



A Division of Grand Valley Fortifiers
39 Elgin Street South
Cambridge, Ontario
N1R 5G3 Canada
Tel: (519) 621-2028

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Product Name: OXYSAN

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Chemical Names: Sodium Chlorate (untreated), Sodium Chlorite, Borax SQ
Gran (10 Mol) Nuclear

Chemical Family: Sodium Chlorate - Inorganic Salt, Sodium Chlorite -
N/A, Borax - Borate

Molecular Formula: NaClO_3 , NaClO_2 , $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$

Product Use: Water Treatment

2. COMPOSITION

Component	ACGIH TLV	UN #	CAS #
Sodium Chlorate	N/A	N/A	7775-09-9
Sodium Chlorite	N/A	N/A	7758-19-2
Borax	N/A	N/A	1303-96-4

PEL - OSHA Permissible Exposure Limit

TLV - American Conference of Governmental Industrial Hygienists (ACGIH) Threshold
Limit Value

TWA - 8 hour Weighted Average

STEL - Short Term Exposure Limit

3. HAZARDS IDENTIFICATION

Route of entry:

Skin Contact: Corrosive, irritant for skin. Contact with skin can
produce inflammation and blistering.

Skin Absorption: Can be absorbed through damaged skin, symptoms
same as for ingestion.

Eye Contact: Eye Contact may cause irritation with iritis and
conjunctivitis and can result in corneal damage or blindness.

Inhalation: Will produce irritation to respiratory tract, characterized by burning, sneezing, wheezing, coughing and chest pain. Severe over-exposure can produce lung damage.

Ingestion: Ingestion has caused gastroenteritis with symptoms of nausea, vomiting and diarrhea. Ingestion of large doses can produce methemoglobinemia, leading to cyanosis, coma and even death.

Effects of Acute Exposure: Refer to route of entry

Effects of Chronic Exposure: Refer to route of entry

4. FIRST AID MEASURES

INHALATION:

Remove to fresh air. If not breathing, give artificial respiration. If not breathing and no pulse, give cardiopulmonary resuscitation (CPR). Keep patient warm and at rest. Obtain medical attention immediately.

SKIN:

Flush skin with running water for a minimum of 15 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Skin can be covered with an anti-bacterial cream.

EYES:

Check for and remove any contact lenses. Immediately flush eyes with running water for a minimum of 30 minutes, preferably up to 60 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. OBTAIN MEDICAL ATTENTION IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

INGESTION:

Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim

drink large quantities of water to dilute material. Maintain adequate kidney function and force fluids. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

EMERGENCY MEDICAL CARE:

Provide general supportive measures (comfort, warmth, rest). Consult a physician and/or nearest Poison Control Centre for all exposures except minor instances of inhalation or skin contact.

NOTES TO PHYSICIAN:

Chlorine dioxide vapors are emitted when this product contacts acids or chlorine. If these vapours are inhaled, monitor patient closely for delayed development of pulmonary edema, which may occur up to 48-72 hours post-inhalation.

5. FIRE FIGHTING MEASURES

FLASH POINT:

Not applicable

AUTO IGNITION TEMPERATURE:

UPPER FLAMMABLE LIMIT:

LOWER FLAMMABLE LIMIT:

UNUSUAL FIRE AND EXPLOSION HAZARD: Oxidizer - Keep away from flammable and combustible materials. Clothing or combustibles impregnated with sodium chlorate are highly flammable and easily ignited, even with minor friction.

EXTINGUISHING MEDIA:

Do Not use water jet. Use flooding quantities of water. Avoid contact with organic materials.

SENSITIVITY TO STATIC:

Electrical (static) discharge may cause ignition when in contact with combustible material.

SPECIAL FIRE FIGHTING INSTRUCTIONS: OTHER FIRE PRECAUTIONS: Evacuate personnel downwind of fire to avoid inhalation of irritating and/or harmful fumes and smoke.

6. ACCIDENTIAL RELEASE MEASURES

SPILL OR LEAK:

Stop the discharge if possible and contain by constructing barrier (dykes, lagoons) for release to land, reclaim product for reuse or treat with neutralizing agent and recover for disposal. For release to water, contain by damming and water diversion if possible, neutralize and recover for disposal. Report significant spills to government environmental authorities. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill.

ENVIRONMENTAL EFFECTS:

May cause adverse environmental impact if material reaches waterways.

DEACTIVATING CHEMICALS:

Lime, soda ash or sodium bicarbonate.

7. HANDLING & STORAGE

HANDLING:

Avoid contact with either liquid or mist. Do not eat drink or smoke in work area. Wash hands thoroughly after handling this material.

STORAGE TEMPERATURE (°C):

Ambient. May freeze at low temperatures, especially high concentrations, but will not rupture tank.

STORAGE REQUIREMENTS:

Store in dry, cool, well-ventilated area away from incompatible materials. Protect against physical damage.

OTHER PRECAUTIONS:

Containers should be kept well sealed when not in use. Handle as a corrosive liquid.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EFFECTS OF EXPOSURE WHEN:

Inhaled:

This acid blend has a very low vapour pressure at room temperature

and is not expected to present an inhalation hazard. However, acid mist can cause irritation of the nose, throat and respiratory tract. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. If the exposure limit is exceeded and engineering controls are not feasible, a half-face respirator with an acid gas cartridge and particulate (NIOSH type N95 or better) filter may be worn.

Skin Contact:

Corrosive! Will cause severe burns, if not rinsed off immediately. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Contact:

Corrosive! Will cause severe burns and permanent eye damage. Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Ingested:

Corrosive! Burns to the mouth, throat and digestive tract. May cause pain in the stomach, difficulty in breathing, nausea, vomiting, diarrhoea and convulsions; in severe cases, collapse and death.

Other Health Effects:

Skin: Dermatitis may occur from prolonged or repeated skin contact.

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

ENGINEERING CONTROLS:

Good ventilation should be sufficient to control airborne levels of material. Use process enclosures where possible.

RESPIRATORY PROTECTION:	Always wear NIOSH/MSHA approved respirator equipment when vapour or mists may exceed applicable concentration limits.
SKIN PROTECTION:	Nitrile rubber, neoprene, or PVC gloves, rubber boots and protective clothing should be used.
EYE PROTECTION:	Chemical safety goggles. A face shield may also be necessary.
OTHER PERSONAL EQUIPMENT:	Have a safety shower/eye-wash station readily available in the immediate work area.

9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE & ODOUR:	Clear liquid, smells like chlorine
PHYSICAL STATE:	Liquid
BOILING POINT:	No information
MELTING/FREEZING POINT:	No information
VAPOUR PRESSURE:	No information
VAPOUR DENSITY:	Not applicable
SOLUBILITY IN WATER:	100% soluble in water, also soluble in Methanol and Ethanol
SPECIFIC GRAVITY:	1 @ 15.5°C
pH:	10.5 - 12.5
WATER COEFFICIENT /OIL DISTRIBUTION:	Not available
SENSITIVITY TO MECHANICAL IMPACT:	Not applicable
RATE OF BURNING:	Not applicable
EXPLOSIVE POWER:	Not applicable
SENSITIVITY TO STATIC DISCHARGE:	Not applicable

10. STABILITY & REACTIVITY

STABILITY:	Stable - is stable under normal conditions
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of sulphur and the contained metal
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID:	Excessive heat

MATERIAL TO AVOID:

Strong bases, calcium hypochlorite and sodium carbonate and active metals.

11. TOXICOLOGICAL INFORMATION

LD₅₀ (skin, rabbit) = 2740 mg/kg; LD₅₀ (oral, rat) = 1530 mg/kg

REPRODUCTIVE EFFECTS:

No information is available and no adverse reproductive effects are anticipated.

MUTAGENICITY DATA:

No information is available and no adverse mutagenic effects are anticipated.

TERATOGENICITY DATA:

No information is available and no adverse teratogenic effects are anticipated.

SYNERGISTIC MATERIALS:

None known.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS:

May cause adverse environmental impact if material reaches waterways.

DEACTIVATING CHEMICALS:

Lime, soda ash or sodium bicarbonate.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS:

Reclaim for reuse, if possible. Otherwise dispose of at an appropriate waste disposal facility in accordance with local, provincial or federal regulations. DO NOT dispose of waste with normal garbage or in local sewerage system. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME:

Oxidizing Liquid, Corrosive, N.O.S.
(Sodium Chlorate, Sodium Chlorite)

SHIPPING CLASS/DIVISION: Class 5.1 (8)
PRODUCT ID # (PIN): UN3098
PACKING GROUP: II

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

1. NIOSH pocket guide to chemical hazards. NIOSH, June 1994. p 254-255.
2. Supplier's Material Safety Data Sheets.
3. Fire protection guide to hazardous materials. 11th ed. National Fire Protection Association. 1994.
4. Forsberg, K., et al. Quick selection guide to chemical protective clothing. 2nd ed. Van Nostrans Reinhold, 1993. p. 79.
5. Canadian Centre for Occupational Health and Safety.

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0

Label Hazard Warning:

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE HARMFUL OF FATAL IF SWALLOWED

Label Precautions:

Do not get in eyes, on skin, or on clothing.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, express or implied, and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of their use.