

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 979
SRM Name: Isotopic Standard for Chromium
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 an assay and isotopic standard for chromium. A unit of SRM 979 consists of 0.25 g of hydrated chromium nitrate.

Company Information

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2. HAZARDS IDENTIFICATION

Classification

Physical Hazard:	Oxidizing Solid	Category 3
Health Hazard:	Skin Corrosion/Irritation	Category 2
	Serious Eye Damage/Eye irritation	Category 2A

Label Elements

Symbol



Signal Word

WARNING

Hazard Statement(s)

H272 May intensify fire; oxidizer.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.

Precautionary Statement(s)

P210 Keep away from heat.
 P220 Keep away from clothing and combustible materials.
 P221 Take any precautions to avoid mixing with combustibles.
 P264 Wash thoroughly after handling.
 P280 Wear protective gloves, eye protection, and protective clothing.
 P302+P352 If on skin: Wash with plenty of soap and water.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P332+P313 If skin irritation occurs: Get medical attention.
 P337+P313 If eye irritation persists: Get medical attention.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P501 Dispose of contents and container in accordance with local regulations.

Hazards Not Otherwise Classified: None.

Ingredients(s) with Unknown Acute Toxicity: None.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Hydrated chromium nitrate

Other Designations: Chromium nitrate nonahydrate; chromic nitrate; chromium trinitrate nonahydrate; nitric acid, chromium (3+) salt, nonahydrate; chromium (III) nitrate nonahydrate

NOTE: Components are listed in compliance with OSHA's 29 CFR 1910.1200. For actual values, see the NIST Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Hydrated chromium nitrate	7789-02-8	616-540-0	100

4. FIRST AID MEASURES

Description of First Aid Measures

Inhalation: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

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

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

Ingestion: If a large amount is swallowed, get medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Respiratory tract irritation, skin irritation, eye irritation, blood damage, allergic reactions.

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. Oxidizer. May ignite or explode on contact with combustible materials. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media

Suitable: Use water or extinguishing agents most appropriate for surround fire.

Unsuitable: None listed.

Specific Hazards Arising from the Chemical: Not applicable.

Special Protective Equipment and Precautions for Fire-Fighters: Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by-products. 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: Avoid contact with combustible materials. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Collect spilled material in appropriate container for disposal. Do not touch spilled material. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

Safe Handling Precautions: Use methods to minimize dust. See Section 8, "Exposure Controls and Personal Protection".

Storage and Incompatible Materials: Keep container tightly closed. Store in a cool, dry place. Keep separated from incompatible substances (See Section 10, "Stability and Reactivity").

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: [related to Chromium(III) compounds]

OSHA (PEL): 0.5 mg/m³ (TWA)

NIOSH (REL): 0.5 mg/m³ (TWA)
25 mg/m³ (IDLH)

ACGIH (TLV): No occupational exposure limits established.

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

Personal Protection Measures: 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 Protection: Splash resistant safety goggles and emergency eyewash are recommended.

Skin and Body Protection: Chemical resistant clothing and gloves are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Hydrated chromium nitrate
Molar Mass (g/mol)	400.2
Molecular Formula	Cr(NO ₃) ₃ • 9H ₂ O
Appearance (physical state, color, etc.)	purple, crystals
Odor	odorless
Odor threshold	not available
pH	not available
Evaporation rate (butyl acetate = 1)	not available
Melting point/freezing point	60 °C (140 °F)
Density	1.80 g/mL
Vapor Pressure	negligible
Vapor Density (air = 1)	not available
Viscosity	not available
Solubilities	soluble in water, alcohol, acids, alkali, acetone
Partition coefficient (n-octanol/water)	not available
Thermal Stability Properties	
Autoignition Temperature	not available
Thermal Decomposition	100 °C (212 °F)
Initial boiling point and boiling range	not available
Explosive Limits, LEL (Volume %)	not available
Explosive Limits, UEL (Volume %)	not available
Flash Point (Closed Cup)	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: Not applicable.

Conditions to Avoid: Avoid contact with combustible materials. May ignite or explode on contact with combustible materials. Keep out of water supplies and sewers.

Incompatible Materials: Combustible materials, acids, metal salts, reducing agents, metals.

Hazardous Decomposition: Oxides of nitrogen, chromium compounds.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation X Skin _____ Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Respiratory tract irritation, skin irritation, eye irritation, blood damage, allergic reactions.

Potential Health Effects (Acute, Chronic, and Delayed)

Inhalation: Exposure may cause irritation (possibly severe), allergic reactions, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, bluish skin color, lung congestion, blood disorder, and convulsions.

Skin Contact: Exposure may cause irritation (possibly severe) with possible burns. Repeated or prolonged exposure may result in contact dermatitis due to sensitization.

Eye Contact: Eye contact may cause irritation (possibly severe) with possible burns. Repeated or prolonged exposure may cause conjunctivitis, tearing, and permanent corneal opacification.

Ingestion: Ingestion of an extremely large dose may cause gastrointestinal irritation with nausea, vomiting, and diarrhea.

Numerical Measures of Toxicity

Acute Toxicity: Not classified.

Rat, Oral LD50: 3250 mg/kg

Skin Corrosion/Irritation: Category 2; may cause skin irritation (possibly severe) with possible burns.

Serious Eye Damage/Eye Irritation: Category 2A; may cause eye irritation (possibly severe) with possible burns.

Respiratory Sensitization: Not classified; no data available.

Skin Sensitization: Not classified; no data available.

Germ Cell Mutagenicity: Not classified; no data available.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen _____ Yes X No

Hydrated chromium nitrate is listed by IARC as Group3 (not classifiable) and is not listed by NTP or OSHA as a carcinogen.

Mutagenic: Human TC: 1 mmol/L, 100 µmol/L (72 h)

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: Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No ecotoxicity 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 in accordance with all applicable federal, state, and local requirements. Dispose of in accordance with U.S. EPA CFR 262 for concentrations at or above the Regulatory level of 5.0 mg/L. Hazardous Waste Numbers: D001, D007.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: UN 2720, Chromium nitrate, Hazard Class 5.1, Packing Group III, Excepted Qty: E1.

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): 1.0 % 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:	Yes
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: 01 April 2014

Sources: ChemADVISOR, Inc., MSDS *Chromic Nitrate Nonahydrate*, 23 December 2013.
Vendor MSDS, J.T. Baker chemical Co., *Chromium Nitrate, 9-Hydrate*, 10 October 1985.

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	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
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	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or 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
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
n.o.s.	Not Otherwise Specified		

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 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>.