

Section 1: Product and Company Identification

Absolute Accuracy
4591 S Wayside Dr
Houston, TX 77087
(832) 571-2387

Product Code: 2892

Synonyms: N/A
Recommended Use: CALIBRATION GAS
Usage Restrictions: INDUSTRIAL CALIBRATION GAS ONLY

Section 2: Hazards Identification



Warning

Hazard Classification:

Acute Aquatic Toxicity (Category 1)
Eye Effects (Category 2.A)
Gases Under Pressure
Specific target organ toxicity (Single Exposure) (Category 3)

Hazard Statements:

Causes serious eye irritation
Contains gas under pressure; may explode if heated
May cause respiratory irritation;
Very toxic to aquatic life

Precautionary Statements

Prevention:

Avoid breathing dust/fume/gas/mist/ vapors/spray.
Wash thoroughly after handling.
Wear eye protection/face protection.
Use only outdoors or in a well-ventilated area.
[In case of inadequate ventilation] wear respiratory protection.

Response:

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a poison center or doctor if you feel unwell.
If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage:

Store locked up.
Protect from sunlight.
Store in a well-ventilated place. Keep container tightly closed.

Disposal:

Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Chlorine	7782-50-5	10ppm
Air	Not applicable	balance

	Chemical Substance	Chemical Family	Trade Names
Chlorine	CHLORINE	Halogens	CHLORINE MOLECULAR; DIATOMIC CHLORINE; DICHLORINE; MOLECULAR CHLORINE; UN 1017; Cl2
Air	AIR, COMPRESSED	Inorganic gases	AIR; UN 1002 Nitrogen CAS: 7727-37-9 Oxygen CAS: 7782-44-7

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Chlorine	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.	Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Not likely route of exposure.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen. Avoid gastric lavage or emesis.
Air	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Get medical attention.	

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Chlorine	Non-flammable. Use appropriate extinguishing media for surrounding fire.	Non-flammable	<ul style="list-style-type: none"> ▪ Full-body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus ▪ Non-flammable.
Air	Use extinguishing agents appropriate for surrounding fire.		<ul style="list-style-type: none"> ▪ No respirator is required under normal conditions of use.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Chlorine	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Evacuate area and downwind locations.	Avoid contact with combustible materials.	Stop leak if possible without personal risk. Reduce vapors with water spray. Dig holding area such as lagoon, pond or pit for containment. Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers.
Air			Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Chlorine	Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Absorb with activated carbon. Collect spilled material using mechanical equipment.	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Air		

Section 7: Handling and Storage

	Handling	Storage
Chlorine	Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Keep separated from incompatible substances. Store outside or in a detached building.
Air	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Chlorine	CHLORINE: 1 ppm (3 mg/m ³) OSHA ceiling 0.5 ppm (1.5 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 1 ppm (3 mg/m ³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 0.5 ppm ACGIH TWA 1 ppm ACGIH STEL 0.5 ppm (1.45 mg/m ³) NIOSH recommended ceiling 15 minute(s)
Air	AIR, COMPRESSED: No occupational exposure limits established.

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Chlorine	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Full-body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus
Air	Eye protection not required under normal conditions.	Protective clothing is not required under normal conditions.	No respirator is required under normal conditions of use.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Chlorine	Gas	Yellow or green	Yellow or green	N/A	Gas	Distinct odor, irritating odor	N/A
Air	Gas	Clear	Colorless		Gas	Not available	

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Chlorine	Not combustible (does not burn). However, chlorine is a strong oxidizing agent and is a serious fire risk.	Not available	Not available	Not available	Not available	Not available
Air						

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Chlorine	-29.1 F (-33.97 C)	-150 F (-101 C)	5168 mmHg @ 21 C	2.49 (Air=1)	Not applicable	1.46% @ 0 C	Not applicable	0.01 ppm	Not applicable	0.01327 cP @ 20 C
Air	-317 F (-194 C)	Not available	760 mmHg @ -194 C	1	Not applicable	Slightly soluble	Not applicable	Not available	Not applicable	0.01853 cP @ 26.85 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Chlorine	70.906	Cl ₂	3.214 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alkali
Air			1.29 g/L @ 0 C			Not applicable	Slightly Soluble

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Chlorine	Stable at normal temperatures and pressure. It reacts with water to form a weak, highly corrosive solutions of hydrochloric acid and hypochlorous acid, which can decompose to hydrochloric acid and oxygen.	Stable at normal temperatures and pressure. It reacts with water to form a weak, highly corrosive solutions of hydrochloric acid and hypochlorous acid, which can decompose to hydrochloric acid and oxygen.	Combustible materials, bases, metals, halogens, metal salts, reducing agents, amines, metal carbide, metal oxides, oxidizing materials, halo carbons, acids
Air	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	None known

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Chlorine	Corrosive hydrogen chloride, hydrochloric acid and hypochlorous acid.	Will not polymerize.

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Air	No hazard expected.	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Chlorine	0.86 mg/L (1 hr-Rat)	Not available	Burns, chest pain, difficulty breathing, headache, dizziness, hyperactivity, emotional disturbances, bluish skin color, lung damage, death
Air	Not available	Not available	

	Eye Irritation	Skin Irritation	Sensitization
Chlorine	Burns	Burns	Acute toxicity, Category 2, inhalation; H330: Fatal if inhaled. Skin irritation, Category 2; H315: Causes skin irritation. Eye irritation, Category 2; H319: Causes serious eye irritation. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation.
Air	No information is available	No information is available	No significant target effects reported.

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Chlorine	ACGIH: A4 -Not Classifiable as a Human Carcinogen	Available.	Available.	No data
Air	Not available	Not available	No data	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Chlorine	Fish toxicity: LC50 Fathead minnow: 0.07 to 0.15 (96 hour); 390 ug/L 96 hour(s) LC50 (Mortality) Orangethroat darter (Etheostoma spectabile) Invertebrate toxicity: 637.5 ug/L 1 hour(s) LC50 (Mortality) Pacific oyster (Crassostrea gigas) Algal toxicity: 50-1000 ug/L 23 hour(s) (Population) Algae, phytoplankton, algal mat (Algae) Phyto toxicity: Not available Other toxicity: 20 ug/L 96 day(s) (Growth) Watermilfoil (Myriophyllum spicatum)	The atmospheric half-life and lifetime of this material due to photolysis is estimated at 10 and 14 minutes, respectively. The half-life of free resid	Not expected	Not available
Air	Fish toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Chlorine	Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.
Air	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Air, Chlorine)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Chlorine	Chlorine	UN1017	2.3	Not applicable	2.3; 8	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B
Air	Air, compressed	UN1002	2.2	Not available	2.2	Not available	Not available	Not available

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Chlorine	Chlorine	UN1017	2.3; 8	Not applicable
Air	Air, compressed	UN1002	2.2	Not available

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Chlorine	10 LBS RQ	100 LBS TPQ	10 LBS RQ
Air	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Chlorine	Yes	No	No	No	Yes
Air	No	No	No	No	Yes

SARA 372.65

Chlorine	CHLORINE
Air	Not regulated.

OSHA Process Safety

Chlorine	1500 LBS TQ
Air	Not regulated.

State Regulations

	CA Proposition 65
Chlorine	Not regulated.
Air	Not regulated.

Canadian Regulations

	WHMIS Classification
Chlorine	A, D1A, E
Air	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Chlorine	Listed on inventory.	Not listed.	Not determined.
Air	Not listed on inventory.	Not listed.	Not determined.

Section 16: Other Information

	NFPA Rating
Chlorine	HEALTH=4 FIRE=0 REACTIVITY=0 SPECIAL=OX
Air	HEALTH=0 FIRE=0 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard