

Sodium stannate

sc-229318



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Sodium stannate

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY:

ChemWatch

Within the US & Canada: 877-715-9305

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(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

Na₂O₃-Sn, Na₂SnO₃.3H₂O, "H₆-Na₂-O₆-Sn (trihydrate)", "disodium stannate trihydrate", "sodium tin oxide trihydrate", "tin sodium oxide trihydrate", "stannate of soda", "disodium tin hexahydroxide", "sodium stannate trihydrate", "sodium hexahydroxostannate", (OC-6-11)-stannate(Sn(OH)₆-disodium

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	■
Toxicity:	0	■
Body Contact:	2	■
Reactivity:	0	■
Chronic:	2	■

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Irritating to eyes, respiratory system and skin.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Although ingestion is not thought to produce harmful effects, the material may still be damaging to the health of the individual following ingestion, especially where pre-existing organ (e.

g.

■ Poorly absorbed from the gut, tin salts are most likely to cause poisoning if injected.

Tin is highly toxic, producing diarrhea, muscle paralysis, twitching and nervous damage.

■ Tin salts are not very toxic.

However, at high concentration, nausea, vomiting and diarrhea can occur.

EYE

■ This material can cause eye irritation and damage in some persons.

SKIN

■ This material can cause inflammation of the skin on contact in some persons.

■ The material may accentuate any pre-existing dermatitis condition.

■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.

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

■ Entry into the blood-stream, through, for example, cuts, abrasions 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.

INHALED

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ 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.

CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Chronic exposure to tin dusts and fume can result in substantial amounts being deposited in the lungs and result in reduced lung function and difficulty breathing.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sodium stannate	12058-66-1	98

Section 4 - FIRST AID MEASURES

SWALLOWED

· Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	1.16
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA

· There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of: metal oxides.

May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

- None known.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.

MAJOR SPILLS

- Moderate hazard.
- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Glass container.
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA	STEL	STEL	Peak	Peak	TWA	Notes
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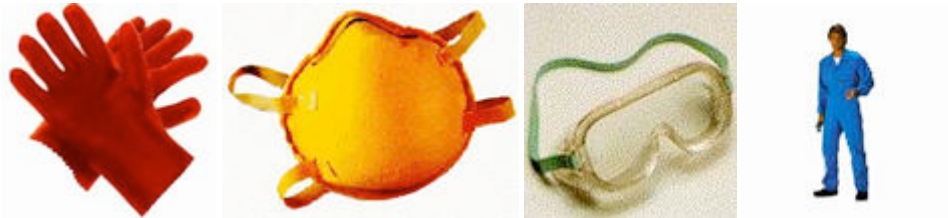
		mg/m ³	ppm	mg/m ³	ppm	mg/m ³	F/CC
US - Alaska Limits for Air Contaminants	sodium stannate (Tin oxide (as Sn))	2					
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	sodium stannate (Tin, inorganic compounds, (as Sn) (except SnH4 and SnO2))	2	-	4			
Canada - Northwest Territories Occupational Exposure Limits (English)	sodium stannate (Tin, inorganic compounds, except SnH and SnO (as Sn))	2		4			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2					
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2					
US - Michigan Exposure Limits for Air Contaminants	sodium stannate (Tin, Inorganic compounds (except oxides)(as Sn))	2					
US - Hawaii Air Contaminant Limits	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2		4			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2					
US - Michigan Exposure Limits for Air Contaminants	sodium stannate (Tin, Inorganic compounds (except oxides) Organic compounds (as Sn))	0.1					
US - Oregon Permissible Exposure Limits (Z-1)	sodium stannate (Tin (inorganic compounds, except oxides) as Sn)	2	-				

US - Idaho - Limits for Air Contaminants	sodium stannate (Tin (inorganic compounds, except oxides) as (Sn))	2		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2		
US - California Permissible Exposure Limits for Chemical Contaminants	sodium stannate (Tin, tin oxide and inorganic compounds, except SnH4, as Sn)	2		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	sodium stannate (Tin, (as Sn): oxide and inorganic compounds except SnH4)	2	4	
US ACGIH Threshold Limit Values (TLV)	sodium stannate (Tin - Inorganic compounds (as Sn))	2		TLV Basis: pneumoconiosis; eye & upper respiratory tract irritation; headache; nausea
Canada - Prince Edward Island Occupational Exposure Limits	sodium stannate (Tin - Inorganic compounds (as Sn))	2		TLV Basis: pneumoconiosis; eye & upper respiratory tract irritation; headache; nausea
Canada - British Columbia Occupational Exposure Limits	sodium stannate (Tin - Oxide and inorganic compounds, except tin hydride, as Sn)	2		
Canada - Ontario Occupational Exposure Limits	sodium stannate (Oxide and inorganic compounds, as Sn, except tin hydride / Oxyde et composés inorganiques, en Sn, sauf hydrure d'étain)	2		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	sodium stannate (Tin: Oxide and inorganic compounds except SnH4 (as Sn))	2		

Canada - Alberta Occupational Exposure Limits	sodium stannate (Tin, as Sn: Oxide and inorganic compounds except tin hydride)	2		
US OSHA Permissible Exposure Levels (PELs) - Table Z1	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2		
US - Minnesota Permissible Exposure Limits (PELs)	sodium stannate (Tin, inorganic compounds (except oxides) (as Sn))	2		
US - Washington Permissible exposure limits of air contaminants	sodium stannate (Tin (as Sn) - Inorganic compounds)	2	4	
Canada - Nova Scotia Occupational Exposure Limits	sodium stannate (Tin - Inorganic compounds (as Sn))	2		TLV Basis: pneumoconiosis; eye & upper respiratory tract irritation; headache; nausea

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

•Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
 - frequency and duration of contact,
 - chemical resistance of glove material,
 - glove thickness and
 - dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc

- polyvinyl chloride
- Gloves should be examined for wear and/ or degradation constantly.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	212.69
Melting Range (°F)	>284 decomposes	Viscosity	Not Applicable
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not applicable	pH (1% solution)	12
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable	Vapour Pressure (mmHG)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	1.16
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable

APPEARANCE

Odourless, white to light tan crystals; mixes with water. Insoluble in alcohol. Decomposes in air; aqueous solution is alkaline.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Derivative of electropositive metal.
 - Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
 - These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
 - The state of subdivision may affect the results.
- Avoid strong acids.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

sodium stannate

TOXICITY AND IRRITATION

SODIUM STANNATE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 3457 mg/kg	Nil Reported
Oral (Mouse) LD50: 2132 mg/kg	

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic

individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

CARCINOGEN

PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen
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SKIN

sodium stannate	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin	Skin Designation	X
sodium stannate	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
sodium stannate	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
sodium stannate	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X

Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
sodium stannate	No Data Available	No Data Available		

GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No _____
 _____ Fatty 226 278 5 0 (R) 0 NI (0) (0) (1) (1) (1) NI 2 acids, 1 0 linear C12+ saturated with C12+
 unsaturat ed / CAS:12058 - 66- 1 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)
 NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,
 B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),
 C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation &
 corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats,
 E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3:
 C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury,
 N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater,
 F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard.
 (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ 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. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.

· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

sodium stannate (CAS: 12058-66-1,12209-98-2,12027-70-2) is found on the following regulatory lists;
"Canada Domestic Substances List (DSL)", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Cumulative effects may result following exposure*.

* (limited evidence).

Ingredients with multiple CAS Nos

Ingredient Name CAS sodium stannate 12058-66-1, 12209-98-2, 12027-70-2

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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