Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **SODIUM HYDROSULFIDE 30% w/w SOLUTION**

Recommended Use of the Chemical and Restrictions on Use Paper production process.

Supplier: Ixom Operations Pty Ltd (Incorporated in Australia)
NZBN: 9429041465226
Street Address: 166 Totara Street
Mt Maunganui South
New Zealand

Telephone Number: +64 9 368 2700
Facsimile: +64 9 368 2710
Emergency Telephone: **0 800 734 607 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

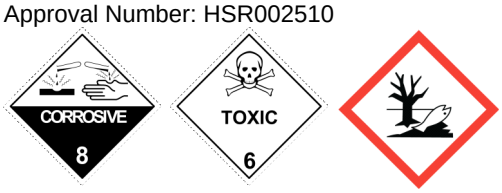
Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.

Classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Notice 2017 and the Hazardous Substances (Classification) Notice 2017.

SIGNAL WORD: DANGER

Subclasses:
Subclass 6.1 Category C - Substances which are acutely toxic.
Subclass 8.1 Category A - Substances that are corrosive to metals.
Subclass 8.2 Category B - Substances that are corrosive to dermal tissue.
Subclass 8.3 Category A - Substances that are corrosive to ocular tissue.
Subclass 9.1 Category A - Substances that are very ecotoxic in the aquatic environment.
Subclass 9.3 Category B - Substances that are ecotoxic to terrestrial vertebrates.

Additives, Process Chemicals and Raw Materials (Toxic [6.1], Corrosive) Group Standard 2017
Approval Number: HSR002510



Hazard Statement(s):
H290 May be corrosive to metals.
H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.
H410 Very toxic to aquatic life with long lasting effects.
H432 Toxic to terrestrial vertebrates.

Precautionary Statement(s):

Prevention:
P102 Keep out of reach of children.
P260 Do not breathe mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P321 Specific treatment (see First Aid Measures on the Safety Data Sheet).
P363 Wash contaminated clothing before re-use.
P304+P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P391 Collect spillage.

Storage:
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:
P501 In case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Notice 2017. This may also include any method of disposal that must be avoided.

Other Hazards:
Contact with acids liberates toxic gas.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Sodium hydrosulfide	16721-80-5	30% w/w	H290 H301 H312 H314 H400
Non hazardous component(s)	-	to 100%	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

Skin Contact:
If spilt on large areas of skin or hair, immediately drench with running water and remove clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor.

Eye Contact:
Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport promptly to hospital or medical centre.

Ingestion:
Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

Indication of immediate medical attention and special treatment needed:
Treat symptomatically. Can cause corneal burns.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:
Not combustible, however, if material is involved in a fire use: Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Hazchem or Emergency Action Code: 2X

Specific hazards arising from the chemical:
Non-combustible material. Corrosive substance. Toxic substance. Exposure to heat or acids will release hydrogen sulfide which may form explosive mixtures with air. Environmentally hazardous.

Special protective equipment and precautions for fire-fighters:
Decomposes on heating emitting toxic fumes, including those of hydrogen sulfide , sulfur dioxide . Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition. If safe to do so, remove containers from path of fire. Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Clear area of all unprotected personnel. Shut off all possible sources of ignition. Do not allow container or product to get into drains, sewers, streams or ponds. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. For residues, preferably oxidize with a weak 3-5% hydrogen peroxide solution to stop release of hydrogen sulfide.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid skin and eye contact and breathing in vapour, mists and aerosols. Keep out of reach of children. When using do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Store in a cool, dry, well ventilated place and out of direct sunlight. Store away from incompatible materials described in Section 10. Store in corrosive resistant container with a resistant inner liner. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Workplace Exposure Standards: No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Exposure Standard(s) for decomposition product(s):

Hydrogen sulphide: WES-TWA 10 ppm, 14 mg/m^3; WES-STEL 15 ppm, 21 mg/m^3
Sulphur dioxide: WES-TWA 2 ppm, 5.2 mg/m^3; WES-STEL 5 ppm, 13 mg/m^3

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

WES - STEL (Workplace Exposure Standard - Short Term Exposure Limits) - The 15 minute average exposure standard. Applies to any 15 minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both short-term and eight-hour, time-weighted average exposures should be determined.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:
Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):
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.

OVERALLS, CHEMICAL GOGGLES, FACE SHIELD, GLOVES (Long), APRON, RUBBER BOOTS.

Wear overalls, chemical goggles, face shield, elbow-length impervious gloves, splash apron or equivalent chemical impervious outer garment, and rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.
If determined by a risk assessment an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Colour:	Yellow to Red to Dark Green to Black
Odour:	Rotten egg
Odour Threshold:	Not available
Solubility:	Miscible in water.
Specific Gravity:	1.27-1.33
Relative Vapour Density (air=1):	1.17
Vapour Pressure (20 °C):	17 mm Hg
Flash Point (°C):	Not applicable
Flammability Limits (%):	Not applicable
Autoignition Temperature (°C):	Not applicable
Boiling Point/Range (°C):	112.2-117.2
Decomposition Point (°C):	Not available
pH:	11.5-12.5
Freezing Point/Range (°C):	16.6-17.8

10. STABILITY AND REACTIVITY

Reactivity:	Reacts with acids. Reacts violently with diazonium salts . Reacts with strong oxidising agents.
Chemical stability:	Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Possibility of hazardous reactions:	Reacts with acids liberating hydrogen sulfide, a highly flammable, toxic gas. May be corrosive to metals.
Conditions to avoid:	Avoid exposure to heat, sources of ignition, and open flame.
Incompatible materials:	Incompatible with acids , diazonium salts , aluminium , copper , zinc and their alloys , galvanised metals .
Hazardous decomposition products:	Hydrogen sulfide. Sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion:	Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.
Eye contact:	A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.

Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

Inhalation: Breathing in mists or aerosols may produce respiratory irritation.

Acute toxicity: No LD50 data available for the product. For the constituent Sodium hydrosulfide :
Oral LD50 (rat): 100-215 mg/kg

Respiratory or skin sensitisation: Not a respiratory sensitiser. Not expected to be a skin sensitizer.

Chronic effects:

Mutagenicity: No information available.
Carcinogenicity: Not listed as carcinogenic according to the International Agency for Research on Cancer (IARC).
Reproductive toxicity: No information available.
Specific Target Organ Toxicity (STOT) - single exposure: Not classified.
Specific Target Organ Toxicity (STOT) - repeated exposure: Not classified.
Aspiration hazard: Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

Persistence/degradability: No information available.

Bioaccumulative potential: No information available.

Mobility in soil: No information available.

Aquatic toxicity: Very toxic to aquatic organisms. May cause long lasting harmful effects to aquatic life.

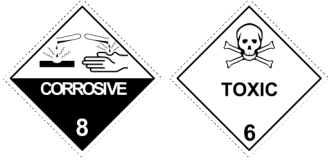
96hr LC50 (fish): >0.0478 mg/L (Lepomis machrochirus) (for Sodium hydrosulfide)

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to local government authority for disposal recommendations. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport
Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.



UN No: 2922
Transport Hazard Class: 8 Corrosive

Subrisk 1:	6.1 Toxic
Packing Group:	II
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROSULFIDE SOLUTION)
Hazchem or Emergency Action Code:	2X

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No:	2922
Transport Hazard Class:	8 Corrosive
Subrisk 1:	6.1 Toxic
Packing Group:	II
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROSULFIDE SOLUTION)
IMDG EMS Fire:	F-A
IMDG EMS Spill:	S-B

Air Transport
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No:	2922
Transport Hazard Class:	8 Corrosive
Subrisk 1:	6.1 Toxic
Packing Group:	II
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROSULFIDE SOLUTION)

15. REGULATORY INFORMATION

Classification:
Classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Notice 2017 and the Hazardous Substances (Classification) Notice 2017.

Subclasses:
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H432 Toxic to terrestrial vertebrates.

16. OTHER INFORMATION

Supplier Material Safety Data Sheet; 06/ 2019.

This safety data sheet has been prepared by Ixom Operations Pty Ltd (Toxicology & SDS Services).

Reason(s) for Issue:
First Issue Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.