

## SAFETY DATA SHEET

### 1. SUBSTANCE AND SOURCE IDENTIFICATION

**Product Identifier**

**SRM Number:** 690  
**SRM Name:** Iron Ore Concentrate (Canada)  
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is in the form of powder (< 0.1 mm), intended primarily for the evaluation chemical and instrumental methods of analysis. A unit of SRM 690 consists of one bottle containing approximately 100 g of powder with < 74 µm (– 200 mesh) particle sizes.

**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 processed material is intended for laboratory use only. This SRM is a refined powder that consists of reduced iron and under normal laboratory conditions it does not constitute a combustible dust hazard.

**Classification**

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

**Label Elements**

**Symbol**  
 No Symbol/Pictogram

**Signal Word**  
 Not applicable.

**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:** Sponge/pig iron powder

**Other Designations:** Reduced iron; pig iron; iron, furnace.

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 (%) |
|------------------------|------------|--------------------|--------------------------------|
| Iron, Furnace          | 65996-67-0 | 265-998-4          | 100                            |

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## 4. FIRST AID MEASURES

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### 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:** May cause 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.

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## 5. FIRE FIGHTING MEASURES

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**Fire and Explosion Hazards:** Slight fire hazard. Avoid generating dust. See Section 9, "Physical and Chemical Properties" for flammability properties.

### Extinguishing Media:

Suitable: Dolomite, dry sand, soda ash, sodium chloride.

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 = 1

Fire = 0

Reactivity = 0

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## 6. ACCIDENTAL RELEASE MEASURES

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**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. Clean up residue with a high-efficiency particulate filter vacuum. Isolate hazard area and deny entry.

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## 7. HANDLING AND STORAGE

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**Safe Handling Precautions:** Minimize dust generation and accumulation on surfaces. Routine housekeeping should be instituted to ensure that dusts do not accumulate 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).

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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

OSHA (PEL): 15 mg/m<sup>3</sup> (TWA, total particulates not otherwise regulated)

5 mg/m<sup>3</sup> (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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Descriptive Properties:

|   |                    |
|---|--------------------|
| <b>Appearance</b><br>(physical state, color, etc.): | Not available      |
| <b>Molecular Formula:</b>                           | Not applicable     |
| <b>Molar Mass (g/mol):</b>                          | Not applicable     |
| <b>Odor:</b>  | Not available      |
| <b>Odor threshold:</b>                              | Not available      |
| <b>pH:</b>  | Not available      |
| <b>Evaporation rate:</b>                            | Not applicable     |
| <b>Melting point/freezing point (°C):</b>           | Not available      |
| <b>Relative Density (g/L):</b>                      | Not available      |
| <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>                             | Insoluble in water |
| <b>Partition coefficient (n-octanol/water):</b>     | Not available      |
| <b>Particle Size (if relevant)</b>                  | <74 µm             |

### Thermal Stability Properties:

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

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## 10. STABILITY AND REACTIVITY

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**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, combustible materials, halogens, acids, peroxides, metals, bases.

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

**Hazardous Decomposition:** Thermal decomposition will produce oxides of iron, iron.

**Hazardous Polymerization:**        Will Occur   X   Will Not Occur

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## 11. TOXICOLOGICAL INFORMATION

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**Route of Exposure:**  Inhalation  Skin  Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** May cause irritation if inhaled.

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

**Inhalation:** Dust may cause mucous membrane and respiratory irritation due to mechanical action.

**Skin Contact:** May cause mechanical irritation.

**Eye Contact:** No data available.

**Ingestion:** No data available.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Not classified.

Rat, Oral LD50: 30 000 mg/kg

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye damage/ Eye irritation:** Not classified; no data available.

**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  No  
Iron, furnace is not listed by NTP, IARC or OSHA as a carcinogen.

**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 classified; no data available.

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## 12. ECOLOGICAL INFORMATION

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**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.

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## 13. DISPOSAL CONSIDERATIONS

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

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## 14. TRANSPORTATION INFORMATION

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

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## 15. REGULATORY INFORMATION

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**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:** Iron, furnace is listed.

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

**Canadian Regulations:**

WHMIS Information: Not provided for this material.

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**16. OTHER INFORMATION**

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**Issue Date:** 01 March 2021

**Sources:** ChemAdvisor, Inc., MSDS *Iron, Furnace*, 31 August 2009.

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*, 4 April 2011; available at <https://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Mar 2021).

**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 Level                       |
| 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 Transport Association                               | SCBA  | Self-Contained Breathing Apparatus               |
| IDLH   | Immediately Dangerous to Life and Health                              | SRM   | Standard Reference Material                      |
| LC50   | Lethal Concentration, 50 %  | STEL  | Short Term Exposure Level                        |
| 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                            |
| 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 |

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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](mailto:srmmsds@nist.gov); or via the Internet at <https://www.nist.gov/srm>.