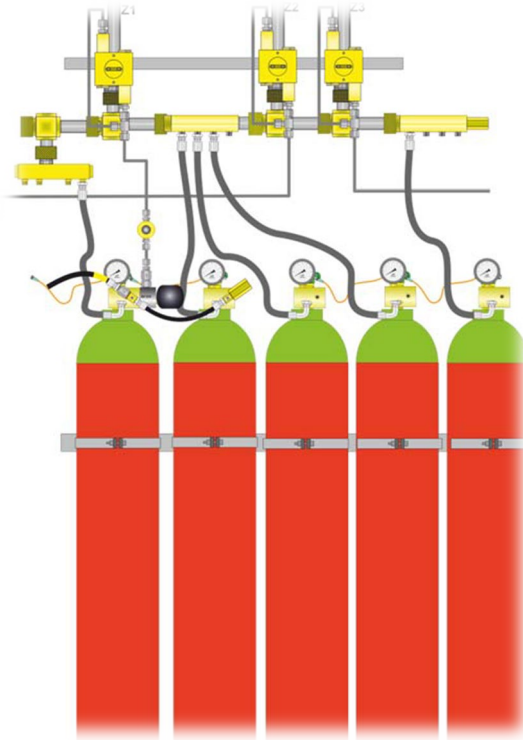


INERGEN (IG-541) [FIRE EATER] SAQCC SUPPLIER

TRAINING 2 - COURSE CURRICULUM



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PURPOSE OF TRAINING COURSE

This training course is for learners to gain knowledge of Inert clean agent gas suppression systems which includes; agent properties, system components, correct installation, commissioning and maintenance.

This course will provide the attendee who successfully completes the course (*80% Pass Rate on written and practical assessments*) the practical knowledge on how to assess, install and maintain an FST Inergen clean agent gaseous fire suppression system.

COURSE OVERVIEW

This course is designed to provide instruction and insight into the products available from Fire and Security Techniques.

This course has been compiled using the guide-lines as required by SAQCC Fire Training Committee.

TOPICS COVERED

- a) Module 1 - The Agents
- b) Module 2 - Components of an Inert Clean Agent Gas System
- c) Module 3 - Hazards of Gas Systems
- d) Module 4 - System Design
- e) Module 5 - Installation of Gas Systems
- f) Module 6 - Completion Procedures
- g) Module 7 - Operating and Maintaining Gas Systems

Systems Additional Information Supplied

Insight into the various SABS Standards

Commissioning Tick Sheet

Hand Over Tick Sheet

Typical Certificates:

- a) Design
- b) Installation

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- c) Commissioning
- d) Acceptance

General End User Requirements

COURSE REQUIREMENTS

It is presumed that by attending this course, the candidates are familiar with the requirements stipulated by SAQCC Fire.

Candidates are to ensure they are qualified with all pre-requisites pertaining to suppression installations, i.e.

- a) Basic Fire Theory.
- b) Safe Workshop Practices / Hand Tools.

Although this course is designed to provide the candidate with the competencies required to conduct installations, it does not provide candidates the ability to skip or surpass the requirements for progression without meeting all of the requirements stipulated by SAQCC Fire.

MODULE 1

1. THE GASEOUS AGENT.

- 1.1. The Agent Composition
 - 1.2. INERGEN Comprises of the Following Gases
 - 1.3. Approved Usage and Limitations
 - 1.4. Safety Factors: People, Environment and equipment
 - 1.5. Typical System Applications
 - 1.6. Applicable Approvals
 - 1.7. The Agent Extinguishing Operation – Mechanism of Suppression
 - 1.8. Safe Exposure Levels
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TEST - MODULE 1

Learner to describe the composition and approvals of the fire systems and all the extinguishing operation and safety parameters of the agent.

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MODULE 2

2. COMPONENTS OF AN INERT CLEAN AGENT GAS SYSTEM

- 2.1. The System Consists of the Following:
 - 2.1.1. Cylinders
 - 2.1.2. Cylinder Rail & Brackets
 - 2.1.3. Discharge Valve
 - 2.1.4. Discharge Valve Accessories
 - 2.1.5. Actuators
 - 2.1.6. Discharge Hoses
 - 2.1.7. Pilot Hoses
 - 2.1.8. Manifold & Orifice & Actuator
 - 2.1.9. Pipe System
 - 2.1.10. Fasteners & Pipe Hangers
 - 2.1.11. Nozzle's Mono-Orifice
 - 2.1.12. Nozzles Marine
 - 2.1.13. Pressure Relief (Fire Dampers)
 - 2.1.14. Signs & Labels
 - 2.1.15. Accessories
 - 2.1.16. Tools
 - 2.1.17. Service Kits
 - 2.1.18. Control Panels

- 2.2. The Multizone System Consists of the Following:
 - 2.2.1. Selector Valve (SV) Zone Kit
 - 2.2.2. SV CiV & Test port
 - 2.2.3. Switch Kit
 - 2.2.4. Manifold Kit
 - 2.2.5. SV22 End Plug Kit
 - 2.2.6. Brackets and Accessories
 - 2.2.7. Fittings, Adapters and Hoses
 - 2.2.8. Tools

TEST - MODULE 2

Learner to demonstrate knowledge and use of all components.

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MODULE 3

3. HAZARD AREA ANALYSIS

- 3.1. Total Flooding
- 3.2. Design Standards and Other Requirements
- 3.3. Hazard Conditions (Lay-Out)
- 3.4. Types of Fires
- 3.5. Hazard Dimensions and Additional Volume Factors to be Considered
- 3.6. Ceiling Obstructions

TEST - MODULE 3

Learner to demonstrate his knowledge of a full hazard analysis prior to installation.

MODULE 4

4. SYSTEM DESIGN

- 4.1. Appropriate Design Standard
- 4.2. Agent Flow Characteristics
- 4.3. Pressures of the Gas System
- 4.4. Hazard Information to be Determined
 - 4.4.1. Area to be Protected
 - 4.4.2. Inergen Cylinder Location.
- 4.5. Design Steps
- 4.6. Design Concentration and Quantity of Required Agent
- 4.7. Altitude Correction Factor
- 4.8. System Design Example
- 4.9. Design Concentration – Personnel Safety
- 4.10. Tank Selection / Fill Density
- 4.11. Nozzle Design and Location
- 4.12. Piping Network Rules
- 4.13. Pipe and Nozzle Size Estimation
- 4.14. Venting of Closed Pipe Systems

TEST - MODULE 4

Learner to complete a basic gas design.

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MODULE 5

5. INSTALLATION OF AN INERT CLEAN AGENT GAS SYSTEM

- 5.1. Safety Basics
- 5.2. Planning
- 5.3. Cylinder Installation
- 5.4. Piping & Nozzles
- 5.5. Actuation Controls
 - 5.5.1. Built-in Pneumatic actuator
 - 5.5.2. Manual Actuator
 - 5.5.3. Pneumatic Actuator
 - 5.5.4. Solenoid actuator

TEST - MODULE 5

Learner to describe how to test and commission the system and demonstrate ability to find faults on the system.

MODULE 6

6. COMPLETION PROCEDURES

- 6.1. Pre checks and visual inspections
 - 6.1.1. System Configuration
 - 6.1.2. No-Leakage Verification
 - 6.1.3. Warning Signs and Notices
 - 6.1.4. Cylinders
 - 6.1.5. Pipe System
- 6.2. General Mechanical Checks
 - 6.2.1. Pipe System
 - 6.2.2. Nozzles
 - 6.2.3. Discharge Valves Manoswitch and Actuators
 - 6.2.4. Manifolds, Hoses and Zone Valves
 - 6.2.5. Electrical System
- 6.3. Function Test
- 6.4. Final Connections

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- 6.5. Room Integrity Testing
 - 6.6. Pressure Venting
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T E S T - M O D U L E 6

Learner to describe the final check procedure.

M O D U L E 7

7. SYSTEM OPERATION & MAINTENANCE

- 7.1. Handover Instructions to End User:
 - 7.2. Handover Documentation Requirements
 - 7.3. Service Intervals and Requirements
 - 7.3.1. Inspection Program (End User / Client).
 - 7.3.2. System Service Schedule.
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T E S T - M O D U L E 7

Learner to describe the handover and maintenance requirements.

E X A M – M O D U L E ’s 1 T O 7
