effect to Directive 1999/92/EC¹ of the European Parliament and of the Council hereby make the following regulations:

Citation and Commencement

1. (1) These Regulations may be cited as the Safety, Health and Welfare at Work (Explosive Atmospheres) Regulations 2003.

- (2) Subject to the transitional arrangements in Regulation 8, these Regulations shall come into force on 30 June 2003.

Interpretation

2. (1) In these Regulations, unless the context otherwise requires -

¹ O.J. No. L23, 28.1.2000. p. 57

“Directive” means Directive 1999/92/EC¹ of the European Parliament and of the Council of 16 December 1999;

“explosion protection document” shall be construed in accordance with Regulation 4;

“fixed term employee” has the meaning assigned to it by the Principal Regulations;

“hazard” means the physico-chemical or chemical property of a substance which has the potential to give rise to fire, explosion, or other events which can result in harmful physical effects of a kind similar to those which can be caused by fire or explosion, affecting the safety of a person, and cognate words shall be construed accordingly;

“Principal Regulations” means the Safety, Health and Welfare at Work (General Application) Regulations 1993 (S.I. No. 44 of 1993) as amended by the Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2001 (S.I. No. 188 of 2001) and the Safety, Health and Welfare at Work (General Application) (Amendment No. 2) Regulations 2003 (S.I. No. 53 of 2003);

“public road” has the meaning assigned to it by Part XI of the Principal Regulations;

“risk” means the likelihood of a person’s safety being affected by harmful physical effects being caused to him from fire, explosion or other events arising from the hazardous properties of a substance in connection with work;

¹ O.J. No. L23, 28.1.2000. p. 57

“substance” includes any natural or artificial substance whether in solid or liquid form or in the form of a gas or vapour;

“workplace” means any premises or part of premises used for or in connection with work, and includes -

- (a) any place within the premises to which a person has access while at work; and
- (b) any room, lobby, corridor, staircase, road or other place -
 - (i) used as a means of access to or egress from that place of work, or
 - (ii) where facilities are provided for use in connection with that place of work,other than a public road.

(2) A word or expression that is used in these Regulations and is also used in the Directive has, unless the contrary intention appears, the same meaning in these Regulations that it has in the Directive.

(3) In these Regulations a reference to a paragraph is to a paragraph in the Regulation in which the reference occurs, unless it is indicated that reference to some other

Regulation is intended, and a reference to a Regulation or a Schedule is to a Regulation of, or a Schedule to, these Regulations, unless it is indicated that reference to some other Regulation or Schedule is intended.

Application

3. (1) Without prejudice to the requirements of the Principal Regulations and subject to paragraph (4), these Regulations shall apply to a workplace where workers are potentially at risk from an explosive atmosphere.

(2) These Regulations shall apply to a self-employed person as they apply to an employer and as if that self-employed person was an employer and his or her own employee.

(3) These Regulations shall apply to an employer in respect of the use by him or her of the services of a fixed term employee, and having regard to the provisions of Regulation 4 of the Principal Regulations.

(4) These Regulations shall not apply to-

- (a) areas used directly for and during the medical treatment of patients;
- (b) the use of appliances burning gaseous fuels in accordance with Directive 90/396/EEC²;

² O.J. No. L196, 26.7.1990, p. 15 as amended by Directive 93/68/EEC (O.J. No. L 220, 30.08.1993, P. 1)

- (c) the manufacture, handling, use, storage and transport of explosives or chemically unstable substances;
- (d) mineral extracting industries covered by Directive 92/91/EEC³ or Directive 92/104/EEC⁴;
- (e) the use of means of transport by land, water and air, to which the relevant provisions of the international agreements, including ADR, and the European Community directives giving effect to those agreements apply, but means of transport intended for use in a potentially explosive atmosphere shall not be excluded.

Assessment of explosion risk

4. (1) Without prejudice to the Principal Regulations, where an explosive atmosphere is or is likely to be present at or may, from time to time, arise in a workplace, an employer shall make a suitable and appropriate assessment of the risk arising from such explosive atmosphere to the employees concerned having regard to all the circumstances.

(2) The employer shall, in carrying out the assessment, have regard to -

- (a) the likelihood that explosive atmospheres will occur and their persistence,

³ O.J. No. L348, 28.11.1992, p. 9

⁴ O.J. No. L404, 31.12.1992, p. 10

- (b) the likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective,
- (c) the installations, substances used, work processes and their possible interactions,
- (d) the scale of the anticipated effects,
- (e) any places which are or can be connected via openings to places in which explosive atmospheres may occur, and
- (f) such additional safety information as the employer may need in order to complete the assessment.

(3) The employer shall, having carried out an assessment under and in accordance with this Regulation, prepare an explosion protection document and make it available to the employees concerned.

(4) Without prejudice to the generality of paragraph (3), the employer shall specify in that explosion protection document-

- (a) that the explosion risks have been determined and assessed,
- (b) that measures have been or will be taken pursuant to these Regulations and that such measures are adequate having regard to the risks,

- (c) the places which have been classified into zones in accordance with Regulation 6 and, in respect of such classification, where the minimum requirements set out in Schedule 2 apply,
- (d) that the workplace and work equipment, including warning devices, are designed, operated and maintained with due regard for safety and that, in accordance with Part IV of the Principal Regulations, adequate arrangements have been made for the safe use of work equipment, and
- (e) the purpose of any co-ordination required by Regulation 7 and the measures and procedures for implementing it.

(5) The employer shall prepare the explosion protection document as soon as practicable after the coming into force of these Regulations and before the commencement of work, shall revise it as necessary if the workplace, work equipment or organisation of work undergoes significant changes, extensions or conversions and shall make such explosion protection document available to the employees concerned.

(6) The employer may, in drawing up the explosion protection document, combine existing explosion risk assessments, documents or other equivalent reports which have been prepared by or on behalf of the employer under any Regulations giving effect to other acts of the European Community.

(7) An employer shall assess the risk of explosion in any workplace to which these Regulations apply.

Prevention and protection against explosion

5. (1) Without prejudice to Regulation 5 of the Principal Regulations, for the purpose of preventing and providing protection against explosions, an employer shall take technical and organisational measures that are appropriate to the nature of the operation and in order of priority shall ensure that such measures -

- (a) prevent the formation of explosive atmospheres, or where the nature of the activity does not allow that,
- (b) avoid the ignition of explosive atmospheres, and
- (c) mitigate the detrimental effects of an explosion so as to ensure the health and safety of workers.

(2) An employer shall, where necessary, combine and supplement the measures referred to in paragraph (1) with measures against the propagation of explosion.

(3) The employer shall review the foregoing measures regularly and whenever significant changes occur.

(4) An employer shall, for the purpose of ensuring the health and safety of employees, take the necessary measures to ensure that -

- (a) where explosive atmospheres may or are likely to arise in such quantities as to endanger the health and safety of workers or of others, the working environment is such that work can be performed safely, and
- (b) in working environments where explosive atmospheres may arise in such quantities as to endanger the safety and health of employees, there is appropriate supervision of employees in such working environments and that such supervision includes the appropriate technical measures,

and such measures shall be in accordance with the assessment of risk specified in Regulation 4.

Classification of places where explosive atmospheres may occur

6. (1) Every employer shall classify places at the workplace where explosive atmospheres may occur into hazardous or non-hazardous places in accordance with paragraph 1 of Schedule 1 and shall classify those places so classified as hazardous into zones in accordance with paragraph 2 of that Schedule.

(2) An employer shall ensure that the requirements specified in Schedule 2 are applied to the places classified as hazardous pursuant to paragraph (1).

(3) An employer shall display in a prominent position in any place that is classified as hazardous in accordance with paragraph (1), a sign at or near each point of entry to the hazardous place and the sign shall comply with Schedule 4.

(4) Before a workplace containing a place that is classified as hazardous pursuant to paragraph (1) is used for the first time, an employer shall ensure that-

(a) the overall explosion safety of such workplace and place is verified by a person who is competent in the field of explosion protection as a result of his or her experience and any professional training, and

(b) any condition or conditions that are necessary, pursuant to these Regulations, for ensuring protection from explosion, is or are maintained.

(5) An employer shall provide work clothing which does not give rise to electrostatic discharges for use in places classified as hazardous pursuant to paragraph (1) to any employee who is obliged to carry out work or duties in such places and is appropriate for the carrying out of such work or duties in such places.

Coordination at Workplaces

7. (1) Where employees are present in or at the same workplace and they are not employed by the same employer, each employer of the employees shall ensure the safety of

their employees and for that purpose shall ensure that the matters that arise under the control of each such employer comply with these Regulations.

(2) Where two or more employers share the same workplace, where an explosive atmosphere may occur the employer responsible for the workplace shall co-ordinate the implementation of all the measures required by these Regulations to be taken to protect employees from any risk from the explosive atmosphere.

Transitional Arrangements

8. (1) An employer shall apply the requirements specified in Schedule 2 to work equipment that is already in use or made available at the work place before 30 June 2003 in the places classified as hazardous pursuant to Regulation 6(1).

(2) An employer shall apply the requirements specified in Schedule 2 and in Schedule 3 to work equipment and protective systems, which are made available at the workplace for the first time after 30 June 2003, for use in the places classified as hazardous pursuant to Regulation 6(1).

(3) An employer shall apply these Regulations to any place in a workplace where explosives atmospheres may occur and which is used for the first time after 30 June 2003.

(4) An employer shall apply these Regulations by 30 June 2006 to any place in a workplace where explosive atmospheres may occur and which is in use before 30 June 2003.

(5) If, after 30 June 2003, any modification, extension or restructuring is undertaken in workplaces containing places where explosive atmospheres may occur, the employer concerned shall take the necessary steps to ensure that the modification, extension or restructuring complies with the requirements of these Regulations and these Regulations shall apply to the modification, extension or restructuring concerned.

Schedule 1

Classification of places where explosive atmospheres may occur

Regulation 6

Preliminary note

The following system of classification must be applied to places where precautions in accordance with Regulations 4, 5 and 6 are taken.

1. Places where explosive atmosphere may occur

A place in which an explosive atmosphere may occur in such quantities as to require special precautions to protect the health and safety of the workers concerned is deemed to be hazardous within the meaning of these Regulations.

A place in which an explosive atmosphere is not expected to occur in such quantities as to require special precaution is deemed to be non-hazardous within the meaning of these Regulations.

Flammable or combustible substances are considered as materials, which may form an explosive atmosphere unless an investigation of their properties has shown that in mixtures with air they are incapable of independently propagating an explosion.

2. Classification of hazardous places

Hazardous places are classified in terms of zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere.

The extent of the measures to be taken in accordance with Schedule 2 is determined by this classification.

Zone 0

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.

Zone 1

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.

Zone 2

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Zone 20

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.

Zone 21

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.

Zone 22

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Notes:

1. Layers, deposits and heaps of combustible dust must be considered as any other source, which can form an explosive atmosphere.
2. “Normal operation” means the situation when installations are used within their design parameters.

Schedule 2

Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres

Regulations 6 and 8

Preliminary Note:

The obligations laid down in this Schedule apply to:

- places classified as hazardous in accordance with Schedule 1 whenever required by the features of workplaces, workstations, the equipment or substances used or the danger caused by the activity related to the risks from explosive atmospheres;
- equipment in non-hazardous places which is required for, or helps to ensure, the safe operation of equipment located in hazardous places.

1. Organisational measures

1.1. Training of workers

The employer must provide those working in places where explosive atmospheres may occur with sufficient and appropriate training with regard to explosion protection.

1.2. Written instructions and permits to work

Where required by the explosion protection document:

- work in hazardous places must be carried out in accordance with written instruction issued by the employer;
- a system of permits to work must be applied for carrying out both hazardous activities and activities which may interact with other work to cause hazards.

Permits to work must be issued by a person with responsibility for this function prior to the commencement of work.

2. Explosion protection measures

- 2.1. Any escape and/or release, whether or not intentional, of flammable gases, vapours, mists or combustible dusts which may give rise to explosion hazards must be suitably diverted or removed to a safe place or, if that is not practicable, safely contained or rendered safe by some other suitable method.
- 2.2. If an explosive atmosphere contains several types of flammable and/or combustible gases, vapours, mist or dusts, protective measures shall be appropriate to the greatest potential risk.
- 2.3. Prevention of ignition hazards in accordance with Regulation 5 must also take account of electrostatic discharges, where workers or the working environment act as charge carrier or charge producer.
- 2.4. Plant, equipment, protective systems and any associated connecting devices must only be brought into service if the explosion protection document indicates that they can be safely used in an explosive atmosphere. This applies also to work equipment and associated connecting devices which are not regarded as equipment or protective systems within the meaning of Directive 94/9/EC if their incorporation into an installation can in itself give rise to an ignition hazard. Necessary measures must be taken to prevent confusion between connecting devices.
- 2.5. All necessary measures must be taken to ensure that the workplace, work equipment and any associated connecting device made available to workers have been designed, constructed, assembled and installed, and are maintained and operated, in such a way as to minimise the risks of an explosion and, if an explosion does occur, to control or minimise its propagation within that workplace and/ or work equipment. For such workplaces appropriate measures must be taken to minimise the risks to workers from the physical effects of an explosion.
- 2.6. Where necessary, workers must be given optical and/or acoustic warnings and withdrawn before the explosion conditions are reached.
- 2.7. Where required by the explosion protection document, escape facilities must be provided and maintained to ensure that, in the event of danger, workers can leave endangered places promptly and safely.
- 2.8. Where the risk assessment shows it is necessary:
 - it must be possible, where power failure can give rise to the spread of additional risks, to maintain equipment and protective systems in a safe state of operation independently of the rest of the installation in the event of power failure;

- manual override must be possible in order to shut down the equipment and protective systems incorporated within automatic processes which deviate from the intended operating conditions, provided that this does not compromise safety.
Only workers competent to do so may take such action;
- on operation of the emergency shutdown, accumulated energy must be dissipated as quickly and as safely as possible or isolated so that it no longer constitutes a hazard.

Schedule 3

Criteria for the selection of equipment and protective systems

Regulation 8

If the explosion protection document drawn up pursuant to Regulation 4(3) does not state otherwise, equipment and protective systems for all places in which explosive atmospheres may occur must be selected on the basis of the categories set out in the European Communities (Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres) Regulations, 1999 (S.I. No. 83 of 1999).

In particular, the following categories of equipment must be used in the zones indicated, provided they are suitable for gases, vapours or mists and/or dusts as appropriate:

- in zone 0 or zone 20, category 1 equipment
- in zone 1 or zone 21, category 1 or 2 equipment
- in zone 2 or zone 22, category 1,2 or 3 equipment.

Schedule 4

Warning sign for places where explosive atmospheres may occur

Regulation 6



Place where explosive atmospheres may occur

Distinctive features:

- triangular shape,
- black letter on a yellow background with black edging (the yellow part to take up at least 50% of the area of the sign).

GIVEN under my hand,

26 June 2003.

Frank Fahey

Minister of State for Enterprise,

Trade and Employment

EXPLANATORY NOTE

(This note is not part of the Instrument and does not purport to be a legal interpretation)

These Regulations transpose Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

Directive 1999/92/EC defines “explosive atmosphere” as “a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture”.

The Regulations require that an assessment be carried out where an explosive atmosphere is or is liable to be present at the workplace and specifies the prevention and protection measures to be taken against explosion.

Employers are required to classify places at the workplace where explosive atmospheres may occur into hazardous or non-hazardous places in accordance with paragraph 1 of Schedule 1.

They must classify those places classified as hazardous into zones in accordance with paragraph 2 of Schedule 1 and apply the specified preventive measures.

Employers are required to classify places at the workplace where explosive atmospheres may occur into hazardous or non-hazardous places in accordance with paragraph 1 of Schedule 1.

They must classify those places classified as hazardous into zones in accordance with paragraph 2 of Schedule 1 and apply the specified preventive measures. These measures include the selection of equipment and protective systems according to the categories set out in Schedule 3 of the Regulations. Such equipment and protective systems are defined in Directive 94/9/EC (which was transposed in Ireland through the European Communities (Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres) Regulations, 1999 (S.I. No. 83 of 1999)) as follows:

(a) 'Equipment' means machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy for the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

(b) 'Protective systems' means design units which are intended to halt incipient explosions immediately and/or to limit the effective range of explosion flames and explosion pressures. Protective systems may be integrated into equipment or separately placed on the market for use as autonomous systems.

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