

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

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

SRM Number: 1969
MSDS Number: 1969
SRM Name: Rubidium Triple-Point
Standard

Date of Issue: 06 June 2012

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Description: This Standard Reference Material (SRM) is to be used to calibrate thermometers near 39.30 °C. SRM 1969 consists of approximately 154 grams of 99.9+ % pure rubidium in all-welded AISI 304 stainless steel cell.

Substance: Rubidium encased in a stainless steel cell

2. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 3 Fire = 3 Reactivity = 2

Note: This SRM is an article, as the word is defined by the Occupational Safety and Health Administration of the U.S. Department of Labor in paragraph (c) of part 1910.1200 of title 29 of the Code of Federal Regulations (29 CFR 1910.1200). This material safety data sheet addresses the hazards of the rubidium component of the article and is provided for information purposes.

Physical Hazards: Extremely flammable. May ignite spontaneously on exposure to air. Reacts violently with water to generate toxic and/or flammable gases.

Major Health Hazards: Respiratory tract burns, skin burns, eye burns, mucous membrane burns.

Potential Health Effects

Inhalation: On contact with moisture, rubidium releases flammable hydrogen gas and rubidium hydroxide, which is corrosive. Inhalation of corrosive substances may cause symptoms of respiratory tract irritation, possibly including coughing, choking, pain in the nose, mouth and throat and burns of the mucous membranes.

Skin Contact: Direct contact may cause severe pain, burns and possibly brownish stains.

Eye Contact: Direct contact may cause pain and burns. There may be edema, destruction of epithelium, corneal opacification and iritis.

Ingestion: Ingestion of rubidium may cause inflammatory and ulcerative changes in the mouth and possibly bronchial and gastrointestinal disturbances.

Listed as a Carcinogen/Potential Carcinogen

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u> X </u>

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component	CAS Number	EC Number (EINECS)	Nominal Concentration (%)
Rubidium	7440-17-7	231-126-6	100

EC Classification (assigned): Not determined.

EC Risk (R No.): None listed.

EC Safety (S No.): None listed.

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. Seek medical attention if needed.

Skin Contact: Wash exposed skin with copious amounts of water for at least 15 minutes. Remove any contaminated clothing.

Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: If swallowed, contact local poison control or seek medical attention. DO NOT induce vomiting. Give large amounts of water or milk.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Severe hazard. May ignite on exposure to air.

Extinguishing Media: Regular dry chemical, dry sand, lime, soda ash. Do not use water. Do not use foam.

Fire Fighting: Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): Not applicable.

Method Used: Not applicable.

Autoignition Temp. (°C): Not applicable.

Flammability Limits in Air

UPPER (Volume %): Not applicable.

LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Avoid heat, flames, sparks and other sources of ignition. Do not get water directly on material. Small liquid spills: Absorb with sand or other non-combustible material. Small dry spills: Collect material into suitable loosely covered container for disposal.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: The valve on the SRM 1969 cell should never be opened nor should the plug on the end of the stainless steel tube be removed. See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: No occupational limits established.

Ventilation: Use a local exhaust ventilation system.

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

Eye Protection: Wear safety goggles. An eyewash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and gloves to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid.

Appearance and Odor: White solid, no odor information available.

Molecular Formula: Rb

Molar mass (g/mol): 85.47

Specific Gravity (water = 1): 1.522 (18 °C)

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Melting Point °C: 39 (102 °F)

Boiling Point °C: 686 (1277 °F)

10. STABILITY AND REACTIVITY

Stability: X Stable Unstable

Reacts violently with water to generate toxic and/or flammable gases. May ignite on exposure to air.

Conditions to Avoid: Avoid contact with air. Keep dry. Keep out of water supplies and sewers.

Incompatible Materials: Halogens, oxidizing materials, metals, combustible materials, metal salts.

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

Hazardous Decomposition: Oxides of rubidium.

Hazardous Polymerization: Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: No information listed.

Target Organs: No information listed.

Medical Conditions Aggravated by Exposure: No information listed.

Mutagen/Teratogen: No information listed.

Health Effects (Acute and Chronic): See Section 2, "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No information listed.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations. Subject to disposal regulations: U.S EPA 40 CFR 262. Hazardous Waste Numbers: D001, D003.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Rubidium, UN Number 1423, Hazard Class 4.4, Packing Group I.

15. REGULATORY INFORMATION

U.S.: REGULATIONS

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

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

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

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

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

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: No

PRESSURE: Yes

STATE REGULATIONS:

California Proposition 65: Not listed.

CANADIAN REGULATIONS:

WHMIS Information: Not provided for this material.

EUROPEAN REGULATIONS

EC Classification: Not determined.

EC Risk Phrases: None listed.

EC Safety Phrases: None listed.

NATIONAL INVENTORY STATUS:

U.S. Inventory (TSCA): Listed on inventory.

TSCA 12 (b) Export Notification: Not listed.

16. OTHER INFORMATION

Sources: ChemADVISOR, Inc., MSDS *Rubidium*, 20 December 2011.

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