

Explosive atmospheres

Scope

At the USPB organizations must assess the risk of explosion in the general RI&E. To identify whether there is a possible explosion risk due to ignition of released gases, vapours, mists or combustible dust, the standard NEN-EN-IEC 60079-10-1 (gas) and NEN-EN-IEC 60079-10 -2 (substance), both versions 2021, should be applied

Explosion protection document

If there is an explosion hazard, then § 2a. Explosive atmospheres of the Working Conditions Decree apply and the organization must mapping and control the explosion risk in an deepening of the RI&E. The general RI&E must refer to deepening of the RI&E.

The organization must have an ESD (Explosion Safety Document) that complies with the Working Conditions Decree, using the most recent standard and current Dutch Practice Guidelines (NPR).

Due to the direct effect of the Working Conditions Decree, the ESD must also be revised when the said standard or NPR is revised.

[Working Conditions Decree¹](#)

§ 2a. Explosive atmospheres

Article 3.5a. Applicability

This paragraph does not apply to:

- a. areas that are used immediately before and during medical treatment of patients;
- b. the use of gas appliances that fall under the Commodities Act Decree on gas appliances 2018;
- c. The manufacture, processing, use, storage and transport of explosives or chemically unstable substances;
- d. surface mineral extracting industry, underground mineral extraction industry and the extraction industry that extracts minerals with the help of drilling;
- e. the use of transport methods over land, water and in the air, with the exception of vehicles intended for use in places where explosive atmospheres may occur.

Article 3.5b. Collaboration and coordination

- 1 For the purpose of article 19, second paragraph of the law, activities are performed at workplaces where explosive atmospheres prevail or may occur.
- 2 In addition to article 19, second paragraph of the act, the employer who is responsible for the workplace, as referred to in the first paragraph, coordinates the implementation of all safety and health measures.

Article 3.5c. Detailed regulations for risk inventory and evaluation; explosion safety document

- 1 The hazards associated with explosive atmospheres and the special risks that may ensue from them are taken into account in the context of the risk inventory and evaluation, as referred to in article 5 of the act, prior to commencement of work and with every major change, expansion or conversion of the workplace, work equipment or work process, assessed in their entirety and recorded in writing in an explosion safety document.
- 2 In the assessment referred to in the first paragraph, account shall in any case be taken of:
 - a. the likelihood of occurrence and continuation of explosive atmospheres;
 - b. the likelihood of there being ignition sources, including electrostatic charges that become active and actually ignite;

¹ Working Conditions Decree valid on: July 19, 2021

- c. the installations present, the substances used, the processes and their potential interactions;
 - d. the scope of the anticipated effects.
- 3 In the assessment as referred to in the first paragraph, areas that are connected through openings to spaces where explosive atmospheres can occur shall also be taken into consideration.
- 4 At the very least the explosion document states:
 - a. an identification and assessment of the explosion risks;
 - b. the way in which the workspaces and the work equipment, including the alarm systems are designed, used or operated and maintained with the required attention to safety;
 - c. which areas are divided into zones as referred to in article 3.5d, fifth paragraph;
 - d. the way in which the measures referred to in articles 3.5d, 3.5e and 3.5f have been implemented;
 - e. if, as referred to in article 3.5b, first paragraph work is being performed by multiple employers at workplaces, the way in which article 19, second paragraph is complied with, from the law and the purpose, the measures and the method of implementation of the coordination as referred to in article 3.5b, second paragraph.

Article 3.5d. General preventative measures

- 1 Effective measures have been taken for the prevention of an explosive atmosphere at the workplace.
- 2 If the prevention of an explosive atmosphere is not possible due to the nature of the work, the following measures will be taken in the following order:
 - a. The ignition of explosive atmospheres is prevented taking into account electrostatic discharges which may emanate from employees or the workplace as charge carrier or charge producer;
 - b. The harmful effects of an explosion are limited.
- 3 In addition to the measures as referred to in the first and second paragraph, the potential of developing into an explosion is finite.
- 4 If employers or others are potentially put at risk due to explosive atmospheres, the workplace shall be set up, in addition to the first up to and including the third paragraph, in such a way that work can be carried out safely and appropriate supervision is exercised, including the use of appropriate technical means. The content and degree of supervision depends on the proven hazards from the assessment as referred to in article 3.5c, first paragraph.
- 5 If the assessment, as referred to in article 3.5c, first paragraph, showed that explosive atmospheres can occur, areas where these atmospheres may prevail shall be classified in the danger zones as referred to in appendix I in directive No. 1999/92/EG of the European Parliament and the Council of the European Union of 16 December 1999 (PbEG 2000, L 23) on minimum requirements for improvement of the health protection and safety of workers at risk from explosive atmospheres (fifteenth individual directive in the sense of article 16, paragraph one, of Directive No. 89/391/EEG).
- 6 Danger zones are marked by means of warning signs that comply with the provisions laid down by or pursuant to Section 2 of chapter 8.

Article 3.5e. Measures in danger zones

In the danger zones referred to in Article 3.5d, fifth paragraph, and with respect to the installations in areas with no risk of explosion that are required for, or contribute to, the explosion-safe operation of installations situated in areas where there is increased risk of explosion, the following measures are taken:

- a. released gases, vapours, combustible dust or mists which may give rise to a risk of explosion are disposed of in an appropriate manner and rendered harmless;

- b. if an explosive atmosphere contains multiple types of flammable or combustible gases, vapours, mists or substances, the safety measures will be based on the greatest possible risks on the basis of the assessment as referred to in article 3.5c, paragraph one;
- c. installations, devices, safety systems and installation material shall, subject to subsection e, only be put into service if the explosion safety document based on the assessment referred to in article 3.5c, paragraph one, shows that there is no risk of explosion due to their use;
- d. section c applies mutatis mutandis to work equipment and connecting elements thereof which are not devices and protective systems as referred to in the Commodities Act Decree on Explosion-proof Equipment 2016, if their inclusion in the installations could give rise to an ignition hazard.
- e. in so far as the explosion safety document on the basis of the assessment referred to in article 3.5c, first paragraph contains no other requirements, devices and protective systems are used in the danger zones in accordance with the categories as referred to in the Commodities Act Decree on Explosion-proof Equipment 2016 and applied in accordance with the following principles:
 - 1°. danger zone 0 or 20: category 1-equipment;
 - 2°. danger zone 1 or 21: category 1- of category 2-equipment;
 - 3°. danger zone 2 or 22: category 1-, category 2- or category 3-equipment;
- f. the necessary measures are taken to prevent the exchange of installation material;
- g. in areas where an explosive atmosphere may occur, workers are provided with work clothing that complies with section 1 of chapter 8 and which are always worn by employees when at work.
- h. if a situation arises in which an explosion could occur, employers are warned optically or acoustically where necessary and withdrawn;
- i. at the initial commissioning of a work place, and with every major change, growth or conversion of the work place, work equipment or the work process where there is the potential for explosive atmospheres to occur, the explosion safety of the entire system will be checked by an appropriately qualified person.

Article 3.5f. Special measures

In so far as is necessary as a result of the assessment referred to in article 3.5c, first paragraph, the following measures shall be taken in addition to article 3.5e:

- a. written instruction will be provided with regard to the execution of the work;
- b. before commencement of work that could be hazardous, permission will be granted by a competent person for the work to be carried out;
- c. power failure can cause additional hazards, devices and protective system will be maintained in a safe operating state in the event of such a power failure, independently of the rest of the installation;
- d. automatically controlled equipment and protective systems which deviate from the expected operating conditions, are switched off manually without any danger. These interventions are carried out by competent employees;
- e. if the emergency stop devices are put into operation, the stored energy is discharged or isolated as quickly as possible, so that it no longer constitutes a source of danger;
- f. means of escape are available and kept ready for use so that employees can leave the hazardous areas quickly and safely.