

APPENDIX D
COMPRESSED BREATHING AIR

D-1. All compressed breathing air for industrial use must meet Type I, Grade D, Breathing Air Quality as defined by Compressed Gas Association Commodity Specification G7.1, 1973 and supplying compressors must be tested for the following air quality parameters at least semiannually:

Oxygen (by volume)	19.5-23.5%
Carbon monoxide (by volume)	20 ppm
Carbon dioxide (by volume)	1,000 ppm
Oil Mists	5 mg/m
Odor	Not objectionable or pronounced

D-2. Contracts for commercially procured compressed breathing air should include provisions for insuring air quality and cylinder pressure testing.

D-3. The user activity must make arrangements for testing air quality from in-house compressors used to supply breathing air. Breathing air compressor systems should be used; however, if plant air is used, the proper air purification and safety devices must be installed. The general requirements for systems supplying breathing air are:

a. The compressor inlet must be located in an area free from air contamination. If outside, areas near and down wind from exhaust ducts/stacks and sources of vehicle exhaust should be avoided. If inside, areas with little air circulation, high temperatures, solvent use, combustion equipment, or other potential sources of contamination should be avoided.

b. The compressor must have a compressor failure alarm and high temperature alarm or shut off.

c. A water trap and air purification system are required for the removal of condensed water, oil mist and other particulates, odors, gases and organic vapors.

d. A continuous carbon monoxide alarm or carbon monoxide converter should be used; if not, the air must be monitored for carbon monoxide at least monthly.

e. The air receiver must be of sufficient capacity to allow respirator wearer(s) to escape from a contaminated atmosphere in the event of compressor failure.

f. Should plant air be used, only breathing air type lines are permitted downstream from the purification system.

g. During filling, air cylinders should be immersed in water for cooling and shielded from the operator in case of cylinder rupture.

h. Air cylinders must be inspected and hydrostatically tested every five years.

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j. Maintenance should be performed on the compressor and purification system in accordance with manufacturer's guidelines. This should include calibration (operational check with a span gas (a gas with a known concentration)) of the carbon monoxide alarm if used. The alarm should be set for 20 ppm. Records of preventive maintenance, repairs, and calibration to include the nature of the work, the date, and name of the person performing the work should be kept for one year.