

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 17g
SRM Name: Sucrose Optical Rotation
Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended primarily for use as a saccharimetry standard in calibrating polarimetric systems. A unit of this SRM 17g consists of one bottle containing 60 g of crystalline sucrose.

Company Information

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

Telephone: 301-975-2200
 E-mail: SRMMSDS@nist.gov
 Website: <https://www.nist.gov/srm>

Emergency Telephone ChemTrec:
 1-800-424-9300 (North America)
 +1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Note: This material is intended for laboratory use only; not for human consumption. SRM 17g is supplied in a small quantity and under normal laboratory conditions it does not constitute a combustible dust hazard. The physical properties of this material indicate that accumulated dust on surfaces generated where operations produce fine particulates, may lead to combustible dust concentrations in air.

Classification

Physical Hazard: Not classified.
Health Hazard: Not classified.

Label Elements

Symbol
 No Symbol

Signal Word
 No Signal Word

Hazard Statement(s): Not applicable.

Precautionary Statement(s): Not applicable.

Hazards Not Otherwise Classified: Not applicable.

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

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Sucrose

Other Designations: Table sugar; sugar; cane sugar; beta D fructofuranosyl alpha D glucopyranoside; C₁₂H₂₂O₁₁; D (+) sucrose.

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

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Sucrose	57-50-1	200-334-9	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. Thoroughly clean and dry contaminated clothing before reuse.

Eye Contact: Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

Ingestion: If adverse effects occur after ingestion, seek medical treatment.

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

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

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Avoid generating dust; sufficient concentrations of fine dust dispersed in air, and in the presence of an ignition source is a potential hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:

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

Unsuitable: None listed.

Specific Hazards Arising from the Chemical: None listed.

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).

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Any accumulated material on surfaces should be removed and properly disposed of. 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: Minimize dust generation and accumulation on surfaces. See Section 8, "Exposure Controls and Personal Protection".

Storage: Store and handling in accordance with all current regulations and standards. Keep separated from incompatible substances (oxidizing materials).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure to dust. No occupational exposure limits have been established for sucrose. The exposure limits for Particulates Not Otherwise Regulated are applicable.

OSHA (PEL): 15 mg/m³ (TWA, total particulates not otherwise regulated)

5 mg/m³ (TWA, respirable particulates not otherwise regulated)

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 eye wash 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:	Sucrose
Appearance (physical state, color, etc.):	white crystals
Molecular Formula:	C ₁₂ H ₂₂ O ₁₁
Molar Mass (g/mol):	342.30
Odor:	odorless
Odor threshold:	Not available
pH:	neutral in solution
Evaporation rate:	Not applicable
Melting point/freezing point (°C):	186°C (366°F) (decomposes)
Relative Density (g/L):	1.587 g/cc at 25 °C
Vapor Pressure (mmHg):	Not applicable
Vapor Density (air = 1):	Not applicable
Viscosity (cP):	Not applicable
Solubility(ies):	soluble in water, alcohol solutions and methanol; insoluble in ether, chloroform, ethanol and glycerol
Partition coefficient (n-octanol/water):	Not available
Particle Size (if relevant)	Not Available
Thermal Stability Properties:	
Autoignition Temperature (°C):	350°C (662°F)
Thermal Decomposition (°C):	160–186 °C (320–367 °F)
Initial boiling point and boiling range (°C):	Not applicable
Explosive Limits, LEL (Volume %):	0.045 g/L, fine airborne dust
Explosive Limits, UEL (Volume %):	Not available
Flash Point (°C)	Not available
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: Avoid generating dust. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials: Oxidizing materials and acids.

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

Hazardous Decomposition: Thermal decomposition will produce oxides of carbon.

Hazardous Polymerization: Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: Inhalation Skin Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: No data available.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: No data available.

Skin Contact: No data available; skin exposure may result in mechanical irritation.

Eye Contact: No data available; may cause mechanical irritation.

Ingestion: No data available.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified; no data available.

Rat, Oral LD₅₀: 29 700 mg/kg

Skin Corrosion/Irritation: Not classified.

Serious Eye damage/ Eye irritation: Not classified.

Respiratory Sensitization: Not classified.

Skin Sensitization: Not classified.

Germ Cell Mutagenicity: Not classified.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen Yes No
Sucrose is not listed by NTP, IARC or OSHA as a carcinogen.

Reproductive Toxicity: Not classified.

Reproductive: Rat, Oral (1 d to 21 d pregnant and 21 d after birth) TDLo: 683 g/kg

Mutagenic: Hamster (cytogenetic analysis) 275 mmol/L; 10 g/L

Specific Target Organ Toxicity, Single Exposure: Not classified.

Specific Target Organ Toxicity, Repeated Exposure: Not classified.

Aspiration Hazard: Not classified.

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: No.
CHRONIC HEALTH: No.
FIRE: No.
REACTIVE: No.
PRESSURE: No.

State Regulations:

California Proposition 65: Not listed.

U.S. TSCA Inventory: Listed.

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

Canadian Regulations:

WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 06 December 2021

Sources: ChemAdvisor, Inc., MSDS *Sucrose*, 13 March 2013

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates not otherwise regulated*, 30 October 2019; available at <https://www.cdc.gov/niosh/npng/npngd0480.html> (accessed Dec 2021).

Vendor SDS, Sigma-Aldrich, *Sucrose*, 17 April 2021.

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
ALI	Annual Limit on Intake	OSHA	Occupational Safety and Health Administration
CAS	Chemical Abstracts Service	PEL	Permissible Exposure Limit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
CFR	Code of Federal Regulations	REL	Recommended Exposure Limit
DOT	Department of Transportation	RM	Reference Material
EC50	Effective Concentration, 50 %	RQ	Reportable Quantity
EINECS	European Inventory of Existing Commercial Chemical Substances	RTECS	Registry of Toxic Effects of Chemical Substances
EPCRA	Emergency Planning and Community Right-to-Know Act	SARA	Superfund Amendments and Reauthorization Act
IARC	International Agency for Research on Cancer	SCBA	Self-Contained Breathing Apparatus
IATA	International Air Transportation Agency	SRM	Standard Reference Material
IDLH	Immediately Dangerous to Life and Health	STEL	Short Term Exposure Limit
LC50	Lethal Concentration, 50 %	TLV	Threshold Limit Value
LD50	Lethal Dose, 50 %	TPQ	Threshold Planning Quantity
LEL	Lower Explosive Limit	TSCA	Toxic Substances Control Act
MSDS	Material Safety Data Sheet	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System
NRC	Nuclear Regulatory Commission		

Disclaimer: The NIST SDS information is specific to the NIST product and is believed to be correct, based upon our current knowledge. The SDS may not necessarily be all inclusive and should be used only as a guide. NIST does not guarantee the accuracy or completeness of this information. The only official source for specific values and uncertainties is the certificate or report.

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; e-mail srmmsds@nist.gov; or via the Internet at <https://www.nist.gov/srm>.