



SAFETY DATA SHEET

1. Identification

Product identifier CHLORINE NSF

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name BRENNTAG CANADA INC
Address 43 Jutland Rd.
Toronto, ON M8Z 2G6
Canada
Telephone 416-259-8231
Website <http://www.brenntag.com/canada/en/>
E-mail RegulatoryAffairs@Brenntag.ca

Emergency phone number 1-855-273-6824

2. Hazard(s) identification

Physical hazards	Oxidising gases	Category 1
	Gases under pressure	Liquefied gas
Health hazards	Acute toxicity, dermal	Category 1
	Acute toxicity, inhalation	Category 2
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity following single exposure	Category 3 respiratory tract irritation
	Health hazards not otherwise classified	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

Label elements



Signal word Danger

Hazard statements May cause or intensify fire; oxidiser. Contains gas under pressure; may explode if heated. Fatal in contact with skin. Causes severe skin burns and eye damage. Fatal if inhaled. Causes serious eye damage. May cause respiratory irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Presents a health hazard which is not otherwise classified.

Precautionary statement

Prevention Keep away from clothing and other combustible materials. Keep valves and fittings free from oil and grease. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response	IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor. Specific treatment is urgent (see this label). Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Stop leak if safe to do so. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.
Supplemental information	100 % of the mixture consists of component(s) of unknown acute oral toxicity.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Chlorine		7782-50-5	100

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control centre immediately.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately.
Ingestion	Not likely, due to the form of the product. Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Most important symptoms/effects, acute and delayed	Headache. Dizziness. Nausea, vomiting. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Coughing.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off immediately all contaminated clothing. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Discard any shoes or clothing items that cannot be decontaminated.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Allow gas to burn if flow cannot be shut off immediately. Apply water from safe distance to cool container and protect surrounding area. In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Use water spray to cool unopened containers. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods

Cool containers exposed to flames with water until well after the fire is out.

General fire hazards

Contents under pressure. Pressurised container may explode when exposed to heat or flame. May cause or intensify fire; oxidiser.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Do not breathe gas. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Stop leak if you can do so without risk. Extinguish all flames in the vicinity. If this gas leaks without igniting, extreme caution must be used; flammable or explosive mixtures with air may be formed. Use water spray to reduce vapours or divert vapour cloud drift. Isolate area until gas has dispersed. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Runoff from fire control or dilution water may cause pollution.

7. Handling and storage

Precautions for safe handling

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Keep away from combustible material. Keep reduction valves free from grease and oil. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Purge air from system before introducing gas. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not breathe gas. Do not get in eyes, on skin, or on clothing. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see Section 10 of the SDS). Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	1 ppm
	TWA	0.5 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	2.9 mg/m3
		1 ppm
	TWA	1.5 mg/m3 0.5 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	1 ppm
	TWA	0.5 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	1 ppm
	TWA	0.5 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	1 ppm
	TWA	0.5 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Material	Type	Value
Chlorine (CAS 7782-50-5)	STEL	2.9 mg/m3
		1 ppm
	TWA	1.5 mg/m3 0.5 ppm

Consult provincial or territorial exposure values, as may apply.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

The following are recommendations only for the use of PPE. These recommendations cannot anticipate the variety of workplaces where the product will be used, nor how the product will be used in a variety of applications and processes. In determining appropriate PPE and engineering controls, it is the duty of the employer / user to evaluate their use of this product in accordance with the requirements of the local jurisdiction, and, if necessary, in conjunction with a professional industrial hygienist.

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Wear positive pressure self-contained breathing apparatus (SCBA).
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Gas.
Form Liquefied gas.
Colour GREENISH YELLOW

Odour SHARP, IRRITATING, CHARACTERISTIC

Odour threshold Not available.

pH Not available.

Melting point/freezing point -101.11 °C (-150 °F)

Initial boiling point and boiling range -34.04 °C (-29.27 °F)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit – upper (%) Not available.

Vapour pressure Not available.

Vapour density 2.5

Relative density Not available.

Solubility(ies)

Solubility (water) 7 g/l

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

Other information

Density 11.88 lbs/gal

Explosive properties Not explosive.

Molecular formula Cl₂

Molecular weight 70.91 g/mol

Oxidising properties May cause or intensify fire; oxidiser.

Specific gravity 1.42

Surface tension 18.4 mN/m (20 °C (68 °F))

10. Stability and reactivity

Reactivity Greatly increases the burning rate of combustible materials.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions Hazardous polymerisation does not occur.

Conditions to avoid Keep away from combustible material. Heat. Contact with incompatible materials.

Incompatible materials Combustible material. Reducing Agents. Ammonia.
Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation Fatal if inhaled.
Skin contact Fatal in contact with skin. Causes severe skin burns.
Eye contact Causes serious eye damage.
Ingestion Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics Headache. Dizziness. Nausea, vomiting. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Coughing.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Fatal in contact with skin.

Product	Species	Test results
Chlorine (CAS 7782-50-5)		
Acute		
Inhalation		
LC50	Rat	293 ppm, 1 Hours

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitisation

Canada - Alberta OELs: Irritant

Chlorine (CAS 7782-50-5) Irritant

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

ACGIH Carcinogens

Chlorine (CAS 7782-50-5) A4 Not classifiable as a human carcinogen.

Canada - Manitoba OELs: carcinogenicity

Chlorine (CAS 7782-50-5) Not classifiable as a human carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not likely, due to the form of the product.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Product	Species	Test results
Chlorine (CAS 7782-50-5)		
Aquatic		
Fish	LC50 Atlantic silverside (Menidia menidia)	0.037 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this substance.

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

Transportation information on packaging may be different from that listed.

DOT

UN number	UN1017
UN proper shipping name	Chlorine, MARINE POLLUTANT
Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Label(s)	2.3, 5.1, 8
Packing group	Not available.
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	2, B9, B14, N86, T50, TP19
Packaging exceptions	None
Packaging non bulk	304
Packaging bulk	314, 315

IATA

UN number	UN1017
UN proper shipping name	Chlorine
Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Packing group	Not available.
Environmental hazards	No.
ERG Code	2CP
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Forbidden
Cargo aircraft only	Forbidden

IMDG

UN number	UN1017
UN proper shipping name	CHLORINE, MARINE POLLUTANT
Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Packing group	Not available.

Environmental hazards

Marine pollutant

Yes

EmS

F-C, S-U

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

DOT



IATA; IMDG; TDG



Marine pollutant



General information

IMDG Regulated Marine Pollutant. Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

TDG

UN number

UN1017

UN proper shipping name

Chlorine

Transport hazard class(es)

Class

2.3

Subsidiary risk

5.1, 8

Packing group

Not available.

Environmental hazards

Not available.

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada DSL Inventory: Registration Status

Chlorine (CAS 7782-50-5) Listed

Canada Environmental Emergency Regulations Schedule 1: Listed Substance

Chlorine (CAS 7782-50-5) Listed

Canada NPRI (Supplier Notification Required): Listed substance

Chlorine (CAS 7782-50-5) Listed

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Ontario. Toxic Substances. Toxic Reduction Act, 2009. Regulation 455/09 (July 1, 2011)

Chlorine (CAS 7782-50-5)

Precursor Control Regulations

Not regulated.

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Chlorine (CAS 7782-50-5) Listed.

SARA 304 Emergency release notification

Chlorine (CAS 7782-50-5) 10 lbs

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Chlorine	7782-50-5	10	100		

SARA 311/312 Hazardous chemical

Classified hazard categories Oxidizer (liquid, solid, or gas)
 Gas under pressure
 Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Chlorine	7782-50-5	100

Clean Air Act (CAA) HAPS list

Other federal regulations

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

US state regulations

US. California Proposition 65

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Chlorine (CAS 7782-50-5)

California Proposition 65

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Chlorine (CAS 7782-50-5)

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Toxic Chemical Substances (TCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 27-May-2018

Version No. 01

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