

MATERIAL SAFETY DATA SHEET
SODIUM HYDROSULPHITE (HYDRO)

1. Identification of Substance and Manufacturer

1.1 Product details

Product name	: Sodium hydrosulphite
CAS No.	: 7775 – 14 – 6
Synonyms	: Sodium hydrosulphite; Sodium dithionite, Hydro
Chemical Formula	: $\text{Na}_2\text{S}_2\text{O}_4$
Molecular weight	: 174.11 g/mole
Reach Registration No	: 01 – 2119520510 – 57 – 001
Relevant identified uses	: Reducing and Bleaching agent Bleaching : As a beaching aid in bleaching of ground wood pulp Textile : For dyeing and printing of Vat, Sulphur & Indigo dyes. Reduction clearing of synthetic goods. Stripping of dyes. Reducing Agent :Reduction of heavy metals such as Titanium, Chromium, Manganese, Molybdenum and Tungsten. Disulphide linkage in wool hair. Other Applications : Machine cleaning, Water treatment, Food bleaching (Sugar, Honey and gelatin), Soap Manufacturing and Glue manufacturing.

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2. Hazard identification

2.1 Classification according to regulation (EC) 1272/2008 [EU-GHS/CLP]

	NFPA Rating	HMIS Rating
Health	1	1
Flammability	2	2
Reactivity	2	2
Specific hazard	Not available	E

Classification according to EU Directives 67/548/EEC or 1999/45/EC

- May cause fire.
- Harmful if swallowed.
- Contact with acids liberates toxic gas.

2.2 Labeling elements according Regulation (EC) No 1272/2008 [CLP]

Pictogram



GHS02



GHS07

Signal word : Danger.

Hazard statements : H251 – Self heating; may catch fire.
: H302 – Harmful if swallowed.
: H315 – Causes skin irritation
: H320 – Causes eye irritation.
: H333 – May be harmful if inhaled.
: H335 - May cause respiratory irritation.
: H341 - Suspected of causing genetic defects

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2.2 Labeling elements according Regulation (EC) No 1272/2008 [CLP] Continue.

Precautionary statements : P280 – Wear protective gloves and eye/face protection.
(*Prevention*) : P201 – Obtain special instructions before use.
: P235 + P410- Keep cool. Protect from sunlight.
: P261 – Avoid breathing dust/fumes
: P264 – Wash with plenty of water & soap after handling
: P270 – Do not eat, drink or smoke when using this product.
: P271 – Use only out doors or in well-ventilated area
: P273 – Avoid release to the environment.
: P280 – Wear protective gloves/protective clothing/eye protection/face protection

Precautionary statements : P301 + P312 – *If swallowed*, Call a DOCTOR if feel unwell.
(*Response*) : P305 + P351 + P338 – *If in eye*, Rinse cautiously with water for several minutes, remove contact lenses, if present & easy to do. Continue rinsing
: P308+P313 If exposed or concerned: Get medical advice/attention.
: P304+P312 IF INHALED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
: P330 – Rinse mouth.
: P337 + P311 – If eye irritation persists, Call a DOCTOR.
: P370 – In case of fire, use large quantity of water
: P391 – Collect spillage

Precautionary statements : P407 – Maintain air gap between stacks / pellets
(*Storage*) : P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
: P420 – Store away from other material.

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2.2 Labeling elements according Regulation (EC) No 1272/2008 [CLP] Continue.

Precautionary statements : P501 – Dispose of contents / container to hazardous or special waste collection area or in accordance regulations.
(Disposal)

Supplemental Hazard : EUH031 – Contact with acids liberates toxic gas.
information (EU)

Hazard symbol According to European Directive 67/548/EEC as amended:



R-phrase(s) : R 7 – May causes fire.
: R22 – Harmful if swallowed.
: R31 – Contact with acids liberates toxic gas.

S-phrase(s) : S 7/8 – Keep container tightly closed and dry.
: S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
: S28 – After skin contact, wash immediately with soap and water.

Hazards Not Otherwise Classified

No specific dangers known, if the regulations/notes for storage and handling are considered. If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on ingredients

According to regulation 1994 / 2012 OSHA Hazard communication standard: 29 CFR Part 1910.1200

CAS No.	Content	Substance Name	EINECS / EC No
7775 – 14 – 6	≥ 88 %	Sodium dithionite	231 – 890 – 0
7757 – 83 - 7		Sodium sulphite	231 – 821 – 4
497 – 83 – 7		Sodium carbonate	207 – 838 – 8
7757 – 82 – 6		Sodium sulfate	231 – 820 – 9
7772 – 98 – 7	≤ 1 %	Sodium thiosulfate	231 – 867 – 5

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4. First-aid measures

• **General advice:** Consult a physician. Show this MSDS to the doctor.

• **In case of skin contact:**

If skin or hair contact occurs:

- Immediately flush body & clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.

In case of burns:

- Immediately apply cold water to burn either by immersion/ wrapping with saturated clean cloth.
- **DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury.**
- **DO NOT break blister or remove solidified material.**
- Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain.
- For high burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth.
- **DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances.**
- Water may be given in small quantities if the person is conscious.
- Alcohol is not to be given under any circumstances.
- Reassure.
- Treat for shock by keeping the person warm and in a lying position.
- Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.

For thermal burns:

- Decontaminate area around burn.
- Consider the use of cold packs and topical antibiotics.

For first-degree burns (affecting top layer of skin):

- Hold burned skin under cool running water or immerse in cool water until pain subsides.
- Use compresses if running water is not available.
- Cover with sterile non-adhesive bandage or clean cloth.
- Do NOT apply butter or ointments; this may cause infection.
- Give over-the counter pain relievers if pain increases or swelling, redness, fever occur.

For second-degree burns (affecting top two layers of skin):

- Cool the burn by immerse in cold running water for 10-15 minutes.
- Use compresses if running water is not available.
- Do NOT apply ice as this may lower body temperature and cause further damage.
- Do NOT break blisters or apply butter or ointments; this may cause infection.
- Protect burn by cover loosely with sterile, non stick bandage & secure in place with gauze or tape.

To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):

- Lay the person flat.
- Elevate feet about 12 inches.
- Elevate burn area above heart level, if possible.
- Cover the person with coat or blanket.

For third-degree burns: Seek immediate medical or emergency assistance and In the mean time:

- Protect burn area cover loosely with sterile, non stick bandage or, for large areas, a sheet or other material that will not leave lint in wound.
- Separate burned toes and fingers with dry, sterile dressings.
- Do not soak burn in water or apply ointments or butter; this may cause infection.
- For an airway burn, do not place pillow under the person's head when he is lying down. This can close the airway.
- Have a person with a facial burn sit up.
- Check pulse and breathing to monitor for shock until emergency help arrives.

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• **In case of eye contact:**

- Remove the contact lenses. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
- Remove contact lenses and irrigate exposed eyes with copious amounts of 0.9% saline or water for at least 15 minutes.
- Ensure complete flushing of the eye by keeping eyelids open and moving the eyelids by occasionally lifting the upper and lower lids.
- If irritation, pain, swelling, lacrimation, or photophobia persist after 15 minutes of irrigation, seek medical attention without delay.
- For THERMAL burns: **Do NOT remove contact lens**
- Lay victim down, on stretcher if available and pad **BOTH** eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.
- Seek urgent medical assistance, or transport to hospital.

• **If swallowed:**

IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

- Rinse mouth immediate with water, Avoid to give anything by mouth to an unconscious person, consult a physician
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.
- INDUCE vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

NOTE: **Wear a protective glove when inducing vomiting by mechanical means.**

• **Symptoms and effects, both acute and delayed**

Hazards: Respiratory sensitization may result in allergic sign in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing. The onset of which may be delayed.

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• **Indication of any immediate medical attention and special treatment needed**

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).

For poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.
- **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.
- Treat symptomatically.

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5. Fire-fighting measures

5.1 Extinguishing media:

- *Suitable extinguishing media:*
In case of fire, use sand, Dry powder Carbon dioxide (CO₂).
- *Unsuitable extinguishing media: Water.*

5.2 Special hazards arising from the substance:

- *Hazards during fire – fighting:*
 - Solid in contact with water or moisture may generate sufficient heat to ignite combustible materials.
 - May ignite on contact with air leading to spontaneous combustion
 - May decompose explosively when heated or involved in fire.
 - May REIGNITE after fire is extinguished.
 - Gases generated in fire may be poisonous, corrosive or irritating.
 - Containers may explode on heating.
 - Decomposition may produce toxic fumes of:
 - ✓ Sulfur oxides (SO_x)
 - ✓ Sulfur dioxide (SO₂)
 - ✓ Metal oxides

Fire Incompatibility

Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3 Precautions for fire-fighters:

- *Protective equipment:*
 - Wear SCBA and fully-encapsulating, gas-tight suits when handling these substances.
 - Always wear thermal protective clothing when handling molten substances.
 - Structural fire fighter's uniform will only provide limited protection.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Consider evacuation (or protect in place).

5.4 Further information:

Contaminated extinguishing water must be disposed of in accordance with local regulations.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- *Eyes:* Wear safety goggles.
- *Skin:* Wear appropriate nitrile or rubber gloves, apron and safety shoes. Avoid contact with skin, eyes and clothing.
- *Inhalation:* Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Wear respiratory protection.
- *Other:* Ensure adequate ventilation, Evacuate personnel to safe areas. Keep unprotected persons away.

Note: See section 8 for details.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains & sub soil/ soil. Discharge into the environment must be avoided.

Note: See section 12 for details.

6.3 Method for containment and cleaning up

- Isolate hazard area.
- Evacuate all unauthorized personnel not participating in rescue operation from the area.
- Avoid entry in danger area. Stop traffic. Switch off electric supply.
- Use explosion-proof lamp & non-sparking tools.
- Spillage should be handled by trained cleaning personnel properly equipped with respiratory and eye protection with an electrically protected vacuum cleaner or by dry brushing without creating dust.
- Do not flush with water.
- Pick up spillage into suitable containers, close it properly and arrange at suitable place.
- Dispose of all the waste and clean up material under valid legal waste regulations.
- Eliminate all ignition sources.
- Cover with WET earth, sand or other non-combustible material.
- DO NOT touch the spill material
- Alert Fire Brigade and tell them location and nature of hazard.

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7. Handling and storage

7.1 Precautions for safe handling

- Ensure good ventilation / exhaustion at work place.
- Store in cool and dry place.
- Closed containers should be opened in well – ventilated area.
- Avoid dust.
- Keep containers tightly closed.
- Avoid contact with skin, eyes and clothing.
- Wash hands with soap and water and other exposed areas with water after handling.
- Handle empty containers with care because residual dusts are flammable.
- For large scale or continuous use, spark-free, earthed ventilation system venting directly to the outside and separate from usual ventilation systems
- Wear protective clothing when risk of overexposure occurs.

Other Information:

- FOR MINOR QUANTITIES:
 - Store in an indoor, in a room of noncombustible construction.
 - Provide adequate portable fire-extinguishers in or near the storage area.
- FOR PACKAGE STORAGE:
 - Store in original containers in approved flame-proof area.
 - No smoking, naked lights, heat or ignition sources.

7.2 Precautions for safe storage

- Store in cool place.
- Keep container tightly closed in a dry and well-ventilated place.
- Never allow product to get in contact with water.
- Do not store near acids and oxidants.
- Product is air and moisture sensitive.
- Keep away from heat > 50 °C.
- Product should not be kept in storage area with sprinkler installations due to a possibility of self inflammability with contact of small quantity of water.
- Improper packing / storage may result in pressure build-up in the containers.
- May spontaneously combust in contact with water, moist air or steam, releasing sulfur dioxide and heat
- It is a strong reducing agent, Reacts violently, ignites or explodes on contact with oxidisers.
- Produces sulfur dioxide on contact with acids
- It may decompose violently at temperatures above 190 °C, producing sodium sulfate and SO₂.

NOTE:

The commercial material is stable if kept in dry sealed containers at room temperature. A catalytic amount of moisture, oxygen and heat can lead to rapid exothermic decomposition.

So, water should never be added to the solid when making an aqueous solution.

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8. Exposure controls and personal protection

8.1 Control parameters: Compound with occupational exposure limits.

Product produced SO₂ gas due to decomposition.

Material	Source	Type	ppm	mg / m ³
Sulphur dioxide	OSHA	PEL	5	13
		STEL	5	13
		TWA	2	5
	ACGIH TLV	STEL	5	
		TWA	5	

The product does not contain any relevant quantity of materials with critical values that have to be monitored at the work place.

• *Additional information / advice about design of technical systems:*

Provide local exhaust ventilation to control vapors / mists.

Use properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minutes.

8.2 Exposure controls:

• *General protective hygienic measures:*

Keep away from foodstuffs, beverages and food.

Instantly remove any solid and impregnated garments.

Wash hands during breaks and at the end of the work.

Maintain an ergonomically appropriate working environment.

Handle in accordance with safety practice.

• *Personal protective equipments*



Eye/face protection:

- Safety goggles
- Safety glass with side shield
- Face shield and safety glasses.
- Contact lenses may pose a hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection

- Handle with gloves.
- Gloves must be inspected prior to use.
- 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.

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Body Protection

- Wear protective clothing appropriate for the work situation
- For large scale or continuous use, when handling dry powder, wear tight-weave, non-static, noncombustible or flameproof clothing without cuffs, metallic fasteners, pockets, or laps in which powder may collect.
- Non-sparking safety or conductive footwear. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.
- 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. h

Respiratory protection

- Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls.
- If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU) or BIS.

Personal hygiene is a key element of effective hand care.

- Neoprene gloves
- Fire resistant/ heat resistant gloves where practical, otherwise
- Heavy-duty chemically resistant gloves capable of providing short-term protection against spontaneous ignition.

9. Physical and chemical properties

a.	Physical state at 20 °C	Crystalline powder
b.	Colour	White
c.	Odour	Pungent
d.	pH of 1.0% solution	Approx. 6.0
e.	Melting point/range	52 ⁰ C (Decomposition)
f.	Boiling point	Not determined as thermal decomposition temperature is above 52 °C.
g.	Flash point	Not applicable.
h.	Density	1.4 – 1.6 g/cm ³
i.	Water solubility	225 g/L at 20 °C, slow decomposition
j.	Auto-ignition temperature (°C)	> 130 °C
k.	Explosion lower/upper limit %	No data available
l.	Partition coefficient n- octanol / water at 20 °C	Log Pow: < -4.7
m.	Evaporation rate	The product is non volatile solid.
n.	Vapour pressure	Not applicable.
o.	Relative density at 20 °C	2,500 g/cm ³

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10. Stability and reactivity

10.1 Reactivity:

- Reacts with acids and Water. Corrosion to metals. Refer Section – 7

10.2 Stability:

- Stable under recommended storage conditions.
- Identify and remove sources of ignition and heating.
- Incompatible material, especially oxidisers, and/or other sources of oxygen may produce unstable product(s).
- Readily oxidizes in air.

10.3 Possibility of hazardous reactions:

- Reacts violently with Oxidizing agent.
- Reacts with damp air, acids and oxidizing agents.
- Self inflammation is possible by spray waters or water in small quantities.
- On contact with water gaseous decomposition products are formed, which cause built-up of pressure in tight closed containers

Refer Section 7

10.4 Material to avoid / Incompatible material:

- Acids, oxidizing agents, organic materials, metal powder.

Refer Section 7

10.5 Condition to avoid:

- Avoid humidity, temperature Above 50⁰ C

10.6 Hazardous decomposition products:

- Sulfur dioxide (SO₂)

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11. Toxicological information

11.1 Primary routes of exposure:

Routes of entry for compounds are ingestion and inhalation but may also include eye and skin contact.

○ Inhaled

Practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

Sulfur dioxide irritation probably results from the action of sulfurous acid as the highly soluble gas dissolves in mucous fluid. Short-term exposure causes bronchoconstriction measurable as an increase in flow-resistance. The magnitude is concentration-dependent.

Chief effects are upper respiratory tract irritation and severe acute exposure may cause oedema of the lungs and possible respiratory paralysis.

○ Ingestion

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Irritant effects relate to formation of sulfur dioxide gas, sulfurous acid in digestive tract.

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○ Skin Contact

Repeated exposure may cause skin cracking, flaking or drying during handling and use.

Open cuts, abraded or irritated skin should not be exposed to this material

Solution of material in moisture on the skin, or perspiration, may markedly increase skin itching and accelerate tissue destruction

Entry into the blood-stream through cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Practical experience predicts that the material either produces inflammation of the skin in a substantial number of direct contact, up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Irritation effects may be accentuated by high temperatures.

○ Eye

Practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

Strong evidence exists that the substance may cause irreversible but non-lethal mutagenic effects following a single exposure.

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11.2 Acute toxicity / effects:

Acute toxicity:

Moderate toxicity after single ingestion. Virtually nontoxic by inhalation or after a single skin contact. The fully testing not done. The statements are derives based on similar structure compounds.

Oral:

Type of value: LD50, Species: Rate (male/female)

The European Union (EU0 and The registry of Toxic Effects of Chemical substances (RTECS) has classified this substance as a HARMFUL

Inhalation: Type of value: LC50, Species: Rate (male/female), Value: > 5.5 mg/l (OECD guide line 403)

Exposure time: 4 h.

May be harmful if inhaled, may cause respiratory tract irritation.

*Dermal:*Type of value: LC50, Species: Rate (male/female), Value: > 5.5 mg/l (OECD guide line 402)

Not irritating to skin, may be harmful if absorbed through skin.

Irritation: Eye contact causes irritation.

11.3 Chronic toxicity / effect

Repeated exposure of animals to airborne sulfur dioxide (SO₂) can produce a thickening of the mucous layer in the trachea and an increase in goblet cells and mucous glands similar to pathological changes found in chronic human bronchitis.

Chronic exposure to sulfur dioxide (SO₂) particulate complexes, present in polluted air, have been associated with the aggravation of chronic cardiovascular diseases such as asthma, chronic pulmonary disease, and coronary artery disease (this may occur at levels of 6-10 ug/m³ for 24 hours),

An association exists between persistent cough and sputum production, particularly in women and non-smokers. A 10-year follow study on workers exposed to a mean sulfur dioxide concentration of up to 33 ppm did not reveal an increased prevalence of chronic respiratory disease or decreased pulmonary function.

By contrast, studies of smelter workers, exposed to concentrations below 2 ppm, suggest that chronic respiratory disease may develop and that workers exposed at concentrations exceeding 1 ppm show accelerated loss of pulmonary function.

Sulfite and bisulfite salts react irreversibly, through free radical formation, with endogenous substances (including DNA). Some asthmatics are said to be dangerously sensitive to minute amounts of sulfite in food. Symptoms include bronchoconstriction, bronchospasm, gastrointestinal disturbance, flushing, hypotension, tingling sensations, urticaria and angio-oedema and shock.

The sulfites belong to a group of substances which induces local or systemic reactions which are identical or similar to allergic reactions and invoke pseudo-allergic ("anaphylactoid) reactions.

Repeated dose toxicity: No known chronic effects.

Germ cell mutagenicity: Most of the literature/study data shows no evidence of a mutagenic effect.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

*Teratogenicity:*No data found.

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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12. Ecological information**12.1 Toxicity:**

Ecological effects information: Prevent entry to sewers, soils and natural waters.

Toxicity to fish: LC50 - Leuciscus idus (Golden orfe) - 10 - 100 mg/l - 96 h

Toxicity to daphnia: EC50 - Daphnia magna (Water flea) - 10 - 100 mg/l - 48 h

12.2 Persistence and degradability: No data available

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment: No data available

12.6 Other adverse effects: Toxic to aquatic life, no data available

13. Disposal considerations**13.1 Waste treatment method**

Product: Dissolve the chemical in large quantity of water carefully because this material is highly flammable in contact with small quantity of water and considered as hazardous waste. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Do not reuse empty containers. Dispose of as unused product as per comply with local regulations for disposal

The information offered in this section is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the product and alter the waste classification and proper disposal methods.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise: If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then crushed the containers, to prevent re-use, and send to authorize scrape agent.

- Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction, Reuse, Recycling, Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

- **DO NOT allow wash water from cleaning or process equipment to enter drains.**
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised Scrap Agent.

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SODIUM HYDROSULPHITE (HYDRO)

14. Transportation information

	Land	Sea	Air
	USDOT	IMDG	IATA
Hazard class :	4.2	4.2	4.2
Packaging group :	II	II	II
ID number :	UN 1384	UN 1384	UN 1384
Hazard label :	4.2	4.2	4.2
UN proper shipping name :	SODIUM DITHIONITE		
	(SODIUM HYDROSULPHITE)		

15. Regulatory information

This safety data sheet complies with the requirements of Regulation (EC) No. 1902/2006

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture
EPCRA 311/312 (Hazard categories): Acute

NFPA Hazard codes	Health	Fire	Reactivity
	1	2	2
HMIS III rating	Health	Flammability	Physical hazards
	1	2	2

Assessment of the hazard classes according to UN GHS criteria:

Aquatic Acute	3	Hazardous to the aquatic environment, acute
Skin corrosion / irritation	3	Skin corrosion / irritation
Eye damage / irritation	2A	Eye damage / irritation
Self - heat	1	Self heating substances
Acute toxicity	5	Oral, Acute toxicity

Hazard Statement:

Refer Section 2.3

Precautionary Statement:

Refer Section 2.3

European Union : Symbol



Xn: Harmful

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SODIUM HYDROSULPHITE (HYDRO)

16. Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

*We support worldwide **Responsible care** initiative. We value and care our employees, customers, suppliers and neighbors and the protection of the environment.*

*Our commitment to **Responsible care** is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our product and minimizing the impact of our operations on society and the environment during manufacturing, storage, transport, use and disposal of our products.*

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-----*End of MSDS*-----