

## SAFETY DATA SHEET

### 1. SUBSTANCE AND SOURCE IDENTIFICATION

#### Product Identifier

**RM Number:** 8545  
**RM Name:** LSVEC (Carbon, Oxygen, and Lithium Isotopes in Lithium Carbonate)  
**Other Means of Identification:** Not applicable.

#### Recommended Use of This Material and Restrictions of Use

This Reference Material (RM) is an international measurement standard that defines the isotopically light end of the Vienna PeeDee Belemnite-Li SVEC (VPDB-LSVEC)  $\delta$ -scale for isotope-number ratios of carbon (C). A unit of RM 8545 consists of one bottle containing approximately 0.4 g of lithium carbonate.

#### 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  
 FAX: 301-948-3730  
 E-mail: SRMMSDS@nist.gov  
 Website: <http://www.nist.gov/srm>

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

### 2. HAZARDS IDENTIFICATION

#### Classification

<b>Physical Hazard:</b>	Not classified.	
<b>Health Hazard:</b>	Acute Toxicity, Oral	Category 4
	Eye Irritation	Category 2B

#### Label Elements

##### Symbol



#### Signal Word

WARNING

#### Hazard Statement(s):

H302	Harmful if swallowed.
H319	Causes eye irritation.

#### Precautionary Statement(s):

P264	Wash hands thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P280	Wear protective gloves and eye protection.
P301+P312+P330	If swallowed: Call a doctor if you feel unwell. Rinse mouth.
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.
P501	Dispose of contents and container according to local regulations.

**Hazards Not Otherwise Classified:** Not applicable.

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

---

### 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

---

**Substance:** Lithium carbonate

**Other Designations:** Carbonic acid, dilithium salt; dilithium carbonate; lithonate; carbolith.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Lithium carbonate	554-13-2	209-062-5	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 swallowed, drink plenty of water, do not induce vomiting. Get immediate medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Nausea, vomiting, diarrhea, irregular or slow heartbeat, blurred vision, staggering, tremors, eye irritation.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms develop after exposure to this material, seek 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: Use extinguishing agents appropriate for the surrounding fire.

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).

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

Health = 2

Fire = 0

Reactivity = 0

---

### 6. ACCIDENTAL RELEASE MEASURES

---

**Personal Precautions, Protective Equipment and Emergency Procedures:** Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection". Keep out of water supplies and sewers.

**Methods and Materials for Containment and Clean up:** Collect spilled material in appropriate container for disposal.

---

### 7. HANDLING AND STORAGE

---

**Safe Handling Precautions:** Minimize dust generation. 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:** No occupational exposure limits have been established. The exposure limits for Particulates Not Otherwise Regulated are applicable.

OSHA (PEL): 15 mg/m<sup>3</sup> (TWA, total particulates)  
5 mg/m<sup>3</sup> (TWA, respirable particulates)

**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:

<b>Appearance</b> (physical state, color, etc.):	white powder
<b>Molecular Formula:</b>	Li <sub>2</sub> CO <sub>3</sub>
<b>Molar Mass (g/mol):</b>	73.89
<b>Odor:</b>	not available
<b>Odor threshold:</b>	not available
<b>pH (solution):</b>	11.2 (1 %)
<b>Evaporation rate:</b>	not applicable
<b>Melting point/freezing point (°C):</b>	723 (1333.4 °F)
<b>Specific Gravity (water = 1):</b>	2.11
<b>Vapor Pressure (mmHg):</b>	not applicable
<b>Vapor Density (air = 1):</b>	not applicable
<b>Viscosity (cP):</b>	not applicable
<b>Solubility(ies):</b>	water solubility 1.54 % at 0 °C; insoluble in alcohol, ammonia, and acetone
<b>Partition coefficient (n-octanol/water):</b>	not available
<b>Particle Size (if relevant):</b>	not available

### Thermal Stability Properties:

<b>Autoignition Temperature (°C):</b>	not applicable
<b>Thermal Decomposition (°C):</b>	not available
<b>Initial boiling point and boiling range:</b>	not available
<b>Explosive Limits, LEL (Volume %):</b>	not applicable
<b>Explosive Limits, UEL (Volume %):</b>	not applicable
<b>Flash Point (°C):</b>	not applicable
<b>Flammability (solid, gas):</b>	not available

---

## 10. STABILITY AND REACTIVITY

---

**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**       X       Stable                Unstable

**Possible Hazardous Reactions:** May react violently with strong acids.

**Conditions to Avoid:** Avoid heat, flames, sparks and other sources of ignition. Avoid generating dust. Keep out of water supplies and sewers.

**Incompatible Materials:** Acids, metals, halogens.

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

**Hazardous Decomposition:** Thermal decomposition will produce oxides of lithium 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:** Gastrointestinal upset, irregular or slow heartbeat, neurological affects, eye irritation.

**Potential Health Effects (Acute, Chronic and Delayed):**

**Inhalation:** Acute exposure to dusts may cause coughing, sore throat and irritation. No data available for chronic inhalation.

**Skin Contact:** Acute exposure of to the skin may cause mild irritation and redness. No data available for chronic exposure.

**Eye Contact:** Acute exposure may cause irritation, with redness and pain. Repeated and prolonged exposure to irritants in general may cause conjunctivitis.

**Ingestion:**

Acute exposure: Ingestion of large amounts may cause severe gastroenteritis, affect the central nervous system, renal function and fluid electrolyte balance, and cardiac function. Major symptoms, some of which may be delayed, include: nausea, vomiting, diarrhea, blurred vision, drowsiness, tremor, bradycardia (slow heartbeat), renal failure and coma. Overdose survivors have suffered permanent neurological effects such as Parkinsonism.

Chronic exposure: Repeated ingestion of large doses may result in symptoms similar to those listed under "acute exposure", as well as changes in vision (including blindness), cardiac arrhythmias, leukocytosis, hyperthyroidism, transitory nephrotic syndrome, and osteoporosis. Studies of women who have been treated medically with lithium carbonate have shown that lithium readily crosses the placental barrier during pregnancy, and is excreted in breast milk.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Oral Category 4.

Rat, Oral LD50: 640 mg/kg

Rat, Inhalation, TCLo: >2.17 mg/L (4 h)

**Skin Corrosion/Irritation:** Not classified.

Rabbit, Dermal (mild): 500 mg (4 h)

**Serious Eye Damage/Eye Irritation:** Category 2B.

Rabbit, Eyes (mild): 100 mg

Animal studies have reported mild irritation that was fully reversible within between four and seven days.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified.

Rat: 420 g/kg 12 weeks (continuous)

**Carcinogenicity:** Not classified.

**Listed as a Carcinogen/Potential Carcinogen**      \_\_\_\_\_ Yes       X  No

Lithium carbonate is not listed by IARC, NTP or OSHA as a carcinogen/potential carcinogen.

**Tumorigenic:**

Woman, Oral TDLo: 3600 mg/kg (21 week)

**Reproductive Toxicity:** Not classified.

Rat, Oral TDLo: 600 mg/kg (pregnant 9 to 14 d)

Woman, Oral TDLo: 3072 mg/kg (pregnant 1 to 37 week)

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

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

**Aspiration Hazard:** Not classified; no data available.

---

## 12. ECOLOGICAL INFORMATION

---

**Ecotoxicity Data:** No data available.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No bioaccumulation expected.

**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): Regulated 1 % de minimis concentration.

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: Yes.

FIRE: No.

REACTIVE: No.

PRESSURE: No.

### State Regulations:

California Proposition 65: WARNING! This product contains a chemical (lithium carbonate) known to the State of California to cause developmental effects.

**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:** 19 November 2014

**Sources:** ChemAdvisor, Inc., SDS *Lithium Carbonate*, 10 September 2014.

Hazardous Substances Data Bank, National Library of Medicine's TOXNET System, *Lithium Carbonate* CAS# 554-13-2, Full Record, available at <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB> (accessed Nov 2014).

Center for Disease Control (CDC), NIOSH Pocket Guide to Chemical Hazards, *Particulates Not Otherwise Regulated*, 04 April 2011, available at <http://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Nov 2014).

European Chemical Agency, Registered substances, *Lithium Carbonate*, CAS No. 554-13-2, available at <http://echa.europa.eu/information-on-chemicals> (accessed Nov 2014).

Environmental Protection Agency (EPA), ECOTOX database, *Lithium Carbonate*, CAS No. 554-13-2, available at <http://cfpub.epa.gov/ecotox/> (accessed Nov 2014).

### Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NIOSH	National Institute for Occupational Safety and Health
ALI	Annual Limit on Intake	NIST	National Institute of Standards and Technology
CAS	Chemical Abstracts Service	NRC	Nuclear Regulatory Commission
CEN	European Committee for Standardization	NTP	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	OSHA	Occupational Safety and Health Administration
CFR	Code of Federal Regulations	PEL	Permissible Exposure Limit
CPSU	Coal Mine Dust Personal Sample Unit	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
ISO	International Organization for Standardization	STEL	Short Term Exposure Limit
LC50	Lethal Concentration, 50 %	TDLo	Toxic Dose Low
LD50	Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
MSHA	Mine Safety and Health Administration	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 reference values for this material are given in the NIST Report of Investigation.

Users of this RM 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](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.