

**1. Identification of the Substance and Company**

Product name: **PRESEED<sup>TM</sup> CONDITIONER**

Product use: Additive to metal in iron foundries

Address/Phone No.: **Elkem Metals Company – HQ LP**  
P.O. Box 266  
Pittsburgh, PA 15230  
Telephone: 412-299-7200 800-873-5536

Contact person: David Renfrew ([dave.renfrew@elkem.com](mailto:dave.renfrew@elkem.com))

Emergency Phone No.: Chemtrec: 800-424-9300

**2. Composition/Information on Ingredients**

Synonyms: Ferrosilicon, Zirconium Ferrosilicon  
IUPAC-name: Ferrosilicon

CAS No.: 8049-17-0

HAZARDOUS INGREDIENT(S): None

Constituents (analysis):	Weight%
Silicon (Si)	62 - 69
Zirconium (Zr)	3 - 5
Aluminium (Al)	3 - 5
Calcium (Ca)	0.6 - 1.9
Iron (Fe)	10 - 38

**3. Hazards Identification**

The product does not represent a hazard to health, safety or environment when handled and stored as advised. See section 7.

Flammable and noxious gases may be formed in contact with moisture, acids or bases. See section 10 and 11. Dust suspended in air may under certain conditions cause dust explosions. See section 10.

© COPYRIGHT ELKEM AS 2005

#### 4. First Aid Measures

Inhalation: For relief of irritation caused by dust, move individuals to fresh air. See a physician on persistent feeling of discomfort. Phosphine/arsine intoxication: Seek medical attention. (See section 11).  
Skin contact: Wash skin with water and/or a mild detergent.  
Eye contact: Rinse eyes with water/saline solution. See a physician on persistent feeling of discomfort.  
Ingestion: Ingestion of PRESEED™ CONDITIONER will not cause serious injury. See a physician as noted above.

#### 5. Fire Fighting Measures

Extinguishing media: Dry sand, CO<sub>2</sub> or dry powder.

Dry PRESEED™ CONDITIONER in the form of lumps or granules is not combustible.  
PRESEED™ CONDITIONER -dust suspended in air may under certain conditions cause dust explosions. (See section 10).

#### 6. Accidental Release Measures

Dry material should be collected in suitable containers. Damp product must be kept away from dry, and must not be stored in closed containers. Dry dust can be swept up in a manner that minimizes concentration of air born dust. (See Section 5.)

#### 7. Handling and Storage

Handling: Avoid handling that generates dust build-up. Avoid inhalation of dust. (See section 8). Avoid ignition sources (e.g. welding) in areas with high dust concentrations. Addition of wet PRESEED™ CONDITIONER to molten metal may cause explosions. (See section 10).  
Storage: PRESEED™ CONDITIONER must be kept in a dry and well-ventilated place, and away from acids and bases.

#### 8. Exposure Controls/Personal Protection

##### A. Occupational exposure controls

Protective gloves, eye protection, eye flushing facilities and respiratory protection are recommended. Avoid inhalation of dust. Avoid contact with skin and eyes. Wear an appropriate particulate respirator in accordance with 29 CFR 1910.134 or CSA Standard Z94.4-M1982 for dust exposure that may exceed exposure limits. If exposure to phosphine and arsine is suspected (see section 10) or if adequate ventilation is not possible (e.g. storage holds, bunkers etc.), a self-contained breathing apparatus or an air-supplied respirator is recommended.

Occupational Exposure Limits (OSHA and ACGIH <sup>1)</sup>, 2003):

	CAS Number	OSHA PEL	8 hr TWA mg/m <sup>3</sup> ACGIH <sup>1)</sup> TLV
PNOS <sup>2)</sup> Inhalable particles		15	10
PNOS Respirable particles		5	3
Phosphine (PH <sub>3</sub> )	[7803-51-2]	0.4	0.3
Arsine (AsH <sub>3</sub> )	[7784-42-1]	0.05	0.05

<sup>1)</sup>American Conference of Governmental Industrial Hygienists

<sup>2)</sup>Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOR per OSHA)

The low occupational exposure limit (OEL) for arsine gas is due to the evidence for carcinogenicity in humans of inorganic arsenic compounds in general (IARC). Elkem has devised a procedure (1994) for sampling and measuring of the workplace atmosphere.

The OEL for dust does not cover possible arsine/phosphine absorption from dust deposited on mucous membranes.

##### B. Environmental exposure controls (Commission Directive 1999/30/EC)

See Sections 6, 7 and 12.

## . Physical and Chemical Properties

Form	: Solid granules, powder or lump
Color	: Silvery gray, metallic surface.
Odor	: Odorless.
Solubility (Water)	: Insoluble/ slightly soluble.
Melting Point (Deg C)	: Melting range (°C): 1325 (liquidus), 1200(solidus).
Density (kg/m <sup>3</sup> )	: 1790 (approx. bulk density). : 3300 (approx. apparent density).

## 10. Stability and reactivity

### Conditions to avoid:

Avoid generating sparks and other ignition sources (e.g. welding) in areas with high dust concentrations. Particles of PRESEED™ CONDITIONER suspended in air at concentrations above 100-300 g/m<sup>3</sup> can cause dust explosions or deflagrations. For a given particle size, the ignition sensitivity and the violence of explosion decrease with decreasing Si/Fe ratio. Dust with Si/Fe ratio ≤2 and particle diameter >10 µm, is considered not to represent any danger of explosion. Addition of wet material to molten metal may cause explosions.

### Materials to avoid:

Water/humidity, acids and bases.

### Hazardous decomposition products:

Highly flammable hydrogen gas (H<sub>2</sub>) and the highly flammable and very toxic gases phosphine and arsine (garlic-like smell), both heavier than air, may be formed if the product gets in contact with moisture, acids or bases. A reaction with hydrofluoric acid (HF) or nitric acid (HNO<sub>3</sub>) leads to the formation of toxic gases such as silicon tetrafluoride (SiF<sub>4</sub>) or nitrous gases (NO<sub>x</sub>).

Wet product will form highly flammable hydrogen gas if added to molten metal, due to decomposition of water.

## 11. Toxicological Information

### Acute effects:

Inhalation:	If finely divided dust particles are created, these may irritate and dehydrate mucous membranes. Phosphine/arsine may be absorbed from dust deposited on mucous membranes. The toxic mechanism for phosphine is not clear. Phosphine irritates exposed mucous membranes, depresses the central nervous system (CNS) and can cause edema of the lungs. Acute, non-fatal poisoning with phosphine gives temporary effects, among others headache, malaise, vomiting, stomach pains, cough, and difficulty in breathing.
Skin contact:	If finely divided dust particles are created, these may irritate the skin.
Eye contact:	If finely divided dust particles are created, these may irritate and lead to dryness.
Ingestion:	If finely divided dust particles are created, these may irritate and dehydrate mucous membranes. Phosphine/arsine uptake is possible.

### Chronic effects:

No adverse effects are expected. This is based on practical experience, review of available scientific literature and epidemiological cohort studies of Norwegian ferroalloy workers.

## 12. Ecological Information

The product is not characterized as dangerous for the environment.

MOBILITY: The alloy has poor mobility under normal environmental conditions.  
PERSISTENCE: Not relevant for the elements in the alloy.  
BIOACCUMULATION: Not relevant, due to low mobility and non-dispersive use.  
ECO-TOXICITY: LC<sub>50</sub>/LD<sub>50</sub>: Not determined. Hardly relevant for inorganic, insoluble substances.

## 13. Disposal Considerations

The material should be recovered for recycling where possible.  
PRESEED™ CONDITIONER is not a listed RCRA Hazardous Wastes (40 CFR 261).

## 14. Transport Information

DOT (DEPARTMENT OF TRANSPORTATION):  
Proper Shipping Name: Not regulated  
Hazard Class: Not regulated  
I.D. Number and Initials: Not regulated  
Packing Group: Not regulated  
Label(s): Not regulated  
Ferrosilicon with a chemical analysis as described in section 2 has been tested according to "United Nations Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria Part III - 33.4.1.4". Based on the results of the testing, the product is not classified as a Class 4.3 product.

## 15. Regulatory Information

OSHA - Hazardous by definition of hazardous communication standard (29 CFR 1910.1200)

TSCA (Toxic Substance Control Act):  
Components of this product are listed on the TSCA Inventory.

CERCLA (Comprehensive Response Compensation, and Liability Act):  
PRESEED™ CONDITIONER is not listed in 40 CFR 302.4

RCRA (Resource Conservation/Recovery Act):  
PRESEED™ CONDITIONER is not a listed hazardous waste.

SARA TITLE III (Superfund Amendments and Reauthorization Act):  
311/312 Hazard Categories:  
Immediate Health, Delayed Health.  
313 Reportable Ingredients:  
Manganese

CALIFORNIA PROPOSITION 65:  
This product contains chemical(s) known to the State of California to cause cancer:  
None

WHMIS: D2B

## 16. Other Information

Literature references are available upon application to the manufacturer.