

## **Hard-Cem**

### **MATERIAL SAFETY DATA SHEET**

#### **SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identity:** Hard-Cem

*NOTE: In the form in which it is sold this product is not regulated. This Material Safety Data Sheet is provided for information purposes only.*

<p><b>Manufacturer:</b> Cementec Industries Inc. 288, 200 Rivercrest Drive SE Calgary, Alberta T2C 2X5 Emergency Telephone: 403-720-6699</p>	<p><b>Supplier:</b> Cementec Industries Inc. 288, 200 Rivercrest Drive SE Calgary, Alberta T2C 2X5</p>	<p><b>MSDS Preparer:</b> Cementec Industries Inc. 288, 200 Rivercrest Drive SE Calgary, Alberta T2C 2X5</p>
--	--	---

**Date of MSDS Preparation:** December 20, 2004 (Updated August 20, 2008)

**Product Use:** Used in the production of Portland cement based concrete materials.

#### **SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS**

Ingredient	Approximate Percent by Weight	C.A.S. Number	Occupational Exposure Limits (OELs) (also see footnote)		LD <sub>50</sub> /LC <sub>50</sub> Species and Route
<b>Ferrous Granules*</b>	100	175448-53-0	OSHA PEL ACGIH TLV NIOSH REL	None established None established None established	No Data
<b><u>Consisting of:</u></b>					
Iron (as Iron Orthosilicate)	31 – 32 (as Fe)	13918-37-1	OSHA PEL ACGIH TLV NIOSH REL	None established None established None established	No Data
Calcium (as Calcium Silicate & Calcium Aluminate)	14 – 16 (as CaO)	12168-85-3 10034-77-2 12042-68-1	OSHA PEL ACGIH TLV NIOSH REL	15 mg/m <sup>3</sup> (total)/5 mg/m <sup>3</sup> (resp) 10 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> (total)/5 mg/m <sup>3</sup> (resp)	No Data
Zinc	2 – 3	7440-66-6	OSHA PEL ACGIH TLV NIOSH REL	None established None established None established	No Data
<b>Aluminum Salt</b>	1 – 5	10043-01-3	OSHA PEL ACGIH TLV NIOSH REL	None established 2 mg/m <sup>3</sup> 2 mg/m <sup>3</sup>	No Data
<b>Organic Modifier</b>	1 – 5	NA	OSHA PEL ACGIH TLV NIOSH REL	None established None established None established	No Data

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction. OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL – Occupational Exposure Limit, PEL – Permissible Exposure Limit, TLV – Threshold Limit Value, REL – Recommended Exposure Limit.

\*Under the Canadian Environmental Protection Act, New Substances Notification Regulations, Ferrous Granules is considered a single substance. Its associated CAS number is present on the Domestic Substances List. Under the U.S. Toxic Substances Control Act, Ferrous Granules is treated as a mixture of several components, each of which is present on the TSCA Chemical Inventory.

**Trade Names and Synonyms:** Hard-Cem

### SECTION 3. HAZARDS IDENTIFICATION

**Emergency Overview:** A black powder material that is not flammable or combustible. This product is relatively non-toxic and does not pose an immediate hazard to the health of emergency response personnel or to the environment in an emergency situation.

**Potential Health Effects:** Acute exposure to very dusty conditions may result in mild respiratory irritation and possible eye and skin irritation due to abrasion of the material on tissues. No chronic health effects have been identified for this material. None of the reportable constituents are currently identified as carcinogens by OSHA, ACGIH, IARC, NTP or the EU. (see Toxicological Information, Section 11)

**Potential Environmental Effects:** The product has a high degree of intrinsic chemical stability and is relatively non-toxic in the environment. Given its fine particle size, spilled material is readily subject to airborne transport and entrainment in runoff.

### SECTION 4. FIRST AID MEASURES

**Eye Contact:** Flush with warm, running water, including under the eyelids, to remove dust particle(s). If irritation persists seek medical attention.

**Skin Contact:** Remove contaminated clothing and wash affected area with soap and warm water. Seek medical attention if irritation develops or persists.

**Inhalation:** Remove victim from exposure area to fresh air. If breathing has stopped, give artificial respiration. Medical oxygen may be administered, if available, where breathing is difficult. If irritation persists or cough or other symptoms develop, seek medical attention.

**Ingestion:** If swallowed, no specific intervention is indicated as material is not likely to be hazardous by ingestion. However, consult a physician if necessary.

### SECTION 5. FIRE FIGHTING MEASURES

**Fire and Explosion Hazards:** This product is not considered a fire or explosion hazard.

**Extinguishing Media:** Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

**Fire Fighting:** As with any fire, fire fighters should be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face piece mask.

**Flashpoint and Method:** Not Applicable

**Upper and Lower Flammable Limit:** Not Applicable

**Autoignition Temperature:** Not Applicable

### SECTION 6. ACCIDENTAL RELEASE MEASURES

**Procedures for Cleanup:** Control source of spillage if possible to do so safely. Clean up spilled material immediately, observing precautions in Section 8, Personal Protection and using methods which will minimize dust generation (e.g., vacuum solids, dampen material and shovel or wet sweep). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable labeled containers for recovery or disposal. Treat or dispose of waste material in accordance with all local, regional, and national requirements.

**Personal Precautions:** Persons responding to an accidental release should wear protective clothing, gloves and a dust respirator (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust.

**Environmental Precautions:** Care should be taken to prevent the spillage of this product to aquatic and terrestrial environments. Measures to control dust generation from product spills should be applied in dry dusty locations.

## SECTION 7. HANDLING AND STORAGE

Material is to be stored in a dry enclosed area. Material is generally handled in packaged form.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Protective Clothing:** Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact. Appropriate eye protection should be worn where dust is generated. Safety type boots are recommended.

**Ventilation:** Use adequate local or general ventilation to maintain the concentration of dust in the work environment well below recommended occupational exposure limits.

**Respirators:** Where excessive dust is generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-95 particulate filter cartridge).

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b> Black Powder/Granular Material	<b>Odour:</b> None	<b>Physical State:</b> Solid	<b>pH:</b> Not Applicable
<b>Vapour Pressure:</b> Not Applicable	<b>Vapour Density:</b> Not Applicable	<b>Boiling Point/Range:</b> No Data	<b>Freezing/Melting Point/Range:</b> 1125 – 1150 °C
<b>Specific Gravity:</b> Approximately 3.5	<b>Evaporation Rate:</b> Not Applicable	<b>Coefficient of Water/Oil Distribution:</b> Not Applicable	<b>Odour Threshold:</b> Not Applicable
<b>Solubility in Water:</b> Insoluble	<b>Particle Size:</b> 50% < 100 microns		

## SECTION 10. STABILITY AND REACTIVITY

**Stability and Reactivity:** This material is stable and non-reactive under normal temperatures and pressures.

**Incompatibilities:** None have been identified.

**Hazardous Decomposition Products:** Iron oxides and minor amounts of zinc oxide fume may be liberated when in the molten state.

## SECTION 11. TOXICOLOGICAL INFORMATION

**General:** In the powder form in which this material is sold it is relatively non-toxic. Normal handling should not cause either acute or chronic health effects.

### Acute:

**Skin/Eye:** Eye or skin contact with material may cause local irritation due to the mechanical abrasion of the particles but would not cause tissue damage.

**Inhalation:** High concentrations of airborne dust may be irritating to the nose, throat and respiratory passages. Lead and any other heavy metals are present at very low concentrations (i.e. <0.1%) and in insoluble forms. Therefore, except under the most extreme conditions of overexposure, they are unlikely to represent a potential health risk. The major route of potential exposure would be through the generation and inhalation of fumes from molten material. Such fumes would contain principally iron oxides as well as some zinc oxide. The inhalation of iron oxide fume can lead to pulmonary siderosis, a relatively benign pneumoconiosis in which pulmonary reaction is minimal. If excessive quantities of zinc oxide fume are inhaled, it can result in a condition called metal fume fever. The symptoms of metal fume fever will occur within 3 to 10 hours, and include immediate dryness and irritation of the

throat, tightness of the chest, and coughing which may later be followed by flu-like symptoms of fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea, and vomiting. The symptoms are temporary and generally disappear, without medical intervention, within 24 to 48 hours of onset. There are no recognized complications, after affects, or chronic affects that result from this condition.

**Ingestion:** The constituents of HARD-CEM have minimal oral toxicity. The lead content is sufficiently low and in an insoluble form so that acute lead poisoning would be extremely unlikely.

**Chronic:** No chronic health effects have been identified from the inhalation or ingestion of the material. There is no chronic form of metal fume fever but in rare instances an acute incident may be followed by complaints such as bronchitis or pneumonia. Chronic lead intoxication is extremely unlikely due to the very low lead content and the insoluble form of the lead present (lead silicate). None of the reportable constituents of HARD-CEM are listed as human carcinogens by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH) or the European Union (EU).

## SECTION 12. ECOLOGICAL INFORMATION

The principle constituents of this product are chemically stable and, as such, it will be relatively inert in the environment. However, small quantities of metals (copper, lead and zinc) may be present in runoff or drainage from spilled material in forms which are mainly non-bioavailable. Its primary ecological properties are those commonly associated with fine particulates.

## SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

## SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME .....	Not regulated.
TRANSPORT CANADA CLASSIFICATION.....	Not applicable.
US DOT HAZARD CLASSIFICATION .....	Not applicable.
TRANSPORT CANADA PRODUCT IDENTIFICATION NUMBER .....	Not applicable.
US DOT PRODUCT IDENTIFICATION NUMBER.....	Not applicable.
MARINE POLLUTANT .....	No.
IMO CLASSIFICATION.....	Not applicable.

## SECTION 15. REGULATORY INFORMATION

### U.S.

INGREDIENTS LISTED ON TSCA INVENTORY .....	Yes
HAZARDOUS UNDER HAZARD COMMUNICATION STANDARD.....	No
CERCLA SECTION 103 HAZARDOUS SUBSTANCES .....	Zinc ..... Yes ..... RQ: 1,000 lb.
EPCRA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE .....	No ingredients apply.
EPCRA SECTION 311/312 HAZARD CATEGORIES.....	No hazard categories apply.
EPCRA SECTION 313 TOXIC RELEASE INVENTORY	
CALIFORNIA PROPOSITION 65 .....	WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

This product contains reportable levels of the following toxic chemicals subject to the Toxic Release Reporting Requirements:  
..... Zinc (as by-product Dust or Fume)  
Percent by Weight: 2-3%  
CAS No. 7440-66-6

### CANADIAN:

LISTED ON THE DOMESTIC SUBSTANCES LIST .....	Yes
WHMIS CLASSIFICATION: .....	Not a Controlled Product.

## SECTION 16. OTHER INFORMATION

The information in this Material Safety Data Sheet is based on the following references:

American Conference of Governmental Industrial Hygienists, 1991, Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition plus supplements.  
American Conference of Governmental Industrial Hygienists, 2000, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.  
Canadian Centre for Occupational Health and Safety (CCOHS) CHEMpendium Chemical Information Data Base, Disk A2 (2000-2).  
Clayton and Clayton, 1994, Patty's Industrial Hygiene and Toxicology, Fourth Edition.  
Industry Canada, SOR/88-66, Controlled Products Regulations, as amended.  
Merck & Co., Inc., 1983, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Tenth Edition.  
Sax, N. Irving, 1989, Dangerous Properties of Industrial Materials, Seventh Edition.  
Urban, P. G., 1995, Bretherick's Handbook of Reactive Chemical Hazards, Fifth Edition.  
U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, 1990, NIOSH Pocket Guide to Chemical Hazards. CD-ROM Edition DHHS(NIOSH) Publication No 99-115, April 1999

**Notice to Reader**

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Cementec Industries Inc. extends no warranty and assumes no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This material safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.