MATERIAL SAFETY DATA SHEET

1. Substance and Source Identification

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

SRM Number: 114q
MSDS Number: 114q
SRM Name: Portland Cement Fineness Standard

Date of Issue: 07 May 2012

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Description: This Standard Reference Material (SRM) is intended for use in calibrating fineness equipment according to ASTM Standard Methods. The SRM unit consists of 20 glass vials with plastic caps containing powdered cement (each vial is contained in a sealed foil bag). Each vial contains approximately 5 g of cement ground to pass a 45 μm (No. 325) sieve.

Substance: Portland cement

Other Designations: Hydraulic cement; cement (portland); silicate, portland cement; portland cement silicate.

2. Hazards Identification

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

Note: The Certificate of Analysis reports the concentrations of the individual constituents as oxides. The oxides are not freely available in the material as sold. The health and safety information provided in this MSDS are for portland cement, not the individual constituents.

Major Health Hazards: Eye irritation and skin irritation.

Physical Hazards: There are no known physical hazards associated with this material.

Potential Health Effects (Acute and Chronic)

Inhalation: Irritation, difficulty breathing and lung damage. Prolonged exposure may cause cough accompanied by phlegm.

Skin Contact: Irritation (possibly severe) and dermatitis. Sensitivity to constituents of cement may induce allergic skin reactions.

Eye Contact: Irritation, visual disturbances, eye damage. In addition, wet cement may cause a burning sensation, corneal edema indicated by seeing halos around lights, and injury to the conjunctiva.

Ingestion: Irritation (long-term).

Listed as a Carcinogen/Potential Carcinogen

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

3. Composition and Information on Hazardous Ingredients

Component	CAS Number	EC Number (EINECS)	Nominal Concentration (%)
Portland cement	65997-15-1	266-043-4	100

EC Classification: Not classified.

EC Risk (R No) and EC Safety (S No) Phrases: Not assigned.

4. First Aid Measures

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Seek immediate medical attention.

Skin Contact: Rinse affected area with soap and water for at least 15 minutes. Seek medical assistance if necessary.

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

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

5. Fire Fighting Measures

Fire and Explosion Hazards: Negligible fire hazard.

Extinguishing Media: Use extinguishing agents appropriate to surrounding fire.

Fire Fighting: Avoid inhalation of combustion by-products.

Flash Point (°C): Not applicable.
Method Used: Not applicable.

Autoignition Temperature (°C): Not applicable.

Flammability Limits in Air

UPPER (Volume %): Not applicable.
LOWER (Volume %): Not applicable.

6. Accidental Release Measures

Occupational Release: Collect in appropriate container for proper 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: See Section 8, "Exposure Controls and Personal Protection".

8. Exposure Controls and Personal Protection

Exposure Limits

OSHA (PEL):	15	mg/m^3	TWA (total dust)
	5	mg/m^3	TWA (respirable dust)
ACGIH (TLV):	1	mg/m^3	TWA (respirable fraction, particulate matter containing no asbestos and <1 % crystalline silica)
NIOSH (REL):	10	mg/m^3	TWA (total dust)
	5	mg/m^3	TWA (respirable dust)
	5000	mg/m^3	IDLH

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

Respirator: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29 CFR 1910.134 must be followed. Refer to NIOSH 24 CFR 84 for applicable certified respirators.

Eye Protection: Wear safety goggles. An eyewash station and drench shower should be readily available near the handling and use areas.

Personal Protection: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: White to gray, powder; odorless.
Molecular Formula: Not applicable.
Specific Gravity (water = 1): 3.15
Vapor Pressure: 0 mmHg at 20 °C
Melting Point: Not available.
Water Solubility: 0.1 % – 1.0 %
pH: 12 wet cement

10. STABILITY AND REACTIVITY

Stability: X Stable _____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid generating dust.

Incompatible Materials: No data available.

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

Hazardous Decomposition: Miscellaneous decomposition products.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: Rat, Oral LD_{50}: 500 mg/kg

No endpoints are listed by Registry of Toxic Effects of Chemical Substances (RTECS).

Health Effects: See Section 2, "Hazards Identification" for potential health effects.

Target Organs: Skin and eyes may be affected as described in Section 2, "Hazards Identification" for potential health effects.

Medical Conditions Aggravated by Exposure: Respiratory disorders.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No ecotoxicity 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 and 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:	Yes
CHRONIC HEALTH:	No
FIRE:	No
REACTIVE:	No
PRESSURE:	No

State Regulations:

California Proposition 65: Not listed.

Canadian Regulations:

WHMIS Information: Not provided for this material.

European Regulations

EC Classification: Not classified.

EC Risk and EC Safety Phrases: Not assigned.

National Inventory Status

U.S. Inventory (TSCA): Listed.

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

16. OTHER INFORMATION

Sources: ChemAdvisor, Inc., MSDS *Portland Cement*, 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 of Analysis.