CORE CONCEPT

Packaged Industrial and Medical Gases Course: Cylinder Filling, Bulk Delivery and Gas Safety

18 – 22 January 2027
Dubai - Five-star CBD venue

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Ref: 2018_29709 **Date:** 18 – 22 January 2027 **Location:** Dubai - Five-star CBD venue **Fees:** 19500 SAR

Introduction:

Packaged industrial and medical gases training on cylinder filling, bulk delivery and gas safety is a 1-week course for filling station, cylinder test, distribution, gas quality and HSE staff, ending with a Filling Site and Distribution Safety Improvement Plan for a case company. Gas suppliers face cylinder ruptures, wrong-gas deliveries, acetylene incidents and medicinal oxygen recalls when filling, testing, labelling and delivery controls vary between sites. Nominees already fill, test, release or deliver gas products and learn through inspection walkthroughs of filling halls, test bays and customer tanks. CoreConcept Training Center delivers this packaged industrial and medical gases course.

Course Objectives:

- Classify packaged gas products by hazard group, supply mode and filling basis before setting site controls
- Inspect cylinders, valves and bundles against ISO 11119, ISO 13341 and ISO 10961 requirements and act on periodic requalification results
- Operate compressed gas, liquid CO2 and gas mixture filling within charging pressure, fill mass and composition limits
- Control acetylene filling and bulk cryogenic liquid deliveries into customer tanks against decomposition, overfill and transfer hazards
- Apply medicinal oxygen batch release, labelling, traceability and recall controls along the cylinder supply chain
- Prepare a Filling Site and Distribution Safety Improvement Plan that ranks filling, testing, delivery and release actions for a case gas company

Target Audience:

- Filling station supervision staff responsible for fill manifolds, check-weighing and cylinder flow through the filling hall
- Cylinder test and requalification staff responsible for visual inspection, hydrostatic testing and condemning unfit cylinders
- Bulk distribution and tanker delivery staff responsible for cryogenic liquid transfers into customer storage tanks
- Gas quality and medicinal gas release staff responsible for analysis, certificates and batch records
- HSE staff responsible for gas hazard controls, incident review and emergency arrangements at filling and depot sites

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Course Outline:

Day 1: Packaged Gas Supply, Gas Hazards and Site Baseline

- Cylinder, Bundle, Dewar and Bulk Liquid Supply Mode Comparison
- Oxidising, Inert, Flammable and Toxic Gas Hazard Grouping
- Permanent Versus Liquefied Gas Filling Basis Decisions
- Cylinder Product Label and Hazard Pictogram Identification Rules
- Current-State Filling Site Incident and Near-Miss Review

Day 2: Cylinder Standards, Valves and Periodic Requalification

- ISO 11119 Composite and Seamless Steel Cylinder Design Types
- ISO 13769 Stamp Marking Interpretation at Pre-Fill Inspection
- ISO 13341 Valve Fitting Torque and Thread Condition Checks
- Hydrostatic Test Bay Procedure and Permanent Expansion Records
- ISO 10961 Cylinder Bundle Frame and Manifold Inspection

Day 3: Filling Station Operations for Compressed Gases, CO2 and Mixtures

- Charging Pressure Correction to Reference Temperature on Fill Manifolds
- Fill Rate Control and Cylinder Temperature Rise Monitoring
- Liquid CO2 Filling by Mass With Check-Weigh Scales
- Gravimetric and Partial Pressure Gas Mixture Preparation Methods
- Calibration Gas Mixture Analysis and Certificate of Analysis Records

Day 4: Acetylene, Bulk Liquid Delivery and Medicinal Oxygen Risk Controls

- Acetylene Cylinder Porous Mass and Solvent Content Checks
- Calcium Carbide Acetylene Generation and Flashback Arrestor Controls
- Bulk Cryogenic Tanker Transfer Couplings and Overfill Prevention
- Customer Vacuum-Insulated Tank Siting and Relief Device Inspection
- Medicinal Oxygen Batch Release, Traceability and Recall Procedure

Day 5: Inspection Walkthrough and Safety Improvement Plan

- Case Gas Company Filling Hall and Test Bay Walkthrough
- Requalification Record and Rejected Cylinder Sample Audit
- Bulk Customer Tank Installation Inspection Checklist Application
- Medicinal Oxygen Release File and Batch Trace Exercise
- Filling Site and Distribution Safety Improvement Plan Completion

Skills You Will Gain:

- Gas Hazard Classification
- Cylinder Stamp Marking Interpretation
- Requalification Record Control
- Fill Manifold Supervision
- Gravimetric Mixture Preparation
- Acetylene Decomposition Prevention
- Bulk Liquid Transfer Control
- Medicinal Gas Batch Traceability

Why Attend This Course:

- Deliver a Filling Site and Distribution Safety Improvement Plan to the operations director and site HSE lead as the basis for the next safety budget
- Decide when a cylinder is filled, quarantined or condemned, and when a bulk delivery or medicinal batch is held back
- Avoid cylinder failures, wrong-gas connections, acetylene incidents and product recalls caused by uneven filling and release controls
- Coach fill operators, drivers and test bay technicians on pre-fill checks, transfer hold points and label rules using shared checklists

Conclusion:

Back at work, the participant presents the Filling Site and Distribution Safety Improvement Plan to the operations director, the site HSE lead and the quality release function. The operations director uses it to rank filling hall, test bay and fleet actions for the next budget, while the quality function adopts its batch release and traceability checks for medicinal oxygen cylinders. After the first months of use, the site should review cylinder rejection rates, fill deviations, delivery incidents and open recall actions against the plan's targets, then reset priorities for the actions still open.

Frequently Asked Questions FAQ:

What should participants know before the packaged industrial and medical gases course?

Participants should already fill, test, release or deliver gas cylinders or bulk liquid at a gas company, distributor or large user site. Bringing anonymised fill records, requalification logs or delivery checklists helps them apply the walkthrough exercises to their own operation.

How does the packaged industrial and medical gases course differ from an air separation plant or hospital pipeline course?

It starts where production ends: filling, testing, labelling, delivering and releasing gas in cylinders and bulk tanks. Air separation courses cover making oxygen, nitrogen and argon, and hospital pipeline courses cover piped distribution inside healthcare buildings.

Why is acetylene handled differently from other packaged industrial and medical gases?

Acetylene can decompose explosively under shock or heat when pressurised, so it is dissolved in a solvent held within a porous mass inside the cylinder. Filling therefore needs solvent checks, controlled rates, copper-free equipment and flashback protection.

What do participants take back from the packaged industrial and medical gases course?

Participants take back a Filling Site and Distribution Safety Improvement Plan for a case gas company, with a pre-fill inspection checklist, requalification audit findings, a customer tank inspection checklist and a medicinal oxygen traceability review they can adapt to their own sites.