

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

ASHTA 14-01, Liquid Chlorine

Product Name: Chlorine

Identified Uses: Chlorinating agent, water treatment chemicals, plastics manufacturing

Company Information:

ASHTA Chemicals Inc.

3509 Middle Road (PO Box 858)

Ashtabula Ohio 44005

Phone: (440) 997-5221

Fax: (440) 998-0286

24-hour Emergency Phone: CHEMTREC: (800) 424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

GHS label elements, including precautionary statements:

Signal Word: Danger

Pictogram(s):

**Hazard Statements**

H270	May cause or intensify fire; oxidizer.
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	
P220	Keep/Store away from clothing/ combustible materials.
P244	Keep reduction valves free from grease and oil.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P284	Wear respiratory protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P320	Specific treatment is urgent (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P376	In case of fire: Stop leak if safe to do so.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in well-ventilated place.
P501	Dispose of contents/container in accordance with local/ national regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME:	Chlorine
TRADE NAME:	ASHTA 14-01
SYNONYMS:	Chlorine, Liquid Chlorine, Compressed Chlorine
CONCENTRATION:	> 99.5%
C.A.S:	7782-50-5
WHMIS:	A, D1A, D2A, E
CHEMICAL FORMULA:	Cl ₂
CHEMICAL FAMILY:	Halogen, Oxidizer

SECTION 4**FIRST AID MEASURES****Description of first aid measures:**

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled:

If breathed in, move person into fresh air. If breathing is difficult, give humidified air. Give oxygen but only by a certified physician. If breathing stops, provide artificial respiration. Get medical attention immediately.

In case of skin contact:

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Contact with liquid form may cause frostbite. Chemical burns must be treated by a physician. Get medical attention immediately.

In case of eye contact:

Rinse thoroughly with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Get medical attention immediately.

If swallowed:

Ingestion is not a typical route of exposure for liquefied gasses. Get medical attention immediately.

Most important symptoms, effects, acute and delayed:

Contact with material will cause burns to the skin, eyes, and mucous membranes. Unconsciousness, cough, shortness of breath, nausea, vomiting, may cause lung damage.

Indication of immediate medical attention and special treatment needed:

For liquid contact, treat the affected area for frostbite if necessary. If the product is ingested, probably mucosal damage may contra indicate the use of gastric lavage. Treat appropriately. Insure medical personal are aware of the materials involved.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point:	None.
Extinguishing Media:	Use extinguishable media appropriate for surrounding media.
Auto Ignition Temp:	N/A
Special Fire Fighting Procedures:	Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Keep unnecessary people away, keep area isolated. Deny entry. Do not direct water directly at the source of the leak or at safety devices, icing may occur. Remove containers from fire zone if possible, except if chlorine is leaking. For large fires, and fires involving tanks, tank cars, fight the fire from a maximum distance. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of escalating leakage.
Unusual Fire/Explosion Hazards:	Chlorine is not combustible, but it enhances the combustion of other substances. Most combustibles will burn in this material producing irritating corrosive and or toxic gases. Contact with reactive metals like aluminum, zinc, and tin may generate flammable hydrogen gas. It may react to cause fire and/or explosion on contact with organics such as oils or lubricants. May react with steel at high temperature.

SECTION 6 ACCIDENTAL RELEASE MEASURES**Environmental Precautions:**

Avoid discharge into drains, watercourses or onto the ground. Contact local authorities in case of spillage to drain/ aquatic environment.

Containment and Cleaning:

Follow preplanned emergency procedures. Only properly equipped, trained, functional personnel should attempt to contain a leak. All other personnel should be evacuated from the danger area. Using full protective equipment, apply appropriate emergency kit device or other securement technology to stop the leak if possible. Keep combustibles away from spilled material. Neutralize spilled material with crushed limestone, soda ash or lime.

SECTION 7: HANDLING AND STORAGE**Precautions to be taken for handling and storage:**

Do not attempt to handle, store, or use chlorine without proper training. Avoid heat, sparks, open flames and other ignition sources. Use only chlorine-compatible lubricants. Keep dry as much as possible. Close valves when not in use. Store in well-ventilated areas.

Precautions for repair:

Equipment: Purge free of any contained chlorine.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Principal Component: Chlorine
 Occupational Exposure Limits:
 Regulatory Limits:

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Chlorine 7782-50-5	---	---	1 ppm 3 mg/m ³

ACGIH TLV = 0.5 ppm (1.5 mg/m³) TWA

15 Minute STEL = 1 ppm (3 mg/m³)

NIOSH IDLH = 10 ppm (2010)

Exposure Controls:

Eye Protection: Splash goggles or full-face gas mask.

Respiratory Protection: NIOSH- approved acid gas chemical cartridge respirator or full face with canister- within allowable limits. For unknown concentrations, use approved self-contained breathing apparatus.

Other Protection: For exposure to high concentrations of liquid chlorine, full body protection, Class A or B, is required as well as rubber chemical protectant boots.

Ventilation Recommended: Sufficient to control below TLV or PEL. Chlorine will collect at the floor or ground level.

Engineering Controls: Should be handled in closed systems. Eyewash facilities and emergency shower must be available when handling this product.

Glove Type Recommended: Non-porous, i.e. neoprene, butyl or Viton.

Additional Information: Do not attempt to handle chlorine without proper training.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Appearance	Gas is greenish/yellow, liquid is amber
Odor	Suffocating, pungent, irritating
Odor Threshold	0.31 ppm
pH	Strongly acidic in the presence of water
Melting point/freezing point	-101.0°C (-149.8°F)
Initial boiling point	-34.0 °C (-29.3 °F) - lit.
Flash Point	No data available
Auto-ignition Temperature	No data available
Evaporation rate	Contingent on rate of heat absorption
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Relative density	1.563 g/cm ³ at -34°C (-29°F) 1.467 g/cm ³ at 0°C (32°F)
Water solubility	10 g/l at 20°C (68°F)
Molecular Weight	70.9
Density	11.7 lbs./gal at 15.6°C (60.1°F)
Vapor Density (air = 1)	2.49
Vapor Pressure	4788 mmHg at 20°C (68°F)
Partition Coefficient: n-octanol/water	No data available
Decomposition Temperature	No data available

SECTION 10: STABILITY AND REACTIVITY

Stability	Chlorine is stable under normal conditions
Conditions to avoid	Moisture in chlorine handling systems. Excessive heat or fire in storage areas, above 485°F
Incompatibility:	Chlorine reacts with water to produce hypochloric acid and hypochlorous acid. Chlorine reacts as an oxidizer with most organic materials (except those fully halogenated) at room temperature. It reacts with many metals at elevated temperatures. Dry chlorine will react with titanium and aluminum. Wet chlorine is corrosive to most metals except titanium. Chlorine will combine with carbon monoxide and sulfur dioxide to form phosgene and sulfur chloride respectively.
Hazardous decomposition products:	Cannot decompose
Polymerization:	Hazardous polymerization WILL NOT occur

SECTION 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	
Ingestion:	Causes digestive tract burns
Inhalation	Irritating to respiratory system, can be fatal if inhaled
Skin contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
Eye contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Can cause blurred vision, redness, pain, severe tissue burns and eye damage.
Symptoms related to the physical, chemical and toxicological characteristics:	Contact with this material will cause burns to the skin, eyes and mucous membranes. Cough, shortness of breath, headache, nausea, vomiting. May cause lung damage. Unconsciousness.

Information on toxicological effects:

Acute toxicity:	Its action in the respiratory tract is due to its strong oxidizing capability. Chlorine forms both hypochlorous acid and hypochloric acid on contact with moist mucous membranes. Can be fatal if inhaled (>400 ppm over 30 min.)
Odor Threshold	Approximately 0.3 ppm
IDLH:	10.0 ppm.
Germ cell mutagenicity:	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity:	No data available.
Specific target organ toxicity -	Causes damage to organs (lungs) through prolonged or repeated exposure.
Aspiration hazard:	Due to the physical form of the product it is unlikely an aspiration hazard.
Chronic effects:	Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath and reactive airway dysfunction syndrome

Further information: Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure.

Product Species Test Results:

Rat - Inhalation LC₅₀: Acute at 293 ppm, 1 hr

SECTION 12:	ECOLOGICAL INFORMATION
--------------------	-------------------------------

Ecological Hazards:	This material is highly toxic to aquatic organisms on an acute basis
Aquatic Toxicity	This material is highly toxic to fish and aquatic organisms
Freshwater Fish Toxicity:	LC ₅₀ Fathead minnow: 0.07 to 0.15 (96 hour) LC ₅₀ Bluegill: 0.44 mg/l (96 hour)
Invertebrate Toxicity:	LC ₅₀ Daphnia: 30 to 150 µg/L (48 hour)
Fate and Transport	
Biodegradation:	This material is an element and not subject to biodegradation.
Persistence:	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 residual material in fresh water has been estimated at 1.3 to 5 hours
Bio accumulative potential:	This material is not expected to bio accumulate in organisms.
Additional Ecological Information:	This material has exhibited toxicity to terrestrial organisms.

SECTION 13:	DISPOSAL CONSIDERATIONS
--------------------	--------------------------------

Use or re-process if possible. Chlorine may be absorbed into an alkaline solution such as caustic soda, soda ash or hydrated lime. Dispose of in accordance with all applicable regulations.

SECTION 14:	TRANSPORT INFORMATION
--------------------	------------------------------

Shipping:	Steel tank cars, Tank trucks, Ton containers, 100 and 150-
Usual Shipping Containers:	pound cylinders.
Usual Shelf Life:	Indefinite (life of containers).
Storage/Transport Temperatures:	Ambient.
Suitable Storage: Materials/Coatings:	Steel.
Unsuitable	Titanium, chrome, aluminum and reactive metals.
D.O.T. Labeling Information:	Poison gas, corrosive
D.O.T. Identification Number	UN 1017

D.O.T. Shipping Name:	Chlorine
D.O.T. Hazard Class:	2.3
D.O.T. Packing Group:	I
D.O.T. Hazard Guide:	124
Placard:	UN 1017
Additional Requirements:	Toxic Inhalation Hazard Zone B
IATA Passenger:	Not permitted for transportation
IATA Cargo:	Not permitted for transportation
Reportable Quantity:	10 lbs.

SECTION 15	REGULATORY INFORMATION
-------------------	-------------------------------

FIFRA

Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). EPA Reg. No: 62531-3 (ASHTA14-01)

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Use as a disinfectant must be carried out in accordance with all applicable local, state, and federal regulations

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

Chlorine	CAS#: 7782-50-5	TPQ = 100 lbs. (List of Lists, Oct. 2012)
----------	-----------------	---

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Chlorine	CAS#: 7782-50-5	Listed: Yes (List of Lists, Oct. 2012)
----------	-----------------	--

SARA 311/312 Hazards

The following components are subject to reporting levels established by SARA Title III, Section 311/312:

Chlorine	CAS#: 7782-50-5	Listed: Yes (List of Lists, Oct. 2012)
----------	-----------------	--

Massachusetts Right To Know Components

Chlorine	CAS#: 7782-50-5	Listed: Yes
----------	-----------------	-------------

Pennsylvania Right To Know Components

Chlorine	CAS#: 7782-50-5	Listed: Yes
----------	-----------------	-------------

New Jersey Right To Know Components

Chlorine	CAS#: 7782-50-5	Listed: Yes
----------	-----------------	-------------

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

OSHA PSM TPQ: 1,500lbs

Toxic Substances Control Act (TSCA):

CAS# 7782-50-5 is listed on the TSCA inventory.

Comprehensive Environmental Response Compensation Liability Act: (CERCLA) CAS#7782-50-5 is listed under CERCLA.

SECTION 16	OTHER INFORMATION
-------------------	--------------------------

NFPA Rating:

Health Hazard: 4

Fire Hazard: 0

Reactivity Hazard: 0

Specific Hazard: OX

This information is drawn from recognized sources believed to be reliable. ASHTA Chemicals Inc. makes no guarantees or assumes any liability in connection with this information. The user should be aware of changing technology, research, regulations and analytical procedures that may require changes herein. The above data is supplied upon the condition that persons will evaluate this information and then determine its suitability for their use. Only U.S.A regulations apply to the above.

Version 1.0	For the new GHS SDS Standard	Revision Date: 12/11/2014
Version 1.1	Graphics updated	Revision Date: 3/9/2015
Version 1.2	Minor changes in Sections 9 and 14	Revision Date: 7/5/2015
Version 1.3	Added EPA Reg. # & Product Name	Revision Date: 2/28/2017