

MIE TALK - March 2016

SAFETY OF EXPLOSIVES AREAS AS PER EXPLOSIVES REGULATION

EXPLOSIVE ATMOSPHERES

Compiled by:



Introduction

All companies that intend to manufacture, store, use and test explosives must apply for a license at the Department of Labour in order to determine if they are complying with the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Explosives Regulations 2003, as amended.

No company is allowed to manufacture, store, use and test explosives in South Africa without any license approval issued by the Chief Inspector Occupational Health and Safety. All those companies that comply with the license requirements will be approved, registered and workplace licensed approved by the Chief inspector of Occupational Health and Safety will be issued to them.

The Occupational Health and Safety Act (OHS Act) defines a workplace in as “any premises or place where a person performs work in the course of his employment.”

The OHS Act further defines a premise as “includes any building, vehicle, vessel, train or aircraft.”

Provision is also made in the OHS Act for the minister to make regulations on:

- “in the interest of health and safety of people at work”
- “or the health and safety of people other than people at work against risk to health and safety arising from or connected with the activities of people at work” (section 43 (1) (b))
- “the conditions under which the manufacture of explosives and the activities incidental thereto may take place” section 43 (1) (b) (xvi).

Section 47 of the OHS Act binds the State, who should also license its explosives workplaces.

ER 1 Definitions

“**certificated person**” means any competent person to whom a certificate of competency has been granted by an approved inspection authority, accredited by the National Explosives Council or any other organization acceptable to and approved by the Chief Inspector of Occupational Health and Safety;

“**competent person**” means a person with sufficient training and experience in and knowledge of, the health and safety aspect of explosives deemed appropriate by the National Explosive Council or any other organization approved by the Chief Inspector of Occupational Health and Safety;

“**Explosives workplace**” means any workplace licensed under these regulations for the manufacture, testing, use and storage of explosives, together with every mound, building and works therein or thereon for whatever purpose used.

"explosive" means

- a substance, or a mixture of substances, in a solid or liquid state, which is capable of producing an explosion;
- a pyrotechnic substance in a solid or liquid state, or a mixture of such substances, designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these, as the result of non-detonative self-sustaining exothermic chemical reaction, including pyrotechnic substances which do not evolve gases;
- any article or device containing one or more substances contemplated in paragraph (a); or
- any other substance or article which the relevant Minister may from time to time by notice in the Gazette declare to be an explosive in terms of the Explosives Act, Act No 15 of 2003;

"Explosives workplace licence" means a licence referred to in Regulation 4(2) or issued in terms of regulation 4(3) in respect of an explosives workplace for the manufacture, testing, use and storage of explosives.

"schedule licence" means a license categorised as:

- a **schedule I** explosives workplace licence, is a licence to indicate the type of explosives or explosives components used or manufactured by the licensed person.
- a **schedule II** explosives workplace licence, is a licence for a danger room or danger building indicating the explosives activities that can be performed in the room or building, as well as the mass of explosives and the quantity of workers that can be in the room or building.
- a **schedule III** explosives workplace licence, is a licence for a non-danger building or room in a danger area, in which work is done that is explosives related but where no explosives are involved like office, etc.;

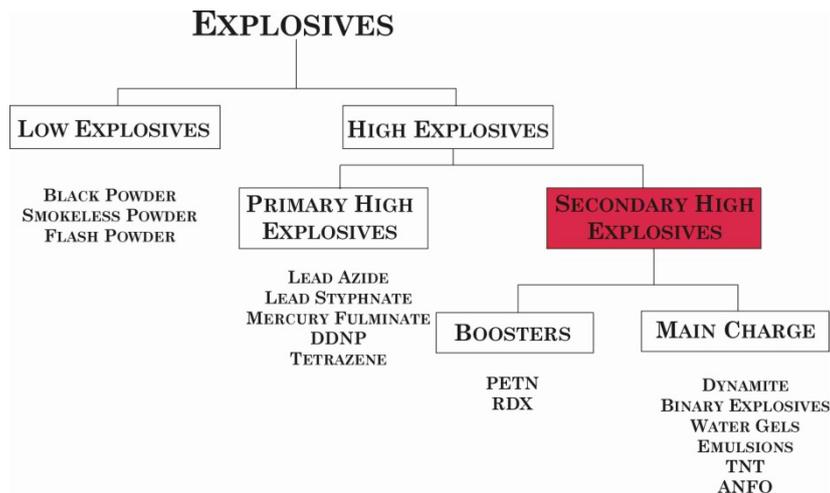
ER 2 Scope of regulation

- These regulations apply to any person who operates an explosives workplace for the purpose of manufacturing, testing, storing or using explosives.
- These regulations shall not apply to explosives workplaces where the loading or reloading of cartridges for small arms is being carried out for private use and is not offered for sale, trade or any other use.

ER 3 Classification of explosives for manufacturing

Classification in this regulation is for manufacturing and storage and not for packaging or marking of explosives. The following give more detail of the responsibilities:

- It is the responsibility of the Chief Inspector of Explosives to classify all explosives and make this classification available to the Chief Inspector of Occupational Health and Safety.



- For manufacturing and storage of explosives the Chief Inspector of Occupational Health and Safety may classify any chemical combination as an explosive or reclassify any explosive.

ER 4 Types of licences

Every workplace where explosives are handled or kept must be license as an explosives workplace. Persons must apply in writing for an explosives workplace licence to the Chief Inspector of Occupational Health and Safety.

There are four different types of licences namely:

- Explosives workplace licence
- schedule I explosives workplace licence
- schedule II explosives workplace licence
- schedule III explosives workplace licence

Licenses can be obtained for new workplaces or for changes to existing buildings or rooms in the workplace.

Drawings

There are three types of drawings necessary for the licensing process namely:

- Area drawing indicating the complete danger zone and the neighbors.
- Danger area drawing indicating the placement of the buildings and the safety distances.
- Building drawing including the placement of equipment.

Role players

The following are the main governmental role players in the licensing process:

- Department of Labour – The Department has the responsibility for occupational health and safety in the explosive workplace
- South African Police Service: Explosives (SAPS- Expl) – The SAPS-Expl is responsible for the security of explosives in the explosives workplace

- South African Police Service: Weapons and Ammunition (SAPS-Ammo) – The SAPS-Ammo is responsible for the security of ammunition in the explosives workplace. They also issue permits for the manufacture of ammunition.
- Local government (LG) – The LG is responsible for the proclamation of property to be used for the explosives workplace, fire fighting and other safety prescriptions and equipment. They are also the body through which the public can work to provide their inputs concerning the explosives workplace.

Licensing Process

The licensing process consists of two parts namely:

- Workplace license part
- Schedule license part

In the workplace license part, the following steps must be followed:

- A competent, certificated person must be appointed in writing as an explosives manager and he must accept the appointment in writing.
- A written approval, from the SAPS-Expl, on the security issues must be obtained.
- A written approval, from local government, on the proclamation issues must be obtained.
- Copies of the approvals, qualification of explosives manager as well as the appointment documentation must be provided with the application for a license to the Department of Labour.
- An explosives workplace license (annexure 1), stating the conditions of the license, will be issued by the Chief Inspector of Occupational Health and Safety.
- In the case of an ammunition workplace a copy of the explosives workplace license must be provided to the SAPS-Ammo group in the application for a manufacturing permit.

In the schedule license part the following steps must be followed:

- Draw up a concept schedule I license (annexure 2 a and b) for all explosives filled components and explosives that will be manufactured, stored, used or tested in the explosives workplace.
- Draw up a concept schedule II license (annexure 3) in which the information is provided as required in the Regulations.
- Draw up a concept schedule III license (annexure 4) in which the information is provided as required in the Regulations.
- Applicable drawings must also be provided.
- If the workplace is ammunition one, a copy of the manufacturing permit must be provided.
- All the documents and drawings in this last phase of the licensing process must be provided in duplicate.

To complete the licensing process, the Department will approve both copies of the documents and drawings and mail one copy back to the applicant.

Explosives Manager

“appoint a competent and certificated person, who is the holder of a valid explosives manager’s certificate”

In order to ensure that the provisions of the Act and these Regulations in relation to explosives workplaces are complied with, an employer, self-employed person or user shall, subject to this Regulation, in writing appoint a competent and certificated person, who is the holder of a valid explosives manager's certificate issued by Chief Inspector of Occupational Health and Safety, and who is employed in a permanent and full-time capacity, to be explosives manager in respect of every workplace where explosives are being used, tested, stored or manufactured:

- Provided that the appointment of an explosives manager shall not exempt the employer, self-employed person or user from any liability or responsibility contemplated in Section 16 of the Act.
- An explosives manager may also perform other functions for the employer provided they do not interfere with the person's obligation as an explosives manager.
- The explosives manager must ensure that any mitigating measures recommended by the approved inspection authority as contemplated in Regulation 9(b) are taken into account in addressing the identified risks.
- In issuing a person with an explosives manager's certificate for any workplace, the Chief Inspector of Occupational Health and Safety must have regard to the appropriateness of the person's training and experience in the health and safety aspects of explosives for the workplace concerned.

ER 5 Non-detonable and non-sensitised explosives

This regulation is to provide for explosives that are very insensitive and which do not need the same precautions than the rest of the explosives groups. The following are the pro-active steps needed in providing for the health and safety of these types of explosives:

- Ammonium nitrate fertilizers shall be manufactured in such a way that the constituents cannot be separated mechanically from one another.
- Mixtures of ammonium nitrate with calcium carbonate, dolomite, calcium carbonate and dolomite, shall be manufactured in such a way that the calcium carbonate or dolomite is incorporated in the prills or granules of the mixture and shall be approved, in writing, by the Chief Inspector of explosives.

The basis for the safe manufacture of non-detonatable or non-sensitised explosives shall include provision for safety measurements as per ER 5(5).

ER 6 Danger area

In these regulations the steps necessary to provide for health and safety in the danger area are given. The steps are the following:

Only the explosives manager or a person authorized by him can authorize entry and exit from danger areas.

- 1) Visitors can only enter danger areas under escort by an authorized person who is aware of the hazards attached to the danger area.
- 2) An employer shall keep a register of the entries and exits into the danger area, including employees and visitors. In some incidents, this is the only method to determine who were involved in the incident.
- 3) To prevent fires or poisoning, no person shall enter the danger area with the following:
 - Tobacco
 - Matches, cigarette lighters or other devices capable of generating heat or spark sources.
 - Intoxicating liquor or narcotics

- Food, medicine or drinkable fluids, except for water in a fountain; or
 - Radio transmitters or cellular telephones.
- 4) No person shall perform any act or deed that will increase the risk to work being performed in a danger area.
 - 5) The danger area must be fenced-in with a guarded entrance.
 - 6) Hazard warning signs must be clearly displayed at the entrance to any danger area, magazine or workplace building.

ER 7 Danger buildings

Fire-fighting appliances and emergency equipment must be provided in the danger building or room and must be placed and kept in such a way that they are readily visible, accessible and available for use when required.

All reasonable precautions must be taken to prevent foreign materials such as grit, stones or similar objects from entering danger buildings. Only articles susceptible to spontaneous ignition can be taken into a danger building it is required for immediate use in a specified place.

ER 8 Safeguarding of explosives workplace

The following regulations are very important for the safeguarding of an explosives workplace and are self-explanatory:

- 1) An explosives workplace must be established, erected, operated and maintained in such a manner as to prevent the exposure of persons to hazardous or potentially hazardous conditions or circumstances
- 2) No part of the explosives workplace is used for any other purpose not authorized by the explosives workplace licence.
- 3) All materials used in the construction of a danger building are of a design approved by a professional engineer and acceptable to the Chief Inspector of Occupational Health and Safety.
- 4) The following provision must be made for in and for danger buildings:
 - Escape routes;
 - The prevention of confined spaces;
 - The safety of electrical appliances;
 - Lightning protectors; and
 - Vertical clearance between buildings and overhead power lines of not less than 30 meters.
 - A copy of the special rules, regulations and operating instructions is made readily available to all employees within the danger area; and
 - A maintenance and inspection schedule is prepared and implemented by the explosives manager in respect of all danger buildings, fittings, plant and machinery in use in the danger area.
- 5) In the event of any abnormal conditions being discovered or any unusual occurrence taking place, cause operations to be stopped immediately. Where it is not possible, owing to the nature of the

process, to stop the process, emergency procedures must be laid down and immediate action must be taken in terms of those procedures.

- 6) Notwithstanding authorized licence limits the quantity of explosives, or raw materials, or the number of persons at any one workplace whenever this is reasonably practicable, must be reduced.
- 7) No person shall manufacture explosives in any manner not provided for in the regulations unless written permission for such manufacture has been obtained from the Chief Inspector of Occupational Health and Safety.

Conclusion

Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees. Any accredited or approved training for explosives shall be in accordance with the South African Qualifications Authority standards.

Explosives regulations (ER) 9 to 21 are not covered in this paper and can be studied in the OHS Act under Explosives Regulation.

Reference

- [1] Explosives Regulation