

PSA Plant Location: Considering Pollution

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This document was developed by [Build Health International](https://www.bhioxygen.org) to support global medical oxygen infrastructure planning, site preparation, operation, maintenance, and sustainability. Additional technical resources are available at www.bhioxygen.org.

BHI recommends installing a PSA plant at least 10m away from any possible source of pollution. This includes but is not limited to generator exhaust, vacuum system discharges, vehicular exhaust, and incinerator exhaust. This recommendation is based on the guidance from various PSA plant manufacturers and is in line with the standards listed below. While only the NFPA 99 lists a specific distance (7.6 m) between pollution sources and a PSA plant, the intention of all three standard excerpts is to ensure the PSA intake is clean air. To guarantee this, distance from a pollution source should be considered among other factors including exhaust direction and prevailing winds.

NFPA 99

5.1.3.6.3.11 Compressor Intake.

(A) The medical air compressors shall draw their air from a source of clean air.

(B) The medical air intake shall be located a minimum of 7.6 m (25 ft) from ventilating system exhausts, fuel storage vents, combustion vents, plumbing vents, vacuum and WAGD discharges, or areas that can collect vehicular exhausts or other noxious fumes.

HTM-02

7.10 The position of an air intake can have a considerable effect on delivered air quality, particularly with respect to levels of carbon monoxide. The air intake for a compressor should be located to minimise contamination from internal combustion engine exhausts and the discharge from vacuum systems, AGSS and ventilation systems or other sources of contaminants. Air intakes should be ducted where necessary to avoid contamination; a minimum

ISO 7396

5.5.2.12 The inlet of the ambient air for compressors shall be located where there is minimal contamination (e.g. from internal combustion engine exhaust, vehicle parking, access areas, healthcare facility waste and disposal systems, vacuum or plume evacuation system exhausts, vents from medical gas pipeline or anaesthetic gas scavenging systems, ventilation system discharges, chimney outlets).

The inlet shall be provided with means to prevent the ingress of, for example, insects, debris and water. Consideration should be given to the potential effects of prevailing winds on the location of the intake(s) which should be remote from chimney outlets.

Where more than one air supply source is an air compressor, pollution of the intake air is a common mode of failure. This risk should be addressed with risk analysis as required in [5.2.5](#).