Aquatrade Water Treatment Chemicals (Pty) Ltd

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1 Identification

GHS Product Identifier

AQT 190

Other means of identification

CAS:	7758-19-2
EC:	231-836-6
RTECS:	VZ4800000
ICSC:	1045
UN:	1496
Chemical Family:	Oxidizing basic salts
Synonyms:	SODIUM CHLORITE Chlorous acid, sodium salt Chlorite sodium sodiumchlorite
Proper Shipping Name:	SODIUM CHLORITE
Chemical Formula:	$NaClO_2$

Recommended use of the chemical and restriction on use

AQT 190 is a specially formulated mixture designed to be used for production of chlorine dioxide solution. Industrial Water Treatment.

Supplier's details

AQUATRADE WATER TREATMENT CHEMICALS (PTY) LTD

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Emergency phone number

+27 82 921 0643 (Available Mon - Fri, GMT 5:00 to 20:00)
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2 Hazard(s) identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Oxidizing Solids (Category 1), H271
Acute Toxicity, Oral (Category 3), H301
Acute Toxicity, Dermal (Category 2), H310
Acute Toxicity, Inhalation (Category 2), H330
Skin Corrosion/Irritation (Category 1B), H314
Serious Eye Damage/Irritation (Category 1), H318
Specific target organ toxicity - repeated exposure, Oral (Category 2) - Spleen, Liver, Kidney, Blood, H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS label elements

Danger





May cause fire or explosion; strong oxidizer

Toxic if swallowed

Fatal in contact with skin

Causes severe skin burns and eye damage

Causes serious eye damage

Fatal if inhaled

May cause damage to organs through prolonged or repeated exposure

Very toxic to aquatic life with long lasting effects

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON CLOTHING: Rinse Immediately contaminated CLOTHING and SKIN with plenty of water before removing clothes.

Specific treatment (see P330 on this label).

Rinse mouth.

Wash contaminated clothing before reuse.

In case of fire: Use water to extinguish.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Collect spillage.

Store locked up.

Store away from other materials.

Dispose of contents and container in accordance with local, regional, national, international regulations.

Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Keep/Store away from clothing/combustible materials.

Wear protective gloves/protective clothing/eye protection/face protection. Wear fire/flame resistant/retardant clothing.

Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

Other hazards which do not result in classification

Supplemental Hazard information (EU):

EUH032	Contact with acids liberates very toxic gas.
EUH071	Corrosive to the respiratory tract.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3 Composition/information on ingredients

Description	CAS Number	EINECS Number	%	Note
Confidential Business Information			0	Information available to Emergency Responders on Tel: +27 82 921 0643

4 First-aid measures

Description of necessary first-aid measures

Need of Medical Attention
Urgent

Skin Contact
Wash the area affected with plenty of water for at least 15 minutes, removing soiled clothing and shoes. Seek immediate medical attention.

Eye Contact
Wash eyes with plenty of water for at least 30 minutes. Seek immediate medical attention.

Contact with Clothing
Remove clothing immediately. Submerge in water to prevent the possibility of a fire. Wash shoes with water .

Ingestion
DO NOT induce vomit. If conscious, give water on demand and seek immediate medical attention. If unconscious, maintain the patient at rest and warm, and seek immediate medical attention.

Inhalation
In the event of formation of chlorine dioxide, move the patient to a well ventilated place, lying flat and at rest. If the affected person stops breathing, give artificial respiration. If breathing with difficulty, give oxygen. Always seek medical help.

Special measure to be available at the workplace
Safety showers and eye-wash.

Most important symptoms/effects, acute and delayed

Inhalation
Cough, sore throat.

Skin contact
Redness, pain

Eye contact
Redness, pain.

Ingestion
Abdominal pain, vomiting.

Organism	Test Type	Route	Dose	Effect
man	TDL_o	oral	143 mg/kg (143 mg/kg)	LUNGS, THORAX, OR RESPIRATION: CYANOSIS; GASTROINTESTINAL: NAUSEA OR VOMITING; KIDNEY, URETER, AND BLADDER: CHANGES IN TUBULES (INCLUDING ACUTE RENAL FAILURE, ACUTE TUBULAR NECROSIS)
rat	LD_{50}	oral	165 mg/kg (165 mg/kg)	LIVER: JAUNDICE, OTHER OR UNCLASSIFIED; KIDNEY, URETER, AND BLADDER: INTERSTITIAL NEPHRITIS

Indication of immediate medical attention and special treatment needed, if necessary

Immediate treatment
Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. **DO NOT** induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention.

Basic treatment
Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of

respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport. **DO NOT** use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. **DO NOT** attempt to neutralize.

Advanced treatment
Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious, has severe pulmonary edema, or is in severe respiratory distress. Early intubation, at the first signs of upper airway obstruction, may be necessary. Positive-pressure ventilation techniques with a bag valve mask device may be beneficial. Consider drug therapy for pulmonary edema. Consider administering a beta agonist such as albuterol for severe bronchospasm. Monitor cardiac rhythm and treat arrhythmias if necessary. Start IV administration of D5W: "To keep open", minimal flow rate. Use 0.9% saline (NS) or lactated Ringer's (LR) if signs of hypovolemia are present. For hypotension with signs of hypovolemia, administer fluid cautiously. Consider vasopressors if patient is hypotensive with a normal fluid volume. Watch for signs of fluid overload. Treat seizures with diazepam or lorazepam. Use proparacaine hydrochloride to assist eye irrigation.

5 Fire-fighting measures

Suitable extinguishing media

Suitable media
A lot of water.

Unsuitable media
O2 powder (powdered dry ice), foam or fire blanket.

Method
Form curtains of water to absorb the gases that are generated in the combustion. Keep containers and deposits cool, spraying them with water if exposed to the fire. If feasible, remove the combustible agent. Remove the containers from the area of fire, if this does not entail risk.

Specific hazards arising from the chemical

The product is not flammable or explosive. If it reaches 175 °C it decomposes to chlorine and chlorate. Subsequent decomposition of the chlorate produces oxygen which may give rise to the explosion or bursting of closed containers.

Fire potential
Strong oxidizing agent, dangerous fire risk.

Special protective actions for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Seek emplacement with your back against the wind.

LARGE FIRE
Flood fire area with water from a distance. Do not move cargo or vehicle if cargo has been exposed to heat. Move containers from fire area if you can do it without risk. **DO NOT** get water inside containers: a violent reaction may occur.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS
Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids. Increase, in the downwind direction, as necessary, the isolation distance shown above.

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. **DO NOT** absorb in saw-dust or other combustible absorbents.

Environmental precautions

Prevent further leakage or spillage if safe to do so. **DO NOT** let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Prompt cleanup and removal are necessary. Shovel into suitable dry container. Control runoff and isolate discharged material for proper disposal.

Collect powdered material in the most convenient and safe manner and deposit in sealed containers. Ventilate area after cleanup is complete. Keep sodium chlorate out of a confined space, such as a sewer, because of the possibility of an explosion, unless the sewer is designed to prevent the build-up of explosive concentrations. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters.

Disposal Methods
The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational exposure or environmental contamination. Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or water; effects on animal, aquatic, and plant life; and conformance with environmental and public health regulations.

This product is toxic to fish, aquatic invertebrates, oysters, and shrimp. **DO NOT** discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters. **DO NOT** discharge effluent containing this product to sewer systems.

7 Handling and storage

Precautions for safe handling

DO NOT smoke, eat or drink when handling the product. **Avoid** the formation of sparks. Maintain storage and work areas totally clean, devoid of any trace of foreign or incompatible products. Before handling the product, make sure that the containers, vessels and tanks to be used are clean, dry and appropriate for the intended use. **DO NOT** return the product (nor samples) to containers or tanks (risk of decomposition). **Avoid** mixing with incompatible products (acids, acid materials, combustible materials, oils, greases, etc). Containers shall be properly closed and appropriately labelled. **Avoid** dust formation during handling. **Avoid** contact with the skin, eyes and clothing. Always use the recommended protective clothing.

Conditions for safe storage, including any incompatibilities

Recommended materials for containers
For materials in contact with the product use: polyester, PVC, Stainless steel, polyester or coated steel.

Incompatible materials
Wood, Rubber, Aluminium, Copper and Alloys.

Storage conditions
Keep in a dry place away from heat sources.

Special conditions
Keep the product separated from flammables, combustibles, acids and organics. Avoid direct sunlight.

Applicable regulations
COUNCIL DIRECTIVE 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances.

SPECIFIC USES
In the generation of chlorine dioxide, its concentration shall be controlled, as it is explosive at concentrations greater than 8% by volume in air.

SANS 10263-0 Warehousing
12.8.8.1 Flammable materials (see division 2.1, and classes 3 and 4 in SANS 10228)) will greatly increase the

risk of a toxicant fire if stored in the same area as toxicants, therefore:

a) Flammable non-toxic materials shall be separated from flammable toxicants and from aerosols.
b) Flammable toxicants shall be separated from non-flammable toxicants.
c) Flammable materials shall be segregated from **oxidizing** substances and corrosives.

12.8.8.2 **Oxidizing** substances and organic peroxides (see class 5 in SANS 10228) can react violently with other products, and in particular with reducing substances and certain organic substances.

Oxidizing substances and organic peroxides shall be segregated from reducing substances, toxic substances and infectious substances, and from aerosol dispensers, flammables and corrosives.

12.8.8.3 Toxic and infectious substances (see class 6 in SANS 10228) can contaminate firefighting water in the event of a fire, therefore:

a) Toxic and infectious substances shall be separated from other flammable products and aerosols.
b) Toxic and infectious substances shall be segregated from **oxidizing** substances, organic peroxides and corrosives.
c) Flammable toxic and infectious substances shall be segregated from non-flammable toxic and infectious substances.

12.8.8.4 Corrosives (see class 8 in SANS 10228) that leak or spill from their packaging can cause serious damage to other packages, with potentially hazardous consequences.

Corrosives shall be segregated from toxic substances, infectious substances, aerosols, flammables, **oxidizing** substances and organic peroxides.

12.8.9.3 Aerosol dispensers shall be segregated from **oxidizing** substances, organic peroxides and corrosives (see also 12.8.8.2).

SANS 10263-5 The storage and handling of oxidizing substances

5.2.2 **Oxidizing** substances shall be stored to avoid contact with incompatible materials (see 3.6) such as combustible materials, combustible or flammable liquids, greases, or other incompatible or **oxidizing** substances (see note 4 below).

NOTE 1 See SANS 10228 and SANS 10229-1 for the approved packaging for **oxidizing** substances.
NOTE 2 Caution is required in the storage of any unknown materials in the vicinity of **oxidizing** substances.
NOTE 3 Some **oxidizing** substances of Division 5.1 are incompatible with other Division 5.1 substances, for example sodium nitrite and ammonium nitrate, calcium hypochlorite and isocyanurates.
NOTE 4 Hydrogen peroxide categories 1 to 3 stored in, for example drums, should not be stored on wooden pallets, as the wood will combust when the oxidizer spills.

5.2.3 Special care shall be taken to prevent any contamination of **oxidizing** substances in storage.

5.2.4 **Oxidizing** substances shall be segregated from flammable liquids by 5 m but the distance can be reduced to 3 m in certain circumstances (see 5.4.2.3). The separation shall be maintained by dikes, drains, or floor slopes to prevent flammable liquid leakage from encroaching on the separation.

5.2.5 Solid **oxidizing** substances shall not be stored directly beneath liquids.

5.2.6 Electrical installations shall be in accordance with SANS 10142-1 and SANS 10400. Special attention shall be given to the generation of heat by these installations, as this can trigger the **oxidizing** substances to react.

5.2.7 When the storage configuration is being decided on, the potential evolution of large quantities of smoke and toxic fumes shall be taken into consideration, especially as storage affects manual firefighting operations, building egress, and evacuation of adjacent occupancies or communities. EN 121012 and EN 12101-6 can be consulted in this regard.

6.3.2.1 The storage area of category 3 **oxidizing** substances shall be segregated, separated, or detached.

6.3.2.2 The walls separating **oxidizing** substances from other goods shall have a fire-resistance rating of at least 1 h.

6.3.2.3 The storage configuration, the distances of segregation and separation, and the distances of a detached warehouse from other buildings are given in tables 7 and 8.

6.3.2.4 A detached building where sprinklers are not installed and that is used for storage of category 3 **oxidizing** substances, shall be located no less than 15 m from other buildings or a line of property that can be built upon.

6.3.2.5 It is permitted that four times the quantity of category 3 **oxidizing** substances shown in tables 7 and 8 can be stored in a building, provided that all of the following conditions are met:

a) the storage area is separated or detached;
b) the storage area is located in a non-retail occupancy; and
c) non-combustible containers are used or the building is non-combustible.

6.3.2.6 Storage in basements shall be prohibited.

6.3.2.7 The maximum storage requirements for buildings where sprinklers are not installed shall be in accordance with table 7.

Table 7

Storage configuration and quantity limits	Segregated storage	Separated storage	Detached storage
Quality limit per building, t	50	180	300
Stack limit, t	10	18	30
Stack height, m	2	3	3
Stack width, m	3	4	5
Maximum distance from any container to a working aisle, m	1.5	2	3
Distance to next stack, m	See NOTE 1	See NOTE 1	See NOTE 1
Distance to wall, m	1.5	1.5	1.5
Distance to incompatible material, m	4	See NOTE 2	See NOTE 2
NOTE 1 Aisle width equal to stack height. NOTE 2 Not permitted.			

6.3.2.8 The maximum storage requirements for buildings where sprinklers are installed shall be in accordance with table 8.

Table 8

Storage configuration and quantity limits	Segregated storage	Separated storage	Detached storage
Quality limit per building, t	100	1000	2000
Stack limit, t	20	100	200
Stack height, m	See NOTE 1	See NOTE 1	See NOTE 1
Stack width, m	5	8	8
Maximum distance from any container to a working aisle, m	3	4	4
Distance to next stack, m	See NOTE 2	See NOTE 2	See NOTE 2
Distance to wall, m	1	1	1
Distance to incompatible material,	4	See NOTE 3	See NOTE 3

m			
NOTE 1 See 6.3.3 and table 9. NOTE 2 Aisle width equal to stack height. NOTE 3 Not permitted.			

The provisions of above apply to the storage of the following quantities of dangerous goods.

Oxidizing substances and organic peroxides Class 5
Class 5.1 oxidizing substances
> 200 kg
Class 5.2 organic peroxides
All quantities

8 Exposure controls/personal protection

Control parameters

EXPOSURE LIMIT VALUES

VLA-ED	0,1 ppm	0,28 mg/m3	VLA-EC-0,3 ppm (INSHT) (as ClO2)	
TLV-TWA	0,1 ppm	0,28 mg/m3	STEL-C	0,3 ppm (ACGIH) (as ClO2)

Particulates, nor otherwise regulated:

TLV-TWA-	Total dust	10 mg/m3	Respirable dust 3 mg/m3 (ACGIH 2005)

EXPOSURE CONTROLS

Environmental exposure controls

Keeps dust abatement run-off water from reaching drains and/or surface waters. **Avoid** the emission of dust to the atmosphere.

Measurement system

Control of dust emission.

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Use ventilation (not if powder), local exhaust or breathing protection.

Individual protection measures

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Eye/face protection

Face shield and safety glasses or safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Contact lenses should not be worn; they may contribute to severe eye injury.

Skin protection

Handle with gloves. Gloves must be inspected prior to use. **DO NOT** use leather or natural rubber. Use proper glove removal technique (without touching glove's 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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

Respiratory protection
In the event of emission of sodium chlorite powder, use mask with a dust filter (EN 143 P2 or P3). In the event of formation of chlorine dioxide use breathing protection mask with filter for inorganic gases B (Chlorine) for low concentrations (EN 136), for higher concentrations use self-contained breathing equipment (EN137).

9 Physical and chemical properties

Physical and chemical properties

Appearance (physical state, colour etc):	White crystaline/flake/powder (solid)
Odour:	No additional data
Odour threshold:	No additional data
pH:	10.0 - 11.0 at 100 g/l at 20°C
Melting/Freezing Point:	180-200 deg °C
Initial boiling point and boiling range:	No additional data
Flash point:	Substance is inorganic (No study needed)
Evaporation rate:	No additional data
Flammability (solid, gas):	Not flammable
Upper/lower flammability or explosive limits:	Not explosive
Vapour pressure:	1.1 x 1E-7 Pa at 25 °C
Vapour density:	No additional data
Specific gravity:	2.432±0.001 g/mL at 20 ºC
Solubility(ies):	pH 5.0 643 ± 57 g/L (CV = 9%) at 30.0°C ± 0.2°C, . 572 ± 21 g/L (CV = 4%) at 20.0°C ± 0.2°C, 501 ± 23 g/L (CV = 5%) at 3°C ± 2°C. pH 7.0 . 644 ± 61 g/L (CV = 9%) at 30.0°C ± 0.2°C, . 572 ± 27 g/L (CV = 5%) at 20.0°C ± 0.2°C, . 504 ± 27 g/L (CV = 5%) at 3°C ± 2°C. pH 9.0 . 643 ± 55 g/L (CV = 9%) at 30.0°C ± 0.2°C, 571 ± 30 g/L (CV = 5%) at 20.0°C ± 0.2°C, 488 ± 22 g/L (CV = 4%) at 3°C ± 2°C
Partition coefficient:	Pow< 1/500 Pow <0.002 and log Pow< -2.7 at room temperature

Auto-ignition temperature:	No additional data
Decomposition temperature:	356 deg F (180 deg C) releasing heat
Viscosity:	Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10 Stability and reactivity

Reactivity

Air and Water Reactions
Soluble in water.

Reactive Group
Salts, Basic. Oxidizing Agents.

Reactivity Alerts
Explosive. Strong Oxidizing Agent.

SODIUM CHLORITE is self-reactive. The trihydrate crystals of sodium chlorite explode on percussion. Sodium chlorite reacts with acids to form spontaneously explosive chlorine dioxide gas (ClO_2). If heated above 171 °C, the reaction yields enough heat to become self-sustaining. Ammonia with chlorites produces ammonium chlorite, which is a shock-sensitive compound. Finely divided metallic or organic substances, if mixed with chlorites, are highly flammable and may be ignited on friction. A mixture of organic matter and sodium chlorite can be extremely sensitive to heat, impact, or friction. Sodium chlorite reacts very violently with organic materials containing divalent sulfur or with free sulfur (may ignite).

Chemical stability

Stable under recommended handling and storage conditions.

Possibility of hazardous reactions

Sodium chlorite and acids react with rapid evolution of spontaneously explosive chlorine dioxide gas. If heated above 175°F, the reaction produces adequate heat to become self-sustaining. A mixture of organic matter and sodium chlorite can be extremely sensitive to heat, impact, or friction. Red phosphorus and sodium chlorite react in aqueous suspension in a strongly exothermic manner. The reaction can have a sudden, almost explosive stage. Solid sulfur will ignite if mixed with solid sodium chlorite and moistened.

Explosion Hazard
Dangerous from exposure to percussion, acids, organic matter, oxalic acid, phosphorus, sulfur, sodium dithionate. Can react vigorously on contact with reducing materials. The material itself is difficult to burn, but if contaminated by combustible materials it will accelerate their burning. With certain combustible materials it will form explosive mixtures. Reacts violently with combustibles, sulfuric acid, and reducing materials. Reacts with strong acids giving off carbon dioxide. Explosions may be caused by contact with ammonia salts, ammonium thiosulfate, antimony sulfide, arsenic, carbon, charcoal,organic matter, organic acids, thiocyanates, chemically active metals, oils, metal sulfides, nitrobenzene, powdered metals, sugar. Reacts with some organic contaminants forming shock-sensitive mixtures.

Conditions to avoid

Heating, sun light.

Incompatible materials

Acids, acid substances (aluminum sulphate, aluminum chloride, ferric chloride..), wood, cellulose, grease, cotton.

Hazardous decomposition products

The product decomposes into chlorine dioxide and oxygen under heating and direct sun-light, with risk of bursting of containers. In contact with acid materials (Acids, aluminium polychloride, aluminum sulphate, ferric chloride, etc.) chlorine dioxide is formed, with risk of explosion. Violent exothermic reaction, development of heat with reducing materials (sodium sulphite). Potentially explosive reaction with combustible materials (wood, cellulose, grease, cotton...)

11 Toxicological information

Toxicological (health) effects

Basic toxicokinetics
The administration of test substance elevated chloroform levels in the liver and brain but not in the blood.

The formation of chloroform was investigated in two groups of 7 male Sprague-Dawley rats that received 36Cl-labelled sodium chlorite at 100 mg/L in drinking-water for 20 h/day, 7 days/week, for 12 months. After one year, rats were killed and blood collected in heparinized tubes. Tissue samples of liver, kidney, spleen, brain, and testes were homogenized in isotonic sucrose medium. Tissue homogenate or blood sample (3 mL) was extracted by 5 mL pentane. The pentane layer was then separated by centrifugation at 1000 g for 5 min. A gas chromatograph equipped with an electron capture detector was used for the quantitation of chloroform in each sample, with bromodichloromethane being used as the internal standard.

Dermal adsorption
Visual examination of the integrity of the skin samples post application of the high dose revealed that the membrane had been disrupted/damaged post dosing. There was a greater degree of membrane damage to the rat skin as opposed human skin. As such, the absorption rates and total absorbed data for the high dose are likely to be overestimates due to the membranes being compromised by the corrosive nature of the high concentration test material. Where possible, it is preferable to use a radio-labelled test material (usually carbon-14) for the conduct of in vitro skin absorption studies. Using a radio-labelled test material means that full mass balances are more easily achievable as any degradation products of the test material that still contain the radiolabel will also be quantified. As the test material for this study, sodium chlorite, does not contain any carbon it was not possible to take this approach. As such, analytical methodology was validated for the determination of sodium chlorite in the various sample types generated from this experiment. The mean recoveries for the receptor fluid and swabs were >90 %, the skin >87 % and the tape strips 77 %. Although some of the mean method recoveries were less than 90 %, these particular sample types actually contained the lower proportions of dose in the experimental results. As such, the low mass balance recoveries achieved is considered to be due to the degradation of the test material to chloride ions that were not quantifiable rather than incomplete method recoveries. As such, the proportions of sodium chlorite absorbed are considered to be valid even though a traditional mass balance of the sodium chlorite dosed was not observed. The absorption rates and total absorbed data are likely to be overestimates due to the skin membranes being compromised by the corrosive nature of a high concentration of the test material. From the above data is it proposed that the maximum proportion of high dose that is absorbed through human skin is 9.66 %.There was a considerable difference in the distribution of dose between human and rat skin membranes, with approximately a 7-fold greater proportion of dose absorbed through rat skin. The greater damage observed to the rat skin membranes by the test material may have contributed to the higher absorption results obtained with the rat skin. From the results obtained with the low dose solution of sodium chlorite (44 g/L) the maximum proportion of low dose that is absorbed through human skin is 5.06 %.There was a considerable difference in the distribution of dose between human and rat skin membranes, with approximately a 5-fold greater proportion of dose absorbed through rat skin. The proportion of dose that was degraded over the 24-hour exposure period was approximately 80 % for both the rat and human skin groups.

The aim of the test was the determination of the dermal absorption of the test material.

The test procedure was OECD Guideline 428 (Skin Absorption: In Vitro Method).

The result was as follows:
Maximum proportion of the high dose that is absorbed through human skin: 9.7%
Maximum proportion of the low dose that is absorbed through human skin: 5.1 %

Acute Toxicity
Three Key studies and one supporting study for oral acute toxicity:
-Key study. OECD guideline. With rats. LD50= 284 mg/kg bw (pure active)
-Key study. EPA guideline. With rats. LD50= 390 mg/kg bw (31% aqueous solution)
-Supporting study. No data on test guideline. With rats. LD50 (male)=158 mg/kg bw. LD50 (female)= 177 mg/kg bw
-Key study. OECD guideline. With rats. 300 > LD50 < 2000 mg/kg bw (9% aqueous solution)

Two Key studies for dermal acute toxicity:
-Key study. EPA guideline. With rabbits. LD50= 134 mg//kg bw (male/female) (pure active)
-Key study. EPA guideline. With rabbits. Dermal LD50 >2000 mg//kg bw (31% aqueous solution)
In accordance with column 2 of REACH Annex VIII, an acute inhalation toxicity study is not required since exposure of humans via inhalation is unlikely taking into account the vapour pressure of the substance and/or the possibility of exposure to aerosols, particles or droplets of an inhalable size. Although sodium chlorite is a solid, there is no exposure to sodium chlorite in this form. The products containing sodium chlorite are all supplied as aqueous solutions. Based on its

low vapour pressure there will be no release of sodium chlorite to the atmosphere from aqueous solutions.

Oral toxicity:
The LD50 of Sodium chlorite (pure active) administered orally is 284 mg/kg, with 95% confidence limits of 204 and 347 mg/kg (equivalent to 212 mg/kg as chlorite). At doses of 150 and 200 mg/kg the treatment does not cause any effects. At higher doses, the effects appear at least 30 minutes after treatment and include hypokinesia, cyanosis, prostration and piloerection. Certain animals are in a position of lateral or ventral decubitus. There are no dose-related body weight changes at 150 mg/kg, whereas at higher doses there is body weight loss in some animals between days 0 and 4, but this is regained from days 7 to 14. A macroscopic examination of the organs of animals treated at 150 and 200 mg/kg did not reveal any anomalies. At higher doses macroscopic anomalies are observed in organs of the abdominal and thoracic cavity (brown colouration).

The aim of the study was to determine the oral acute toxicity due to the test material.

The test procedure was performed according to OECD Guideline 401 (Acute Oral Toxicity) under GLP conditions.
Concentrations: 150, 200, 250, 400, 450 and 500 mg/kg.

The results were as follows:
The LD50 of Sodium chlorite (pure active) administered orally is 284 mg/kg, with 95% confidence limits of 204 and 347 mg/kg (equivalent to 212 mg/kg as chlorite).

Dermal toxicity:
The result was as follows: Dermal LD50 >2000 mg//kg bw (31% aqueous solution)
The purpose of the study is to determine the topical (dermal) dose that is lethal to 50% of adult rabbits
The test was performed according to method EPA guideline 8/22/78 (40 CFR, Part 163).
10 adult New Zealand albino rabbits were used (both sexes, weights 2 kg).
The dose rate was 1.67 ml (2.0 g of liquid) bw.
After 24 hours of semi-occlusive application, the animals were observed twice daily for signs of illness.

The result was as follows:
Dermal LD50 >2000 mg//kg bw (31% aqueous solution)

Inhalation toxicity:
Although sodium chlorite is a solid, there is no exposure to sodium chlorite in this form. The products containing sodium chlorite are all supplied as aqueous solutions. Based on its low vapour pressure there will be no release of sodium chlorite to the atmosphere from aqueous solutions.

Corrosion/Irritation
Skin irritation
Key studies:
- Study in rabbits according to OECD Guideline 404 (Acute Dermal Irritation / Corrosion).
A 34.5 % aqueous solution of sodium chlorite is a non-irritant when administered by cutaneous route in rabbits.
- Study in rabbits according to EPA No. 158.81-5.

Irritation consisted of erythema (Grades 1 through 3) in all sites at 30-60 minutes and 24 hours postdose, persisting through Day 7 in two sites.
Edema (Grade 1) was observed in one site at 30-60 minutes and in two sites at 48 hours.

Other dermal effects included blanching, thickening, necrosis, sloughing, and blackened areas.

One female was found dead on Day 20 postdose. The substance is classified as Corrosive Category 1B (necrosis was observed in two animals).

- Study in rabbits according to method EPA guideline 8/22/78 (40 CFR, Part 163).
Not irritating (31% aqueous solution)

Eye irritation
Key study
-In rabbits. Guidelines for Hazardous Evaluation for Humans and Domestic Animals, Federal Register, Vol. 43, No. 163,

1978; section 163.81-5.
A 31 % aqueous solution of sodium chlorite is a severe eye irritant, based on the observed effects on the cornea, iris and conjunctiva which are not fully reversible within the observation period of 21 days.

- In-vitro ICE test: OECD Guideline 438.

The results obtained in the study performed on sodium chlorite 9% water solution lead to the category "no prediction can be made" according to current guidelines.

- In rabbits. OECD Guideline 405.
A 9% aqueous solution of sodium chlorite is determined to be irritationg to the eyes (category 2, H319), based on the moderate and totally reversible effects observed in all animals, and being the corneal opacity score > 1 in all three animals tested.
Skin irritation, Three Key studies:

- Study in rabbits according to OECD Guideline 404 (Acute Dermal Irritation / Corrosion).
A 34.5 % aqueous solution of sodium chlorite is a non-irritant when administered by cutaneous route in rabbits.

- Study in rabbits according to EPA No. 158.81-5.
Irritation consisted of erythema (Grades 1 through 3) in all sites at 30-60 minutes and 24 hours postdose, persisting through Day 7 in two sites. Edema (Grade 1) was observed in one site at 30-60 minutes and in two sites at 48 hours. Other dermal effects included blanching, thickening, necrosis, sloughing, and blackened areas. One female was found dead on Day 20 postdose. The substance is classified as Corrosive Category 1B (necrosis was observed in two animals).

- Study in rabbits according to method EPA guideline 8/22/78 (40 CFR, Part 163).
Not irritating (31% aqueous solution)

Eye irritation, Three key studies:
-In rabbits. Guidelines for Hazardous Evaluation for Humans and Domestic Animals, Federal Register, Vol. 43, No. 163, 1978; section 163.81-5.
A 31 % aqueous solution of sodium chlorite is a severe eye irritant, based on the observed effects on the cornea, iris and conjunctiva which were not fully reversible within the observation period of 21 days.

- In-vitro ICE test: OECD Guideline 438.
The results obtained in the study performed on sodium chlorite 9% water solution lead to the category "no prediction can be made" according to current guidelines.

- In rabbits. OECD Guideline 405.
A 9% aqueous solution of sodium chlorite is determined to be irritationg to the eyes (category 2, H319), based on the moderate and totally reversible effects observed in all animals, and being the corneal opacity score > 1 in all three animals tested.

Effects on skin irritation/corrosion: corrosive

Effects on eye irritation: corrosive
Skin irritation: based on the observed effects (necrosis was observed in two animals after a 4 -h exposure), the substance is classified as Corrosive Category 1B.

Eye irritation: based on the observed effects on the cornea, iris and conjunctiva which are not fully reversible within the observation period of 21 days, the substance is classified as Irreversible effects on the eye, Category 1. However, as recommended in the corresponding guidance "Guidance on the Application of the CLP Criteria" since the substance is classified as skin corrosive and additional classification with H318 "Cause serious eye damage" is not indicated.

Sensitisation
Based on the available data (no delayed contact hypersensitivity in guinea pigs was observed), the substance is not classified as skin sensitiser.

Repeated dose toxicity
Based on the available data (toxicological effects at 25 and 80 mg/kg/day observed in a 90 -day oral toxicity study in rats),

the substance is classified as Specific Target Organ Toxicity - Repeated Dose Category 2 (STOT RE Category 2).

Genetic toxicity
A positive result was observed in an in vivo micronucleus assay in somatic cells exposed by the intraperitoneal route. In this case, there are additional data from in vivo tests with oral administration of the test substance showing negative results and the weight of evidence approach has been applied. Furthermore, data from an in vivo study on chromosomal aberrations in somatic cells by the oral route also showed negative results. It seems that genotoxicity can only be shown at internal body substance concentrations which cannot be achieved using application routes other than intraperitoneal. Furthermore, the intraperitoneal route of exposure is not relevant for human exposure.

Hazard classification for germ cell mutagenicity primarily aims to identify substances causing heritable mutations or being suspected of causing heritable mutations. Therefore, this hazard class is primarily concerned with substances that may cause mutations in the germ cells of humans that can be transmitted to the progeny. Based on the available information from different publications from independent sources, on toxicity to reproduction studies and developmental toxicity studies, it can be concluded that the substance showed no evidence of reproductive toxicity.

It is recognised that genetic events are central in the overall process of cancer development. Therefore evidence of mutagenic activity in vivo may indicate that a substance has a potential for carcinogenic effects. Based on the available information from different publications from independent sources, on oral studies with rats and mice by administration in drinking water and dermal studies with female mice it can be concluded that the substance showed no evidence of carcinogenic activity.

Therefore, based on all these arguments, it is concluded that the substance is not classified for germ cell mutagenicity.

Carcinogenicity
Based on the available results, the substance sodium chlorite is not classified for carcinogenicity.

Toxicity to reproduction
Based on the available data on effects on fertility and developmental toxicity, the substance is not classified.

Aspiration hazard
No data available

Additional Information
RTECS: VZ4800000

Information on the likely routes of exposure

The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

Derived No- or Minimal Effect Level (DN(M)EL)
Data for WORKERS

INHALATION Exposure	**Threshold**	**Most sensitive study**
Systemic Effects		
Long-term:	(DNEL) 410 µg/m³	developmental toxicity / teratogenicity
Acute /short term:	(DNEL) 410 µg/m³	developmental toxicity / teratogenicity
Local Effects		
Long-term:	-	-
Acute /short term:	-	-

Dermal Exposure	**Threshold**	**Most sensitive study**
Systemic Effects		
Long-term:	(DNEL) 580 µg/kg bw/day	developmental toxicity / teratogenicity
Acute /short term:	(DNEL) 580 µg/kg bw/day	developmental toxicity / teratogenicity
Local Effects		
Long-term:	-	-
Acute /short term:	-	-

Eye Exposure
High hazard (no threshold derived)

Data for the GENERAL POPULATION

INHALATION Exposure	**Threshold**	**Most sensitive study**
Systemic Effects		
Long-term:	(DNEL) 100 µg/m³	developmental toxicity / teratogenicity
Acute /short term:	(DNEL) 100 µg/m³	developmental toxicity / teratogenicity
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
Dermal Exposure	**Threshold**	**Most sensitive study**
Systemic Effects		
Long-term:	(DNEL) 290 µg/kg bw/day	developmental toxicity / teratogenicity
Acute /short term:	(DNEL) 290 µg/kg bw/day	developmental toxicity / teratogenicity
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
Oral Exposure	**Threshold**	**Most sensitive study**
Systemic Effects		
Long-term:	(DNEL) 29 µg/kg bw/day	developmental toxicity / teratogenicity
Acute /short term:	(DNEL) 29 µg/kg bw/day	developmental toxicity / teratogenicity

Eye Exposure

High hazard (no threshold derived)

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation

Cough, sore throat.

Skin contact

Redness, pain

Eye contact

Redness, pain.

Ingestion

Abdominal pain, vomiting.

Organism	Test Type	Route	Dose	Effect
man	TDL$_o$	oral	143 mg/kg (143 mg/kg)	LUNGS, THORAX, OR RESPIRATION: CYANOSIS; GASTROINTESTINAL: NAUSEA OR VOMITING; KIDNEY, URETER, AND BLADDER: CHANGES IN TUBULES (INCLUDING ACUTE RENAL FAILURE, ACUTE TUBULAR NECROSIS)
rat	LD$_{50}$	oral	165 mg/kg (165 mg/kg)	LIVER: JAUNDICE, OTHER OR UNCLASSIFIED; KIDNEY, URETER, AND BLADDER: INTERSTITIAL NEPHRITIS

Delayed and immediate effects and also chronic effects from short and long term exposure

Refer section 11.8 above.

Numerical measures of toxicity (such as acute toxicity estimates)

Acute toxicity

Oral:

Results:	LD$_{50}$ 212 - 2 000 mg/kg bw (rat)
Interpretations of results	Category 3 based on GHS criteria
Adverse effect observed	LD$_{50}$ 284 mg/kg bw

Inhalation

No data available.

Dermal

Results	LD$_{50}$ 100 - 2 000 mg/kg bw (rabbit)
Interpretations of results	Category 2 based on GHS criteria

Adverse effect observed LD_{50} 134 mg/kg bw

Interactive effects

The ability of sodium chlorite to promote skin tumors in a group of 20 female Sencar mice was assessed. These mice were initiated with a single topical application of 20 nmol (5.1 ug) of dimethylbenzanthracene in acetonefollowed by 0.2-mL applications of sodium chlorite at 20 mg/mL in acetone twice weekly for 51 weeks. A group of 15 female mice given a single application of dimethylbenzanthracene followed by applications of acetone were used as controls. This treatment resulted in 5 of 25 mice having squamous cell carcinomas at 52 weeks. No tumors were found in the corresponding initiated control mice. Both TPA and benzoyl peroxide produced increased tumor incidence in dimethylbenzanthracene-initiated mice. These data indicate the potential for a weak tumor-promoting activity for sodium chlorite. However, no dose-response information has been forthcoming in the literature.

Where specific chemical data are not available

No additional data available.

Mixtures

No additional data available.

Mixture versus ingredient information

No additional data available.

Other information

None.

12 Ecological information

Toxicity

Predicted No-Effect Concentration (PNEC)

Hazard for Aquatic Organisms	
Freshwater	650 ng/L
Intermittent releases (freshwater)	6.5 µg/L
Marine water	65 ng/L
Intermittent releases (marine water)	-
Sewage treatment plant (STP)	1 mg/L
Sediment (freshwater)	No exposure of sediment expected
Sediment (marine water)	No exposure of sediment expected
Hazard for Air	
Air	No hazard identified
Hazard for Terrestrial Organism	
Soil	No exposure of soil expected
Hazard for Predators	
Secondary poisoning	No potential for bioaccumulation

Persistence and degradability

Biodegradation in water: screening tests
Data waiving: In accordance with column 2 of REACH Annex VII, the study does not need to be conducted for inorganic substances.
Sodium chlorite is expected to be rapidly reduced to sodium chloride in the environment, especially in anaerobic conditions.

Biodegradation in water and sediment: simulation tests
Data waiving: In accordance with column 2 of REACH Annex IX, the biodegradation in water and sediment studies (simulation tests) do not need to be conducted since there is no need to investigate further the degradation of the substance and its degradation products.

Data waiving: In accordance with column 2 of REACH Annex IX, the biodegradation studies in soil do not need to be conducted since there is no need to investigate further the degradation of the substance and its degradation products.

Additional information
Sodium chlorite is a strong oxidizing agent and under proper reducing conditions is readily reduced to chloride, and to a

lesser extent, chlorate. In strong acidic conditions, chlorite can change into chlorine dioxide (from pg. 11, USEPA/OPPTS; Reregistration Eligibility Decision (RED) for Chlorine Dioxide and Sodium Chlorite (Case 4023) p.1 (August 2006) EPA-HQ-OPP-2006-0328-0022/EPA 738-R-06-007. Available from, as ofJuly 31, 2008: http://www.regulations.gov/search/Regs/home.html#home]

Bioaccumulative potential

Bioaccumulation: aquatic / sediment
In accordance with column 2 of REACH Annex IX, the bioaccumulation in aquatic species test (required in section 9.3.2) does not need to be conducted as the substance has a low potential for bioaccumulation (a log Kow < 3) as it is an inorganic substance.

Mobility in soil

Adsorption / desorption
In accordance with column 2 of REACH Annex VIII, the adsorption / desorption test (required in section 9.3.1) does not need to be conducted as the substance has a low octanol water partition coefficient. Sodium chlorite partition coefficient has been estimated to be < - 2.7

Other adverse effects

Hydrolysis:
Data waiving: Sodium chlorite is not expected to hydrolyse under abiotic test conditions in ultrapure water.
The performance of a Guideline study such as OECD 111, without modifications of the study design to use natural water or artificially increase organic matter or suspended solids, will not provide any information that is relevant to the behaviour of sodium chlorite in the environment, and is, therefore, scientifically unjustified.

Phototransformation in water:
Publication:
Irradiation of sodium chlorite solutions indicated a photodegradation half-life of about 30 minutes with a steady increase in pH (pH 8 to 12.6) and major products identified as hydroxide, chlorine dioxide and chloride with chlorate and hypochlorite as minor products and trace amounts of chlorine.
Publication:
The results obtained show that the pH and the initial concentration of sodium chlorite have no significant effect on the rate of photodecomposition of chlorite. These results also indicate that the radiation dose (9000 j/m2) needed to produce a 50% reduction in chlorite concentration suggests that the doses (200-250 j/m2) used for drinking water disinfection would not result in a significant reduction in chlorite concentrations.
Publication:
The rate of photodecomposition of sodium chlorite was studied over a pH range of 4-10 and at unbuffered conditions. Distribution of major products was not affected by pH; rates of reaction and chlorine dioxide formation were maximum at pH 6. Quantum yields were measured for both photodecomposition of chlorine dioxide and sodium chlorite. For the former reaction, the values were 0.44 at 253.7 nm and 1.4 at 300 nm. For the latter reaction, the values at 253.7 nm ranged from 0.72 to 1.53, depending upon pH. Corresponding quantum yields for formation of chlorine dioxide ranged from 0.43 to 0.94, depending upon pH.

13 Disposal considerations

Disposal methods

Waste disposal recommendations
The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational exposure or environmental contamination. Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or water; effects on animal, aquatic, and plant life; and conformance with environmental and public health regulations.

Ecology - waste materials
This product is toxic to fish, aquatic invertebrates, oysters, and shrimp. **DO NOT** discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters. **DO NOT** discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your local authority.

Empty Container
Container can be re-used. Spent containers shall be rinsed to remove all remaining product. Dilute the product with abundant water, avoiding the presence of solids which it may ignite (clothing, paper, wood, etc). Consult applicable

National and local provisions relative to the appropriate elimination of this material and empty containers thereof or return to supplier.

14 Transport information

UN Number

UN1496 Class 5.1 PG II Exempt 50 F: 20

The International Air Transport Association (IATA) Dangerous Goods Regulations are published by the IATA Dangerous Goods Board pursuant to IATA Resolutions 618 and 619 and constitute a manual of industry carrier regulations to be followed by all IATA Member airlines when transporting hazardous materials.

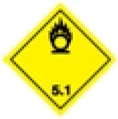
The International Maritime Dangerous Goods Code lays down basic principles for transporting hazardous chemicals. Detailed recommendations for individual substances and a number of recommendations for good practice are included in the classes dealing with such substances. A general index of technical names has also been compiled. This index should always be consulted when attempting to locate the appropriate procedures to be used when shipping any substance or article.

UN Proper Shipping Name

SODIUM CHLORITE

Transport hazard class(es)

5.1



Packing group, if applicable

II **Exempt Quantity** 50Kg **Factor** 20

Environmental hazards

Marine pollutant: yes

Special precautions for user

DO NOT load with Classes 1, 2.3, 6.1 and 6.2.
May be loaded with Classes 3, 4.1, 4.2 and 4.3 if kept at least 1 metre apart.
Can be loaded with all other classes.
Goods of different classes **must** be segregated by an air space of at least 100mm or by an approved segregation device or non-dangerous goods.

P, B, L and O provisions as per SANS 10231:2018
P11
IBCs other than metal or rigid plastics IBCs shall be carried in closed or sheeted vehicles or closed or sheeted containers.
L24
Before loading, vehicles and containers shall be thoroughly cleaned and in particular be free of any combustible debris (straw, hay, paper, etc.). The use of flammable materials for stowing packages is prohibited.

DOT Emergency Guidelines
ERG Guide 143
Fire or Explosion
May explode from friction, heat or contamination. These substances will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Some will react explosively with hydrocarbons (fuels). Containers may explode when heated. Runoff may create fire or explosion hazard.

Health
TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns, or death. Fire may produce irritating and/or toxic gases. Toxic fumes or dust may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Runoff from fire control or dilution water may cause pollution.

Public Safety
CALL Emergency Response Telephone Number ... . As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Protective Clothing
Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

Evacuation
Fire:
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.

Fire
Small fires:
Use water. **DO NOT** use dry chemicals or foams. CO_2 or Halon may provide limited control.

Large fires:
Flood fire area with water from a distance. **DO NOT** move cargo or vehicle if cargo has been exposed to heat. Move containers from fire area if you can do it without risk. **DO NOT** get water inside containers: a violent reaction may occur. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Spill or Leak
Keep combustibles (wood, paper, oil, etc.) away from spilled material. **DO NOT** touch damaged containers or spilled material unless wearing appropriate protective clothing. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewers, basements or confined areas. Small spills: Flush area with flooding quantities of water. Large spills: **DO NOT** CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

First Aid
Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. Contaminated clothing may be a fire risk when dry. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

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

Not applicable.

15 Regulatory information

Safety, health and environmental regulations specific for the product in question

SA NATIONAL LEGISLATION
Hazardous Substances Act 15 of 1973 and Regulations.
Occupational Health and Safety Act 85 of 1993 and Regulations.

SA NATIONAL STANDARDS
SANS 10228 : 2006 : Identification and Classification of Dangerous Goods for Transport by Road and Rail.
SANS 10231 : 2018 : Transport of dangerous goods - Operational requirements for road vehicles.
SANS 10234 : 2008 : Globally Harmonized System of classification and labelling of chemicals (GHS).
SANS 11014 : 2010 : Safety Data Sheets for chemical Products.

REACH Regulation (EC) No 1907/2006
This product contains only components that have been either pre-registered, registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., The

aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Seveso III: Directive 2012/18/EU
Listed in Regulation: Not applicable

Federal Drinking Water Standards
EPA 1000 ug/L

Federal Drinking Water Guidelines
EPA 800 ug/L

State Drinking Water Guidelines
(ME) MAINE 210 ug/L

FIFRA Requirements
Indirect food substances affirmed as generally recognized as safe. The ingredient is used at levels from 125 to 250 parts per million as a slimicide in the manufacture of paper and paperboard that contact food.

As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA, as amended in 1988, were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Sodium chlorite is found on List D. Case No: 4023; Pesticide type: Insecticide, fungicide, herbicide, and antimicrobial; Case Status: OPP is reviewing data from the pesticide's producers regarding its human health and/or environmental effects, or OPP is determining the pesticide's eligibility for reregistration and developing the Reregistration Eligibility Decision (RED) document.; Active ingredient (AI): Sodium chlorite; Data Call-in (DCI) Date(s): 09/07/93; AI Status: The producers of the pesticide has made commitments to conduct the studies and pay the fees required for reregistration, and are meeting those commitments in a timely manner.

Sodium chlorite is exempted from the requirement of a tolerance for residues when used in accordance with good agricultural practice as a seed-soak treatment in the growing of the raw agricultural commodities crop group Brassica (cole) leafy vegetables and radishes.

FDA Requirements
Sodium chlorite is an indirect food additive for use only as a component of adhesives.

Food starch-modified as described in this section may be safely used in food. The quantity of any substance employed to effect such modification shall not exceed the amount reasonably required to accomplish the intended physical or technical effect, nor exceed any limitation prescribed. To insure safe use of the food starch-modified, the label of the food additive container shall bear the name of the additive "food starch-modified" in addition to other information required by the Act. Food starch may be modified by treatment prescribed as follows: Food starch may be bleached by treatment with one or more of the following: sodium chlorite, not to exceed 0.5 percent.

Chemical safety assessment
Not assessed.

16 Other information

Other information

Full text of H & P - Statements referred to under section 2
Hazard statements

H271	May cause fire or explosion; strong oxidizer.
H301	Toxic if swallowed.
H310	Fatal in contact with skin.

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P210+P220	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Keep/Store away from clothing/combustible materials.
P260+P262+P264	Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280+P283	Wear protective gloves/protective clothing/eye protection/face protection. Wear fire/flame resistant/retardant clothing.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P306+P360	IF ON CLOTHING: Rinse Immediately contaminated CLOTHING and SKIN with plenty of water before removing clothes.
P321	Specific treatment (see P330 on this label).
P330	Rinse mouth.
P370+P378	In case of fire: Use water to extinguish.
P371+P380+P375	In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Store away from other materials.

Labelling REGULATION (EC) No 1272/2008

Signal Word

Danger

Pictograms Hazard to Human

GHS03	Oxidizing Hazard
GHS05	Corrosive Hazard
GHS06	Acute Toxicity Hazard
GHS08	Serious Health Hazard
GHS09	Hazardous to the environment

Pictogram Hazard during Transport

Class 5.1	Oxidizing substance

Training advice

Provide adequate information, instruction and training for operators.

Compiled by Aquatrade Water Treatment Chemicals (Pty) Ltd, R. van Rooyen, SHEQ Co-ordinator and E. Le Sar, Director.

MANUFACTURER/SUPPLIER DISCLAIMER:

IMPORTANT: This information is given without a warranty or guarantee. No suggestions for use are intended or shall be construed as a recommendation to infringe any existing patents or violate any national or local laws. Safe handling and use is the responsibility of the customer. Read the label before using this product. This information is true and accurate to the best of our knowledge.

Revision History

Revision:	Date:	Change:

1.0	2019/02/26	Preparation of the safety data sheet according to Regulation (EC) No 1907/2006 of the European Parliament and of the Council
2.0	2019/04/03	Sections 1, 4.1, 4.2, 5, 6.1, 7, 8.1, 8.3, 10, 11.1 - 11.11, 12.4 - 12.7, 14 & 15