

SAFETY DATA SHEET



Revision date: 24-Nov-2023

Revision Number 8

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product identifier

Product Name SODIUM ISOBUTYL XANTHATE

Product Code(s) 000033039301

Other means of identification

UN number 3342

CAS No. 25306-75-6

Synonyms SIBX; Carbonodithioic acid, O-(2-methylpropyl) ester, sodium salt.

Recommended use of the chemical and restrictions on use

Recommended use Mineral flotation agent.

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier

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

Telephone Number: +64 9 368 2700

Facsimile: +64 9 368 2710

For further information, please contact

Contact Point Product Safety Department

Emergency telephone number

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 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

Classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

GHS Classification

SIGNAL WORD

Warning

Class 4 Substances Group Standard 2020

Approval Number: HSR002522

Self-heating substances and mixtures	Category 1
Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Label elements**Hazard statements**

H251 - Self-heating; may catch fire
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary Statements - Prevention

Do not breathe fume, gas, mist, vapours, spray
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Ground and bond container and receiving equipment
Use explosion-proof electrical, ventilating, lighting equipment
Do not eat, drink or smoke when using this product
Wash hands thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves / protective clothing / eye protection / face protection
Avoid release to the environment

Precautionary Statements - Response

Specific treatment (see First aid on this SDS)
Get medical advice/attention if you feel unwell
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.
Collect spillage

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards which do not result in classification

Dust can form an explosive mixture with air

3. COMPOSITION/INFORMATION ON INGREDIENTS**Substance**

Chemical name	CAS No.	Weight-%
Sodium isobutyl xanthate	25306-75-6	>=90
Sodium hydroxide	1310-73-2	<=1

4. FIRST AID MEASURES

Description of first aid measures

General advice	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.
Emergency telephone number	Poisons Information Center, New Zealand: 0800 764 766 Poisons Information Center, Australia: 13 11 26
Inhalation	Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration. Get medical attention immediately.
Eye contact	Get medical attention if symptoms occur. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Get immediate medical advice/attention.

Most important symptoms and effects, both acute and delayed

Symptoms	Irritation. May cause redness and tearing of the eyes. May cause allergic skin reaction. Redness. Rashes. Hives.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media	Coarse water spray. Foam. Dry chemical. Carbon dioxide (CO ₂).
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Unsuitable extinguishing media	Solid water jet/stream may scatter and spread the fire.
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Specific hazards arising from the chemical

Specific hazards arising from the chemical	Substances liable to spontaneous combustion. On burning will emit toxic fumes, including those of oxides of carbon. Avoid generation of dust. Dust can form an explosive mixture with air. Most organic dusts are combustible and according to the circumstances under which the combustion process occurs, such materials may cause fires and/or dust explosions. Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). Dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC). When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be
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formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts.

Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large-scale explosions have resulted from chain reactions of this type. Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by bonding and grounding. Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source. One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending on how the powder was manufactured and handled which means that it is virtually impossible to use flammability data published in the literature for dusts.

Hazardous combustion products Carbon disulfide. Hydrogen. Oxides of carbon. Oxides of sulfur.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code 1Y

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes, and clothing. Do not breathe fume, gas, mist, vapours, spray. Ensure adequate ventilation. Use personal protective equipment as required. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Take precautionary measures against static discharges. Do not touch or walk through spilled material. See section 8 for more information.

Other information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders Shut off ignition sources. Clear area of all unprotected personnel. Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Remove ignition sources. Provide adequate ventilation. Keep out of drains, sewers, ditches and waterways. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Methods for cleaning up Use personal protective equipment as required. Cover with damp absorbent (inert material, sand or soil). Vacuum or sweep material and place in a disposal container. Avoid generation of dust. Use non-sparking tools. Pick up and transfer to properly labelled

containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Avoid contact with skin, eyes, and clothing. Do not breathe fume, gas, mist, vapours, spray. Avoid generation of dust. Use personal protection equipment. Keep away from open flames, hot surfaces and sources of ignition. Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking. All equipment may need to be explosion-proof based on a risk assessment. Keep out of reach of children.

General hygiene considerations

Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes, and clothing. Wear suitable gloves and eye/face protection.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a cool, well-ventilated place. Store away from sources of heat or ignition. Store locked up. Keep dry - reacts with water, may lead to drum rupture. Store away from incompatible materials (refer to SDS). Keep container closed when not in use.

Incompatible materials

Strong acids. Oxidizing agents. Organic solvents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

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

Sodium hydroxide: Ceiling 2 mg/m³

Carbon disulphide: WES-TWA 1 ppm, 3 mg/m³, skin (oto)

Carbon disulphide - Biological Exposure Index: 0.5mg/g creatinine

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

WES - Ceiling (Workplace Exposure Standard - Ceiling). A concentration that should not be exceeded during any part of the working day.

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.

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

Engineering controls

Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.

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

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, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, DUST MASK.



Eye/face protection

Goggles.

Hand protection

Impervious gloves.

Skin and body protection

Wear suitable protective clothing. Overalls. Boots.

Respiratory protection

If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Environmental exposure controls

No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder or Pellets
Color	Yellow or Yellow - Grey
Odor	Unpleasant Sulfurous
Odor threshold	No information available

Property

pH	No data available
Melting point / freezing point	No data available
Boiling point / boiling range	No data available
Flash point	Not applicable (-30°C for carbon disulfide vapours)
Evaporation rate	No data available
Flammability (solid, gas)	No data available

Remarks • Method

None known
None known
None known
None known
None known
None known

Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	ca. 500 g/L @ 20 °C	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	90°C for carbon disulfide vapours	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information**10. STABILITY AND REACTIVITY**Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Possibility of hazardous reactions

Possibility of hazardous reactions Contact with chromic anhydride may form explosive mixtures. Heating can cause expansion or decomposition of the material, which can lead to the containers exploding.

Conditions to avoid

Conditions to avoid Avoid exposure to heat, sources of ignition, and open flame. Avoid contact with combustible substances. Dust formation. Static discharge (electrostatic discharge). Direct sunlight. Contact with foodstuffs.

Incompatible materials

Incompatible materials Strong acids. Oxidizing agents. Organic solvents.

Hazardous decomposition products

Hazardous decomposition products Carbon disulfide. Hydrogen. Oxides of carbon. Oxides of sulfur.

11. TOXICOLOGICAL INFORMATIONAcute toxicityInformation on likely routes of exposure

Product Information	No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:
Inhalation	Breathing in dust may result in respiratory irritation.
Eye contact	Causes serious eye irritation. Dust contact with the eyes can lead to mechanical irritation.
Skin contact	May cause irritation. May cause sensitization by skin contact.
Ingestion	Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Symptoms	Irritation. May cause redness and tearing of the eyes. May cause allergic skin reaction. Redness. Rashes. Hives.

Acute toxicity**Numerical measures of toxicity**

Refer to component information below.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Sodium isobutyl xanthate	= 500 mg/kg (Rat)	-	-
Sodium hydroxide	-	= 1350 mg/kg (Rabbit)	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Chronic effects:	This product may liberate carbon disulphide on contact with moist skin. Chronic exposure to carbon disulphide may produce central and peripheral nervous system, cardiovascular, gastrointestinal, kidney, eye disorders.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Ecotoxicity	Avoid contaminating waterways.
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Terrestrial ecotoxicity Hazardous to terrestrial vertebrates.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Sodium isobutyl xanthate	-	LC50: =70mg/L (96h, Oncorhynchus mykiss)	-
Sodium hydroxide	-	LC50: =45.4mg/L (96h, Oncorhynchus mykiss)	-

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation No information available.

Mobility

Mobility in soil No information available.

Other adverse effects

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products

Dispose of product in packaging/container in a way that is consistent with the Hazardous Substances (Disposal) Notice 2017 and the Act, and Hazardous Substances (Amendments and Revocations) Notice 2020. Treat the chemical using a method that changes the characteristics or composition of the chemical so that the chemical is no longer a hazardous chemical; or export the chemical from New Zealand as waste. Class 2, 3 and 4 chemicals - may not be disposed of into or onto a landfill or sewage facility. They may only be burnt in certain situations. Class 2.1.1, 3.1 and 4.1.1 chemicals may only be discharged into the environment as waste if the substance will not at any time come into contact with class 1 or class 5 substances; and there will be no ignition source in the vicinity of the disposal site at any time and if the substance were to ignite, no person, or place where a person may legally be, would be exposed to an unsafe level of heat radiation.

Contaminated packaging

For packages that have been in direct contact with hazardous chemicals, the person must ensure that the package is rendered incapable of containing any chemical. It must be disposed of in a manner that is consistent with the requirements for disposal of the chemical that it contained, taking into account the material the package is manufactured from. Packages may only be reused or recycled if the package has been treated to remove any residual contents of the hazardous chemical (class 1, 2, 3, 4, or 5); or the contents of the residue in the package are below the threshold for the chemical to be classified as hazardous (class 6, 8, or 9 chemical).

14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT

Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

UN number

3342

Proper shipping name XANTHATES
 Hazard class 4.2
 Packing group III
 Hazchem code 1Y

IATA Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS. TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft; may be transported by Cargo Aircraft Only.

UN number 3342
 UN proper shipping name XANTHATES
 Transport hazard class(es) 4.2
 Packing group III

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

UN number 3342
 UN proper shipping name XANTHATES
 Transport hazard class(es) 4.2
 Packing group III
 IMDG EMS Fire F-A
 IMDG EMS Spill S-J
 Marine pollutant No

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

New Zealand

National regulations See section 8 for national exposure control parameters

International Inventories

NZIoC All the constituents of this material are listed on the New Zealand Inventory of Chemicals.
TSCA Contact supplier for inventory compliance status.
DSL/NDSL Contact supplier for inventory compliance status.
EINECS/ELINCS Contact supplier for inventory compliance status.
ENCS Contact supplier for inventory compliance status.
IECSC Contact supplier for inventory compliance status.
KECL Contact supplier for inventory compliance status.
PICCS Contact supplier for inventory compliance status.
AIIC All the constituents of this material are listed on the Australian Inventory of Industrial Chemicals.

Legend:

NZIoC - New Zealand Inventory of Chemicals

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AIIC- Australian Inventory of Industrial Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. OTHER INFORMATION

Supplier Material Safety Data Sheet 01/ 2023

Prepared By This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

Issuing Date: 24-Nov-2023

Reason(s) For Issue: 5 Yearly Revised Primary SDS
Change in Hazardous Chemical Classification

Revision Note:

The symbol (*) in the margin of this SDS indicates that this line has been revised.

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 Australian Industrial Chemicals Introduction Scheme (AICIS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 RTECS (Registry of Toxic Effects of Chemical Substances)
 World Health Organization

Disclaimer

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.

End of Safety Data Sheet