

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 (15th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

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ANNEX I

CLASSIFICATION OF PLACES WHERE EXPLOSIVE ATMOSPHERES MAY OCCUR Preliminary note

The following system of classification must be applied to places where precautions in accordance with Articles 3, 4, 7 and 8 are taken.

1. Places where explosive atmospheres 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 this Directive.

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

Flammable and/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 Annex II, Part A, 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 or 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.

ANNEX II

A. MINIMUM REQUIREMENTS FOR IMPROVING THE SAFETY AND HEALTH PROTECTION OF WORKERS POTENTIALLY AT RISK FROM EXPLOSIVE ATMOSPHERES

Preliminary note

The obligations laid down in this Annex apply to:

- places classified as hazardous in accordance with Annex I 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 instructions 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, mists or dusts, protective measures shall be appropriate to the greatest potential risk.

2.3. Prevention of ignition hazards in accordance with Article 3 must also take account of electrostatic discharges, where workers or the working environment act as charge carrier or charge producer. Workers must be provided with appropriate working clothes consisting of materials which do not give rise to electrostatic discharges that can ignite explosive atmospheres.

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

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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. Before a workplace containing places where explosive atmospheres may occur is used for the first time, its overall explosion safety must be verified. Any conditions necessary for ensuring explosion protection must be maintained.

Such verification must be carried out by persons competent in the field of explosion protection as a result of their experience and/or professional training.

- 2.9. 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.

B. CRITERIA FOR THE SELECTION OF EQUIPMENT AND PROTECTIVE SYSTEMS

If the explosion protection document based on a risk assessment 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 Directive 94/9/EC.

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.

ANNEX III

Warning sign for places where explosive atmospheres may occur, pursuant to Article



►⁽¹⁾M1

7(3):

Place where explosive atmospheres may occur

Distinctive features:

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

Member States may add other explanatory data if they wish.