

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 1057b
SRM Name: Dibutyltin Bis(2-ethylhexanoate)
Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended for use in the determination of the tin concentrations in lubricating oils. A unit of SRM 1057b consists of 5 g of powder in a small bottle.

Company Information

National Institute of Standards and Technology
Standard Reference Materials Program
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Gaithersburg, Maryland 20899-2300

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FAX: 301-948-3730
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1-800-424-9300 (North America)
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2. HAZARDS IDENTIFICATION

Classification

Physical Hazard:	Not classified.	
Health Hazard:	Skin Corrosion/Irritation	Category 2
	Serious Eye Damage/Irritation	Category 2A

Label Elements

Symbol



Signal Word

WARNING

Hazard Statement(s)

H315+H319 Causes skin and serious eye irritation.

Precautionary Statement(s)

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves, protective clothing, and eye protection.
P302+P352	If on skin: Wash with plenty of water.
P332+P313	If skin irritation occurs: Get medical attention.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Dibutyltin Bis(2-ethylhexanoate)

Other Designations: Dibutyltin di(2-ethylhexanoate); dibutylbis((2-ethyl-1-oxohexyl)oxy)stannane; tin, dibutyl-, di(2-ethylhexanoly)oxy-

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Dibutyltin Bis(2-ethylhexanoate)	2781-10-4	220-481-2	100

4. FIRST AID MEASURES

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eye Contact: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention. Induce vomiting only at the instructions of a physician. Do not give anything by mouth to unconscious or convulsive person.

Most Important Symptoms/Effects, Acute and Delayed: Skin and eye irritation.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek immediate medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Negligible fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:

Suitable: Regular dry chemical, carbon dioxide, and water.

Unsuitable: None listed.

Specific Hazards Arising from the Chemical: Miscellaneous decomposition products.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 3

Fire = 0

Reactivity = 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Do not touch spilled material. Notify safety personnel of spills. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry.

7. HANDLING AND STORAGE

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

Storage: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, "Stability and Reactivity").

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

OSHA (PEL): 0.1 mg/m³ TWA (for all organic Sn compounds)
25 mg/m³ IDLH (as Sn)

NIOSH (REL): 0.1 mg/m³ TWA (skin, for organic Sn compounds except cyhexatin)

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eyewash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties	
Appearance (physical state, color, etc.)	white powder
Molecular Formula	C ₂₄ H ₄₈ O ₄ Sn
Molar Mass (g/mol)	519.3
Odor	odorless
Odor threshold (mg/m ³)	not available
pH	not available
Evaporation rate	not available
Melting point/freezing point	54.2 °C to 57.9 °C (130 °F to 136 °F)
Relative Density	not available
Vapor Pressure	4 Pa @ 20°C
Vapor Density (air = 1)	17.9
Viscosity	not available
Solubility(ies)	insoluble in water
Partition coefficient (n-octanol/water)	log Kow = 2.64
Thermal Stability Properties	
Autoignition Temperature	not available
Thermal Decomposition	not available
Initial boiling point and boiling range	58 °C (136 °F)
Explosive Limits, LEL (Volume %)	not available
Explosive Limits, UEL (Volume %)	not available
Flash Point	118°C (244 °F)
Flammability (solid, gas)	not available

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Avoiding direct contact with material.

Incompatible Materials: Strong oxidizers.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Thermal decomposition will produce oxides of tin and carbon.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation X Skin X Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Skin and eye irritation.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Inhalation may result in upper respiratory tract irritation, cough, nausea, difficulty breathing, headache, lung congestion, and blood disorders. Long term exposure may result in liver damage.

Skin Contact: Skin contact may result in irritation.

Eye Contact: Direct contact with the eyes may cause irritation.

Ingestion: Ingestion may result in gastrointestinal irritation, vomiting, headache, drowsiness, dizziness, loss of coordination, blood disorders, kidney damage, and liver damage.

Numerical Measures of Toxicity

Acute Toxicity: Not classified.

Rat, Oral LD50: 2071 mg/kg

Rat, Dermal LD50: >2000 mg/kg

Skin Corrosion/Irritation: Category 2; skin irritation may occur.

Serious Eye Damage/Irritation: This SRM contains Category 2 skin irritant and is classified as a Category 2A, effects fully reverses within an observation period of normally 21 days.

Respiratory Sensitization: Not classified; no data available.

Skin Sensitization: Not classified.

Germ Cell Mutagenicity: Not classified; no data available.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen _____ Yes X No

Dibutyltin Bis(2-ethylhexanoate) is not listed by NTP, IARC or OSHA as carcinogens/potential carcinogens.

Reproductive Toxicity: Not classified; no data available.

Specific Target Organ Toxicity, Single Exposure: Not classified; no data available.

Specific Target Organ Toxicity, Repeated Exposure: Not classified; no data available.

Aspiration Hazard: No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Not regulated by DOT or IATA.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: Yes

CHRONIC HEALTH: No

FIRE: No

REACTIVE: No

PRESSURE: No

State Regulations: Not listed under California Proposition 65.

U.S. TSCA Inventory: Listed.

TSCA 12(b), Export Notification: Not listed.

Canadian Regulations: WHMIS Information is not provided for this material.

16. OTHER INFORMATION

Issue Date: 13 July 2015

Sources: ChemAdvisor, Inc., SDS *Dibutyltin Dilaurate*, 20 March 2015.

Eastman Kodak Company, Vendor MSDS, *Dibutyltin Bis(2-ethylhexanoate)*, 27 May 1981.

ChemIDplus Advanced, National Library of Medicine's TOXNET system, *Dibutyltin bis(2-ethylhexanoate)* CAS No. 2781-10-4; available at <http://chem.sis.nlm.nih.gov/chemidplus/> (accessed July 2015).

CDC, NIOSH Pocket Guide; *Tin (Organic Compounds, as Sn)*, 13 February 2015; available at <http://www.cdc.gov/niosh/npg/npgd0614.html> (accessed July 2015).

European Chemicals Agency (ECHA); Registered Substance, *Dibutyltin bis(2-ethylhexanoate)* CAS No. 2781-10-4; <http://echa.europa.eu/> (accessed July 2015).

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EC50	Effective Concentration, 50 %	RM	Reference Material
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration, 50 %	STEL	Short Term Exposure Limit
LD50	Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLm	Threshold Limit, median
MSDS	Material Safety Data Sheet	TLV	Threshold Limit Value
NFPA	National Fire Protection Association	TPQ	Threshold Planning Quantity
NIOSH	National Institute for Occupational Safety and Health	TSCA	Toxic Substances Control Act
NIST	National Institute of Standards and Technology	TWA	Time Weighted Average
n.o.s.	Not Otherwise Specified	UEL	Upper Explosive Limit
		WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.