

MEDICAL GAS PIPELINE SYSTEMS (MGPS): Design, Installation, Testing, Commissioning & Compliance to SANS 7396

OVERVIEW

Medical Gas Pipeline Systems (MGPS) are among the most critical infrastructure systems within healthcare facilities. These systems deliver life-support gases essential for patient care in operating theatres, intensive care units (ICUs), emergency departments, high-care wards, neonatal units and other specialised healthcare environments. Failure of a medical gas pipeline system can have serious consequences for patient safety and healthcare operations. Compliance with SANS 7396 is therefore essential to ensure the safe design, installation, testing, commissioning, operation and maintenance of these systems.

This comprehensive two-day programme provides delegates with the technical knowledge required to design, specify, install, inspect, commission and maintain Medical Gas Pipeline Systems in accordance with SANS 7396 and recognised engineering best practices. The course focuses on practical implementation, regulatory compliance and risk management to improve system reliability, patient safety and operational performance.

COURSE OBJECTIVES

Upon completion of this programme, delegates will be able to:

- Understand the requirements and application of SANS 7396.
- Identify the different medical gases and their applications within healthcare facilities.
- Design compliant Medical Gas Pipeline Systems.
- Perform basic flow calculations and pipe sizing.
- Select appropriate piping materials, valves and equipment.
- Apply correct installation and brazing procedures.
- Conduct testing, verification and commissioning activities.
- Prevent contamination and cross-connections.
- Develop maintenance and inspection programmes.
- Identify and troubleshoot common system faults.
- Apply safety and risk management principles.

WHO SHOULD ATTEND

- Design engineer
- Mechanical engineers
- Piping engineers
- Hydraulic engineers
- Pipeline specialties
- Process engineers
- R&D engineers
- Water engineers

MEDICAL GAS PIPELINE SYSTEMS (MGPS)

Introduction to Medical Gas Pipeline Systems

- Introduction to MGPS
- Importance of medical gas systems
- Applicable legislation and standards
- Overview of SANS 7396
- Regulatory responsibilities

Medical Gases and Healthcare Applications

- Oxygen systems
- Medical air systems
- Nitrous oxide systems
- Carbon dioxide systems
- Vacuum systems
- Anaesthetic Gas Scavenging Systems (AGSS)
- Clinical applications
- Gas identification and safety

System Design Principles

- Design philosophy
- Risk-based design
- Flow calculations
- Pipe sizing principles
- Pressure requirements
- Plant room design
- Zoning and isolation valves
- Alarm and monitoring systems
- Pipeline routing
- System redundancy

Materials and Components

- Copper pipe specifications
- Fittings and brazing materials
- Valves and terminal units
- Manifolds and pressure regulators
- Bulk storage systems
- Colour coding and identification
- Labelling requirements

Installation Best Practices

- Installation requirements
- Cleanliness standards
- Pipe handling and storage
- Nitrogen purging
- Brazing procedures
- Contamination prevention
- Cross-connection prevention
- Installation documentation

Testing and Commissioning

- Pressure testing
- Leak testing
- Strength and tightness testing
- Purging procedures
- Gas quality testing
- Functional testing
- Alarm testing
- Final commissioning
- Verification procedures

Operation, Maintenance and Safety

- Preventive maintenance
- Inspection schedules
- Maintenance planning
- Fault diagnosis and troubleshooting
- Record keeping
- Hazard identification
- Fire and explosion risks
- Infection control
- Safe working procedures
- Emergency response

Verification, Certification and Compliance

- Verification requirements
- Role of Authorised Persons
- Compliance documentation
- Certification process
- Compliance audits
- Handover procedures
- Quality assurance

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LIVE ONLINE TRAINING | 25 – 26 AUGUST 2026

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DELEGATE**

Booking Contact (Approving Official) Mr/Mrs/Ms

Full Names: _____
Company name: _____
Direct Tel No: _____ E-mail: _____ Fax: _____
VAT No: _____
Address: _____
Signature _____
Person Responsible for Finance: _____ Direct Tel No: _____ Date of Payment: _____

BANKING DETAILS:

THIS INVESTMENT INCLUDES:

Independent Training Management Pty Ltd
Bank: FNB South Africa
Account Number: 62685879276
Branch Code: 251650
Branch: Randburg

THE FOLLOWING HEREBY CONFIRM ATTENDANCE TO THE WORKSHOP

Delegate1: Names _____
Position: _____ E-Mail: _____
Delegate 2: Names _____
Position: _____ E-Mail: _____
Delegate 3: Names _____
Position: _____ E-Mail: _____
Delegate 4: Names _____
Position: _____ E-Mail: _____
Delegate 5: Names _____
Position: _____ E-Mail: _____

All fees are current at the time of going to print; however, we reserve the right to change them.

2. Additional Delegate Rates:

Additional delegate rates apply when bookings are made at the same time on the same course.

3. Confirmation Instructions:

On receipt of this submitted booking form and payment or purchase order you will receive a confirmation letter by email confirming your participation in the training event. This includes a location map with directions and venue details and starting times.

4. Attendance:

Please note that no learner will be permitted to attend any training course without proof of payment or an order no.

5. Delegate Substitution:

Substitutes can be made at any time without incurring a penalty. Please inform us in writing so we can make the necessary arrangements for the new learner.

6. Payment:

Payment can be made by cheque or by electronic transfer, and must be received 5 working days prior to the commencement of the course.

Please quote the reference number from your invoice and organisation name so that payments can be tracked. All cancellations must be done in writing and emailed directly to Independent Training. Management Inform us immediately if you have to re-schedule or cancel the booking so that we can inform the caterers and conference venue.

The following charges apply if you cancel:

- 11 - 30 days before a course = 10% of the course fee
- 6 - 10 days before a course = 20% of the course fee
- 4 - 6 days before a course = 30% of the course fee
- 1-3 days before a course = 50% of the course fee