

Purpose: To provide guidance on the safe management of breathing air systems ensuring breathing air meets the Compressed Gas Association Grade D air specifications. Reference other HSE and Operations documents for guidance on when breathing air is required.

Breathing Air Systems

Breathing air systems are to be designed, constructed, installed, commissioned, operated, and maintained per the manufacturer's specifications and must be:

- Capable of delivering breathing air to every user in the quantity, quality, and rated pressures required during normal and emergency procedures.
- Tested to meet the applicable requirements.

When breathing air is required:

- Do not use pure oxygen or oxygen-enriched air as breathing air
- Do not use plant instrument/utility air as breathing air.
- Ensure the coupling for breathing air are incompatible with couplings used for other gas / air / utility systems.
- Ensure air lines are suitably identified

Breathing Air Sampling and Analyses

Breathing air must be sampled and analyzed per the manufacturer's specifications and ensure the following:

- Samples must be analyzed by an accredited lab.
- Sample analysis includes oxygen, methane, pressure, and odor.
- Air systems must be taken out of service if unacceptable levels of contaminants are detected.

Location of Breathing Air Compressors

Compressors designed specifically for breathing air systems are located:

- to prevent contamination through the air intake.
- where motor vehicles/equipment are prevented from operating at least 6 meters from the compressor's air intake.

Non-Oil Lubricated Breathing Air Compressor Requirements

Use of non-oil lubricated air compressors requires the following:

- High temperature alarm.
 - carbon monoxide monitor and alarm, or CO filter/removal system. With calibration logs.
 - particulate and sorbent bed filters for oil mist and water, etc. with date of most recent change.
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- Breathing air certificate of analysis provided every 6 months or per manufacturer's specifications.
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Oil Lubricated Breathing Air Compressor Requirements

Oil lubricated air compressors require:

- Carbon monoxide and high temperature alarms.
 - Fail safe and high-pressure shutdown switches
 - Check valves
 - Instruction manual/logbook.
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Compressor Inspection and calibration requirements

Breathing air compressors must be inspected, tested, serviced, and calibrated as follows:

- Test carbon monoxide monitor/alarm daily
 - Calibrate carbon monoxide monitor/alarm weekly, or more frequently if required by the manufacturer.
 - Inspect desiccant and catalyst bed purifiers daily and service as per the manufacturer's instructions.
 - Replace in-line air-purifying sorbent beds/filters per the manufacturer's requirements.
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Breathing Air Cylinders

For safe management of compressed breathing air cylinders, the following requirements apply:

- Ensure the breathing air has a certificate of analysis that meets Grade D quality standards.
 - Cylinders are labelled as breathing air.
 - Cylinders not meeting specification are tagged as Do Not Use and removed from service.
 - Cylinders meeting specifications have verification tags.
 - Breathing air results and analysis are documented and retained.
 - When not in use, cylinders are stored in racks designated for the exclusive storage of breathing air cylinders.
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