



Emergency Contact: Chemtrec (800) 424-9300
Or Norco (208) 336-1643

1125 West Amity Road
Boise, ID 83705
(208) 336-1643

Benzene in Air 0.0001% to .05%

MATERIAL SAFETY DATA SHEET

Identification

Product Name: Benzene in Air 0.0001% to 0.05%
Chemical Name: Benzene in Air
Chemical Family: Gas Mixture
CAS Number: N/A
Common Names/Synonyms: N/A
MSDS Identification Code/Number: 2540
TDG (Canada) Classification: 2.2
WHMIS Classification: A, D2B
Prepared By: Quality Dept.

Revision Date: 06/15/05
Last Review Date: 02/13/08

Composition, Information on Ingredients, Exposure Limits

Exposure Limits¹:

Ingredient	% Volume	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Benzene Formula: C ₆ H ₆ CAS: 71-43-2 RTECS: CY1400000	0.0001 to 0.05%	1 PPM TWA 5 PPM STEL	0.5 PPM TWA 2.5 PPM STEL	LC ₅₀ 10,000 ppm Inhalation/rat (7 Hr)
Air Formula: N/A CAS: N/A	99.95 to 99.9999%	None Established	Not Applicable	Not Available

¹ Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910.1085 Benzene, see table Z-2 in Subpart Z (revised July 1, 1993) for exclusions.

³ As stated in the ACGIH 2007 Threshold Limit Values for Chemical Substances and Physical Agents

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Hazards Identification

Emergency Overview:

Non-flammable colorless, odorless gas mixture. Contains sufficient oxygen to support life. Benzene is a known human carcinogen and a possible human mutagen. Inhalation of benzene can cause central nervous system effects and serious, permanent damage to the blood system. Contents under pressure. Use and store below 125°F (52°C). IDLH 500 ppm.

Route of Entry:

Skin Contact Yes	Skin Absorption Yes	Eye Contact Yes	Inhalation Yes	Ingestion No
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Hazards Identification Continued

Health Effects:

Exposure Limits Yes	Irritant Yes	Sensitization No
Teratogen No	Reproductive Hazard Yes	Mutagen Yes
Synergistic Effects None reported		

Carcinogenicity: NTP: Yes IARC: Yes OSHA: Yes

Eye Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite.

Skin Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

Ingestion Effects:

None known. Ingestion is unlikely as product is a gas at room temperature.

Inhalation Effects:

Gas mixture contains sufficient oxygen to support life. Long term exposures to benzene at relatively low vapor concentrations can cause blood system disorders. There are reports that exposure to low levels (10 PPM) over an extended period (24 weeks) of benzene vapors can damage the bone marrow and blood systems. This damage can result in the development of serious health disorders. Adverse health effects on the immune system have also been reported. No symptoms were reported for exposure of 25 PPM for 10 minutes. 50 – 150 PPM caused headache, tiredness, nose, and throat irritation. Severe inhalation over exposures may be fatal, due to asphyxiation.

Benzene is a confirmed human carcinogen which can produce Hodgkin’s disease, leukemia, and lymphomas by inhalation.

Medical Conditions Aggravated by Exposure:

Pre-existing respiratory conditions and other disorders involving the blood system, central nervous system and reproductive system may be aggravated by overexposure to benzene.

NFPA Hazard Codes

Health: 1
Flammability: 0
Instability: 0

HMIS Hazard Codes

Health: 1*
Flammability: 0
Physical Hazard: 3

Ratings System

- 0: No Hazard
- 1: Slight Hazard
- 2: Moderate Hazard
- 3: Serious Hazard
- 4: Severe Hazard

*Carcinogen

Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2004, *CGA Recommended Hazard Ratings for Compressed Gases, 2nd Edition*.

First Aid Measures

Eyes:

None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin:

Remove contaminated clothing and flush affected areas with large amounts of lukewarm water. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

Ingestion:

Not anticipated, product is a gas at room temperature.

First Aid Measures Continued

Inhalation:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and, if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Get immediate medical assistance. Further treatment should be symptomatic and supportive.

Fighting Measures

Conditions of Flammability: Nonflammable		
Flash Point: None	Method: Not Applicable	Autoignition Temperature: None
LEL % None*	UEL % None	
Hazardous Combustion Products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

* The LEL for Benzene is 1.3%.

Fire and Explosion Hazards:

Nonflammable. Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation.

Extinguishing Media:

None required. Use as appropriate for surrounding materials

Fire Fighting Instructions:

Use water spray to cool fire exposed cylinders and areas. Fire fighters should wear a full-facepiece NIOSH/MSHA approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear.

Accidental Release Measures

Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Evacuate all personnel from affected area. Ventilate enclosed areas. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or valve, contact the appropriate emergency telephone number listed in section 1 or call your closest Norco/NorLab location.

Handling and Storage

Electrical Classification:

Non-hazardous.

Gas mixture is non-corrosive and may be used with any common structural material. Refer to OSHA Benzene Standard (29 CFR 1910.1028) for specific requirements associated with the use of this product.

Use only in well-ventilated areas. Valve protection caps must remain in place unless the cylinder is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure (<3000 PSIG) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well ventilated area of non-combustible construction away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in – first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" sign in the storage or use area. Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid from in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1.

Exposure Controls, Personal Protection

Engineering Controls:

Local exhaust ventilation as necessary to limit exposure below the acceptable exposure limits..

Eye/Face Protection:

Safety goggles or glasses as appropriate for the job.

Skin Protection:

Protective gloves of material appropriate for the job.

Respiratory Protection:

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

Other/General Protection:

Safety shoes.

Physical and Chemical Properties

Parameter	Value	Units
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Above critical temp.	
Vapor density (Air = 1)	: 1	
Evaporation point	: Not Available	
Boiling point	: -317.8	⁰ F
	: -194.3	⁰ C
Freezing point	: Not Available	⁰ F
	: Not Available	⁰ C
pH	: Not Applicable	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Very slightly soluble	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless gas, slight sweet odor	

Stability and Reactivity

Stability:

Stable

Incompatible Materials:

Benzene is incompatible with strong oxidizing materials, strong acids, and may attack rubber and plastics.

Hazardous Decomposition Products:

Thermal decomposition may produce small amounts of carbon monoxide, carbon dioxide, irritating aldehydes and ketones.

Hazardous Polymerization:

Does not occur.

Toxicological Information

Skin and Eye:

Adverse effects are not expected

Inhalation:

Benzene is listed by OSHA, NTP, CAL/OSHA, and IARC as a cancer causing substance.

Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Benzene is not expected to adsorb to sediment nor bioconcentrate in aquatic organisms.

Disposal Considerations

Do not attempt to dispose of waste or unused quantities in returnable cylinders. Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place, to Norco or NorLab for proper disposal. Non-refillable containers should be vented in a well ventilated area then disposed of in accordance with local regulations, or returned to NorLab.

Transport Information

Parameter	US DOT	Canada TDG
Proper Shipping Name:	Compressed gases, N.O.S., (Benzene, Air)	Compressed gas, N.O. S.,
Hazard Class:	2.2	2.2
Identification Number:	UN 1956	Un 1956
Shipping Label:	Nonflammable Gas	Nonflammable Gas

Regulatory Information

SARA Title III Notifications and Information:
SARA Title III – Section 313 Supplier Notification:

This product contains toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

Benzene is a CERCLA Hazardous Substance with a Reportable Quantity (RQ) of 10 pounds.

Regulated Ingredients:

Ingredient: Benzene CAS Number: 71-43-2 Percent by Volume: $\leq 0.05\%$

SARA Title III – Hazard Classes:

Sudden Release of Pressure Hazard

California Proposition 65:

This product contains an ingredient(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

Disclaimer of Expressed and Implied Warranties:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).