

## **Occupational Health and Safety Requirements at Explosive Atmosphere 1**

Government of the Republic Regulation No. 197 of 15 July 2003

This regulation is established on the basis of Article 4 (3<sup>1</sup>) of the Occupational Health and Safety Act (RT I 1999, 60, 616; 2000, 55, 362; 2001, 17, 78; 2002, 47, 297; 63, 387; 2003, 20, 120).

### Chapter 1 GENERAL PROVISIONS

#### **Article 1. Scope of application**

(1) This Regulation provides occupational health and safety requirements at work environment where occurs or may occur explosive atmosphere.

(2) This Regulation shall not apply to:

- 1) areas used directly for and during the medical treatment of patients;
- 2) the use of appliances burning gaseous fuels;
- 3) the manufacture, handling, use, storage and transport of explosives or chemically unstable substances;
- 4) mineral-extracting industries;
- 5) the use of means of transport by land, water and air, to which the pertinent provisions of the international agreements apply, except means of transport intended for use in a potentially explosive atmospheres.

#### **Article 2. Definitions**

(1) In this Regulation, the definition of explosive atmosphere is used within the meaning provided in Article 4 (4) of the Machinery Safety Act (RT I 2002, 99, 580).

(2) For the purposes of this Regulation, hazardous place means a workplace in which explosive atmosphere may occur in such quantities as to require special precautions to protect the health and safety of workers concerned.

(3) For the purposes of this Regulation, non-hazardous place means a workplace in which explosive atmosphere is not expected to occur in such quantities as to require special precautions to protect the health and safety of workers concerned.

(4) In this Regulation, the definition of equipment is used within the meaning provided in Article 4 (6) of the Machinery Safety Act.

(5) For the purposes of this Regulation, safety device in hazardous place means a device which is located in a safe place and used for safe operation of devices in hazardous places, or contributing to safe operation of devices in hazardous places.

(6) In this Regulation, the definition of protective system is used within the meaning provided in Article 4 (7) of the Machinery Safety Act.

### Chapter 2 OBLIGATIONS OF THE EMPLOYER

#### **Article 3. Ensuring safe work environment**

Employer ensures safe working environment at workplaces where explosive atmospheres may occur, by implementation of requirements provided in this Regulation and other legislation.

#### **Article 4. Agreement on collective activities and liability**

If workers of at least two employers work at the workplace at the same time, the employers shall enter into a written agreement on collective occupational health and safety activities and on the liability of each employer provided in Article 12 (3) of the Occupational Health and Safety Act. Collective activities shall be arranged by the main contractor.

#### **Article 5. Work-related organizational measures**

An employer shall arrange for the worker to receive instructions and training pursuant to the

provisions of the legislation established on the basis of Article 2 (3) of the Occupational Health and Safety Act.

#### **Article 6. Prevention of and protection against explosions**

The employer shall take technical and organizational measures appropriate to the nature of the operation, in order to:

- 1) prevent the formation of explosive atmospheres, or
- 2) avoid the ignition of explosive atmospheres, where the nature of the activity does not allow the prevention of the formation of explosive atmospheres, and
- 3) mitigate the detrimental effects of an explosion.

#### **Article 7. Assessment of explosion risks**

(1) Employer shall assess explosion risks pursuant to the procedure and on the conditions established by Article 13 (1) 3) and 5) of the Occupational Health and Safety Act as a part of the risk assessment of the working environment or as separate assessment, and assess the specific risks arising from explosive atmospheres, taking account of:

- 1) the likelihood that explosive atmospheres will occur and their persistence;
- 2) the likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective;
- 3) the explosion risks arising from installations, equipment and their connections systems, substances used, processes and their possible interactions;
- 4) the scale of the anticipated effects following potential explosion;
- 5) explosion risks at places which are or can be connected via openings to places in which explosive atmospheres may occur.

(2) Before a workplace containing places where explosive atmospheres may occur is used for the first time, its assessment of explosive risks shall be performed.

(3) The results of the assessment of explosion risks and action plan drawn up on the basis thereof, prescribing measures to be implemented for preventing or reducing explosive risks shall be drawn up as the explosion protection document containing at least the following:

- 1) list of workplaces safe and hazardous places and relevant explosion risks identified and assessed;
- 2) list of workplaces classified into zones;
- 3) list of measures taken for implementation of requirements established by the regulation, including the list of warning devices, and
- 4) list of measures taken for the safe use of work equipment.

(4) The explosion protection document shall be revised in accordance with the conducting of the analysis of explosive risks.

(5) If workers of at least two employers are present at the same workplace, the main contractor shall draw up the document specified in paragraph (3), and the measures and procedures for implementing it.

### Chapter 3

#### REQUIREMENTS FOR HAZARDOUS PLACES AND SAFETY DEVICES USED IN HAZARDOUS PLACES, OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS FOR WORK EQUIPMENT AND APPLIANCES USED IN HAZARDOUS PLACES

#### **Article 8. Requirements for prevention of and protection against explosions in hazardous places**

(1) If an explosive atmosphere contains several types of flammable or combustible gases, vapors, mists or dusts, protective measures shall be appropriate to the greatest potential risk.

(2) Any escape or release of flammable gases, vapors, mists or combustible dust, which may give rise to explosion hazards, must be suitably diverted or removed to a safe place. If that is not practicable, escaped or released gas, vapor, mist or combustible dust which may give rise to explosion hazards must be safely contained or rendered safe by some other suitable method.

(3) Electrostatic charge shall be earthed in a hazardous place, 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.

(4) Hazardous places shall be designed, constructed, modeled and maintained in such a way as to minimize the risks of an explosion and, if an explosion does occur, to control its propagation within that workplace and mitigate the detrimental effects of an explosion.

(5) Hazardous places shall be provided with constant surveillance by technical means and where necessary, workers must be given optical or acoustic warnings and withdrawn before the explosion conditions are reached and led out from endangered places.

(6) 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.

(7) Before a workplace containing places where explosive atmospheres may occur is used for the first time, the implementation of explosion risk measures prescribed in the explosion risk document shall be verified.

(8) Access gates to hazardous places shall be indicated by warning sign "Explosive atmosphere" pursuant to the procedure and on the conditions provided in legislation established on the basis of Article 4 (4) of the Occupational Health and Safety Act.

#### **Article 9. Requirements for prevention of and protection against explosions for safety devices used in hazardous places and for devices and work equipment used in hazardous places**

(1) Equipment and safety devices for use in places where explosive atmosphere may occur (hereinafter *equipment used in hazardous places*), protective systems and associated connecting devices thereof shall enable safe working conditions for workers, considering the risks and dangers determined on the basis of the assessment of explosive risks.

(2) Work equipment and associated connecting device shall be designed, constructed, installed and maintained and operated in such a way as to minimize the risks of an explosion and, if an explosion does occur, to control its propagation within that workplace and/or work equipment.

(3) 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.

(4) 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, unless the results of the assessment of explosive risks prescribes otherwise. Only workers who have received instructions for safe action may shut down such equipment and protective systems.

(5) 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, unless the results of the assessment of explosive risks prescribes otherwise.

#### Chapter 4

#### CLASSIFICATION OF PLACES WHERE EXPLOSIVE ATMOSPHERES MAY OCCUR AND CRITERIA FOR THE SELECTION OF EQUIPMENT AND PROTECTIVE SYSTEMS

#### **Article 10. Classification of places where explosive atmospheres may occur**

Workplaces where explosive atmospheres occur or may occur are classified in terms of zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere and according to the classification of zones provided in annex.

#### **Article 11. Criteria for the selection of equipment and protective systems used in explosive atmospheres**

(1) Selection of equipment used in workplaces classified as zones shall be based on the categories in equipment group II provided in the legislation established on the basis of Article 6 (4) of the Machinery Safety Act, unless otherwise prescribed by the results of assessment of explosion risks.

(2) The following categories of equipment must be used in workplaces classified as the zones indicated in Article 10:

- 1) in zone 0 or zone 20, category 1 equipment;
- 2) in zone 1 or zone 21, category 1 or 2 equipment, and

3) in zone 2 or zone 22, category 1, 2 or 3 equipment.

(3) Selection of protective systems used in workplaces classified as zones shall be based on the greatest possible risk determined as a result of assessment of explosive atmosphere and the frequency and duration of the occurrence of an explosive atmosphere.

Chapter 5  
IMPLEMENTING PROVISIONS

**Article 12. Application specifications for equipment already in use**

Criteria for the selection of equipment provided in § 11 shall not apply to the equipment used in explosive atmosphere if such equipment is already in use before this Regulation enters into force.

**Article 13. Entry into force of the Regulation**

(1) This Regulation shall enter into force on 1 July 2004.

(2) Where workplaces having or potentially having an explosive atmosphere are already in use before this Regulation enters into force, they shall comply with the requirements set out in Article 8 by 1 July 2006 at the latest.

<sup>1</sup> 1999/92/EC (OJ L 023, 28.1.2000, pp. 57 to 64)

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Annex 1 to Government of the  
Republic Regulation No. 197 of 15  
July 2003 Occupational Health and  
Safety Requirements at Explosive  
Atmosphere

**CLASSIFICATION OF WORKPLACES WITH EXPLOSIVE ATMOSPHERE**

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|---------|---|
| Zone 0  | A place in which an explosive atmosphere consisting of a mixture with air or flammable substances in the form of gas, vapor 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, vapor 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 or flammable substances in the form of gas, vapor 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.  |

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