



SAFETY SERVICES ORGANISATION



Session 4.7

Explosive Safety & Risk Reduction (Processing Operations)

**IATG Foundation Course:
Ammunition Storage & Operations Module**



Lesson Objectives

By the end of this lesson, you should be able to:

- Describe the need for a detailed risk assessment prior to commencing processing operations
- Describe what is meant by a Safe System of Work
- Describe the management controls that support safe processing operations
- Describe how the processes and procedures are controlled to enable safe operations
- Describe general procedures that support safe processing operations

Introduction

- Processing is any task undertaken in a process facility that involves the building, repair, testing, modification, breakdown or disassembly of ammunition
- These tasks increase the risk of inadvertent initiation of the ammunition and therefore additional management controls are implemented
- Processing must not be undertaken in storage buildings, but in specially designed and constructed ammunition process buildings (APB)

Risk Assessment

- **It is important to ensure a full risk assessment has been completed before an ammunition processing task commences**
- **The risk assessment process must consider:**
 - Ammunition design and any particular hazards and safety information
 - Previous processing operations undertaken on the ammunition
 - Health hazards associated with the ammunition or its components

Risk Assessment

- The findings of the risk assessment should be formally recorded and used in the development of the processing instruction
- Other documentation may require amendment as a result of the risk assessment

Findings	Details	Appropriate tools, equipment or process
Explosive vapour hazard	An explosive vapour hazard may be present during the process.	Category A APB (or rooms) required.
Explosive dust risk	Bare, exposed explosive may be present during the process; hence explosive dust may be present.	Category B APB (or rooms) required.⁸
Low sensitiveness ⁹	The hazard data sheet suggests that the explosive is very vulnerable to initiation by static electricity.	- Anti static measures required. - Non-sparking tools. - Anti-static floor. - Personal earthing equipment (Hazardous Area Personal Test Meter (HAPTM)).
Explosion risk	Disassembly requires high force to gain access to munition, hence there is a risk of explosion.	- Remote process needed. - Operator protected behind armoured screen. - One person risk.
Irritant fumes	The re-painting process requires the use of paint that produces irritant fumes.	- Protective face masks to be worn. - Open windows, doors etc to provide air throughput or fit extractor fan.

Safe System of Work

- A Safe System of Work (SSOW) to achieve a safe environment for ammunition processing operations must be completed
- The SSOW should be applicable for a broad range of processing tasks, but should take account of the Risk Assessment outcomes where necessary

Safe System of Work

- **As a minimum the SSOW should address:**
 - Personnel training and competence
 - Overall management of the task and direct supervision of workers
 - Availability of detailed work instructions
 - Adequate facilities and appropriate equipment

Management Controls

- **Management controls and techniques are implemented to control the risk during processing operations**
- **The main management controls:**
 - Explosive limits
 - Personnel limits
 - Work Instructions
 - Supervision and Competency
- **Special measures**
 - Lower risk operations
 - Restricted tasks

Controlling the Processing Risks

- Appropriate processing facilities must be provided
- Certain processes may require additional safety equipment to be installed or precautions to be implemented in the APB

Controlling the Processing Risks

- Ammunition removed from its packaging at any given time should be kept to a minimum
- It is vital to minimise the exposure of workers to the effects of an explosion
- Whenever possible this should mean that the task is undertaken by remote means
- All personnel are to wear the Personal Protective Equipment (PPE)
- Authorised tools and equipment listed in the detailed work instruction are be used



General Practices

- **General procedures that should be implemented in all processing tasks:**
 - Carry out pre/post-work inspections
 - Ensure all emergency exits are kept clear
 - Ensure the APB, especially the working area, is kept clean and tidy
 - Minimise the quantity of flammable materials present
 - Remove all contaminated waste at appropriate intervals. Do not allow accumulation to occur
 - Maintain the temperature and humidity in the APB within appropriate limits
 - Ensure that the risk of inadvertent initiation of EEDs is minimized



General Practices

- **The general work instructions should address contingency planning to cover actions to be taken in the event of:**
 - An accident
 - Potential thunderstorms
 - Lightning
 - Ammunition being identified as in an unsafe state



Tasks requiring special precautions

- **Heating explosives during processing**
- **Breakdown of explosive items**
- **Inspection of stocks awaiting disposal**

Questions?

Lesson Objectives

You should now be able to:

- Describe the need for a detailed risk assessment prior to commencing processing operations
- Describe what is meant by a Safe System of Work
- Describe the management controls that support safe processing operations
- Describe how the processes and procedures are controlled to enable safe operations
- Describe general procedures that support safe processing operations



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