

0.0001% to 0.65% Benzene in Air

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PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: 0.0001% to 0.65% Benzene in Air
Synonyms: Benzene in Air; Benzene in Air Calibration Gas
Common Name: Benzene in Air
SDS Number: NLB 2540
Revision Date: 7/25/2018
Version: 2
CAS Number: Not Available - Gas Mixture
EPA Number: Not Available
Chemical Family: Gas Mixture
Chemical Formula: C₆H₆ + O₂ + N₂
Product Use: Calibration of analytical instrumentation

Supplier Details: NorLab a division of Norco
898 W. Gowen Rd.
Boise, ID 83705

Contact: Quality Dept.
Phone: 208-336-1643
Internet: www.norlab-gas.com

For Transportation Emergency Contact CHEMTREC: 800-424-9300

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HAZARDS IDENTIFICATION

Classification of Substance

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):
Physical, Gases Under Pressure, Compressed Gas
Health, Specific target organ toxicity - Repeated exposure, 2
Health, Carcinogenicity, 1 A

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: **DANGER**

GHS Hazard Pictograms:



GHS Hazard Statements:

H280 - Contains gas under pressure; may explode if heated
H373 - May cause damage to organs through prolonged or repeated exposure
H350 - May cause cancer
CGA-HG24 - SUPPORTS COMBUSTION.

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P271 - Use only outdoors or in a well-ventilated area.
P281 - Use personal protective equipment as required.
P285 - In case of inadequate ventilation wear respiratory protection.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+313 - IF exposed or concerned: Get medical advice/attention.
P410+412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.

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Hazards not Otherwise Classified (HNOC) or not Covered by GHS

Route of Entry: Eyes; Inhalation; Skin;

Target Organs: Bone marrow; Blood; Central nervous system; Upper respiratory tract;

Inhalation: 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.

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

Eye Contact: None anticipated. Contact with rapidly expanding gas near the point of release may cause frostbite.

Ingestion: Not anticipated. Product is a gas at normal conditions.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Ingredients		
CAS#	%	Chemical Name
71-43-2	0.0001 - 0.65%	Benzene
7782-44-7	20.9%	Oxygen
7727-37-9	78.45 - 79.0999%	Nitrogen

20.9% Oxygen in Nitrogen Indicates an Air Balance.

4 FIRST AID MEASURES

Inhalation: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. RESCUE PERSONNEL SHOULD BE EQUIPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons 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, given assisted (artificial) respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

Skin Contact: None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

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

Ingestion: Not a direct hazard.

5 FIRE FIGHTING MEASURES

Flammability: Not Flammable

Flash Point: None

Flash Point Method: Not Applicable

Burning Rate: Not Applicable

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Autoignition Temperature: None
Lower Explosive Limit: None
Upper Explosive Limit: None

Fire and Explosion Hazards:
 Nonflammable. Cylinders may rupture violently or vent rapidly from pressure when involved in a fire situation.

Extinguishing Media:
 None required. Use as appropriate for surrounding materials

Fire Fighting Instructions:
 Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

6	ACCIDENTAL RELEASE MEASURES
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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.

7	HANDLING AND STORAGE
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Handling Precautions: 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.

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.

Storage Requirements: Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 degrees F (52 degrees 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.

8	EXPOSURE CONTROLS/PERSONAL PROTECTION
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Engineering Controls: Local exhaust ventilation as necessary to limit exposure below the acceptable exposure limits.
Personal Protective Equipment: Benzene cas#:(71-43-2) [0.0001-0.65%]
 Oxygen cas#:(7782-44-7) [20.9%]
 Nitrogen cas#:(7727-37-9) [78.45-79.0999%]

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387)

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respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Benzene cas#:(71-43-2) [0.0001-0.65%]

Components with workplace control parameters

TWA 0.5 ppm USA. ACGIH Threshold Limit Values (TLV)

Leukemia
Confirmed human carcinogen
Danger of cutaneous absorption

STEL 2.5 ppm USA. ACGIH Threshold Limit Values(TLV)

Leukemia
Confirmed human carcinogen
Danger of cutaneous absorption

TWA 10 ppm USA. Occupational Exposure Limits (OSHA) - Table Z2(OSHA) - Table Z2 - Z37.40- 1969

CEIL 25 ppm USA. Occupational Exposure Limits (OSHA) - Table Z2(OSHA) - Table Z2 - Z37.40- 1969

Peak 50 ppm USA. Occupational Exposure Limits (OSHA) - Table Z2(OSHA) - Table Z2 - Z37.40- 1969

See 1910.1028. See Table Z-2 for the limits applicable in the operations or sectors excluded in 1910.1028

The final benzene standard in 1910.1028 applies to all occupational exposures to benzene except some subsegments of industry where exposures are consistently under the action level (i.e., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures); for the excepted subsegments, the benzene limits in Table Z-2 apply.

TWA 0.1 ppm USA. NIOSH Recommended Exposure Limits

Potential Occupational Carcinogen

STEL 1 ppm USA. NIOSH Recommended Exposure Limits

Potential Occupational Carcinogen

Oxygen cas#:(7782-44-7) [20.9%]

Nitrogen cas#:(7727-37-9) [78.45-79.0999%]

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9	PHYSICAL AND CHEMICAL PROPERTIES
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Appearance:	Colorless Gas	Odor:	Faint ethereal and sweetish odor.
Physical State:	Gas	Molecular Formula:	C6H6 in Air
Odor Threshold:	Not Determined	Solubility:	Very slightly soluble
Particle Size:	Not Determine	Softening Point:	Not Determine
Specific Gravity or Density:	1 (Air = 1)	Percent Volatile:	100%
Viscosity:	Not Determine	Freezing or Melting Point:	Not Determine
Saturated Vapor Concentration:	Not Determine	Flash Point:	Not Applicable
Boiling Point:	Not Determine	Upper Flammability Limit and Lower Flammability Limit:	Not Applicable
Flammability:	Not Flammable		

10	STABILITY AND REACTIVITY
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Chemical Stability:	Stable
Conditions to Avoid:	Strong oxidizing materials, strong acids
Materials to Avoid:	Strong Oxidizing Agents. Benzene may attack rubbers and plastics.
Hazardous Decomposition:	Combustion will produce carbon dioxide and, possibly toxic chemicals such as carbon monoxide.
Hazardous Polymerization:	Will not occur.

11	TOXICOLOGICAL INFORMATION
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Benzene cas#:(71-43-2) [0.0001-0.65%]

Information on toxicological effects

Acute toxicity:

LD50 Oral - rat - 2,990 mg/kg

LC50 Inhalation - rat - female - 4 h - 44,700 mg/m3

LD50 Dermal - rabbit - 8,263 mg/kg

Skin corrosion/irritation: Skin - rabbit Result: Skin irritation

Serious eye damage/eye irritation: Eyes - rabbit Result: Eye irritation

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: Laboratory experiments have shown mutagenic effects. In vivo tests showed mutagenic effects

Human lymphocyte Sister chromatid exchange mouse Mutation in mammalian somatic cells.

Carcinogenicity:

Carcinogenicity - Human - male - Inhalation:

Tumorigenic: Carcinogenic by RTECS criteria. Leukaemia Blood: Thrombocytopenia.

Carcinogenicity - rat - Oral:

Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors. Leukaemia

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Benzene)

NTP: Known to be human carcinogen (Benzene)

OSHA: OSHA specifically regulated carcinogen (Benzene)

Reproductive toxicity: Reproductive toxicity - mouse - Intraperitoneal:

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity - rat - Inhalation:

Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Developmental Toxicity - mouse - Inhalation:

Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Blood and

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lymphatic system (including spleen and marrow).
Specific target organ toxicity - single exposure: no data available
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: May be fatal if swallowed and enters airways.
Additional Information: RTECS: CY1400000

Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue. The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia, aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral blood-forming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased., Blood disorders
Stomach - Irregularities - Based on Human Evidence

Oxygen cas#:(7782-44-7) [20.9%]

Information on toxicological effects

Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Other information on acute toxicity
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System):no data available
Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.

Signs and Symptoms of Exposure: Nausea, Dizziness, Unconsciousness, May be harmful.

Synergistic effects: no data available

Additional Information: RTECS: RS2060000

Nitrogen cas#:(7727-37-9) [78.45-79.0999%]

Information on toxicological effects

Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Other information on acute toxicity
Skin corrosion/irritation: no data available

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Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System):no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.

Signs and Symptoms of Exposure: May be harmful., Nausea, Headache, Vomiting

Synergistic effects: no data available

Additional Information: RTECS: QW9700000

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ECOLOGICAL INFORMATION

Benzene cas#:(71-43-2) [0.0001-0.65%]

Information on ecological effects

Toxicity:

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 5.90 mg/l - 96 h.

LC50 - Pimephales promelas (fathead minnow) - 15.00 - 32.00 mg/l - 96 h

LC50 - Lepomis macrochirus (Bluegill) - 230.00 mg/l - 96 h

NOEC - Pimephales promelas (fathead minnow) - 10.2 mg/l - 7 d

LOEC - Pimephales promelas (fathead minnow) - 17.2 mg/l - 7 d

Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 22.00 mg/l - 48 h.

other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 9.20 mg/l - 48 h

Toxicity to algae EC50 - Pseudokirchneriella subcapitata (green algae) - 29.00 mg/l - 72 h.

Persistence and degradability: Biodegradability Result: - Readily biodegradable.

Bioaccumulative potential: Bioaccumulation Leuciscus idus (Golden orfe) - 3 d - 0.05 mg/l

Bioconcentration factor (BCF): 10

Mobility in soil: no data available

Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

Oxygen cas#:(7782-44-7) [20.9%]

Information on ecological effects

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

Nitrogen cas#:(7727-37-9) [78.45-79.0999%]

Information on ecological effects

Toxicity: no data available

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Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

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DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations. 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 NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to NorLab.

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TRANSPORT INFORMATION

Proper Shipping Name US:
UN 1956, Compressed Gas N.O.S., (Benzene, Air), 2.2

Proper Shipping Name Canada:
UN1956, Compressed Gas, N.O.S., (Benzene, Air), 2.2



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REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Benzene (71-43-2) [0.0001-0.65%] CERCLA, CSWHS, EPCRAWPC, HAP, HWRCRA, MASS, NJHS, NRC, OSHAHTS, OSHAWAC, PA, PRIPOL, PROP65, SARA313, TOXICPOL, TOXICRCRA, TSCA, TXAIR, TXHWL

Oxygen (7782-44-7) [20.9%] MASS, PA, TSCA

Nitrogen (7727-37-9) [78.45-79.0999%] MASS, PA, TSCA



WARNING

This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Regulatory CODE Descriptions

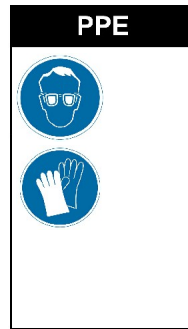
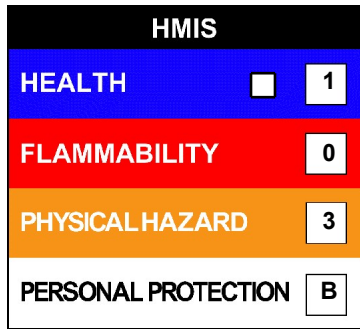
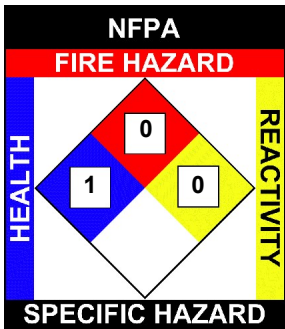
CERCLA = Superfund clean up substance
CSWHS = Clean Water Act Hazardous substances
EPCRAWPC = EPCRA Water Priority Chemicals
HAP = Hazardous Air Pollutants
HWRCRA = RCRA Hazardous Wastes
MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
NRC = Nationally Recognized Carcinogens
OSHAHTS = OSHA Hazardous and Toxic Substances

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OSHA WAC = OSHA Workplace Air Contaminants
 PA = PA Right-To-Know List of Hazardous Substances
 PRIPOL = Clean Water Act Priority Pollutants
 PROP65 = CA Prop 65
 SARA313 = SARA 313 Title III Toxic Chemicals
 TOXICPOL = Clean Water Act Toxic Pollutants
 TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
 TSCA = Toxic Substances Control Act
 TXAIR = TX Air Contaminants with Health Effects Screening Level
 TXHWL = TX Hazardous Waste List

16	OTHER INFORMATION
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NFPA: Health = 1, Fire = 0, Reactivity = 0, Specific Hazard = n/a
HMIS III: Health = 1, Fire = 0, Physical Hazard = 3
HMIS PPE: B - Safety Glasses, Gloves



Disclaimer:

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