

## MATERIAL SAFETY DATA SHEET

### FERRO BORON

#### 1. Identification of Substance / Preparation & Company

**Product Name** : Ferro Boron

**Company** : Stanford Advanced Materials  
23661 Birtcher Dr. Lake Forest,  
CA 92630 USA

**Telephone** : +1 (949) 407-8904

**Emergency Telephone** : As above

When in lump form, the quantity of powder or dust will be small and will be unlikely to create any health and safety problems when the material is added to a molten bath. The data in this sheet has been prepared to cover both powder and lump products and as such should be interpreted accordingly depending on the physical form of the material.

#### 2. Composition / Information On Ingredients

##### Chemical composition \*

	<b>Cas No</b>	<b>EEC No</b>	<b>% wt</b>	<b>REACH NO</b>
Iron	7439-89-6	-	80	EW199881-98
Boron	7440-42-8	-	19	NG196374-29

The product also contains minor quantities (<1%) of silicon, aluminium, carbon, sulphur and phosphorous.

\* = Not to be used as a specification

<b>Hazardous Components</b>	<b>Symbol</b>	<b>Risk phrases</b>	<b>Safety phrases</b>
-	-	-	-

### **3. Hazards Identification**

**Classification** -

**Hazards** Ferro Boron dust can cause irritation to the eyes and respiratory tract. Moderate fire and explosion hazard in dust form when exposed to heat or flame.

### **4. Fire Aid Measures**

**Inhalation** Acute effects are unlikely for this product when used normally in the form supplied. In the event of such an unlikely occurrence, remove casualty from area of exposure.

If conscious, make the casualty lie or sit down quietly. If breathing becomes rapid, place in sitting-up position and give oxygen if available. Obtain medical attention if symptoms persist.

If unconscious, place casualty in the recovery position. Monitor pulse and breathing. If breathing has failed or is deemed inadequate, respiration must be assisted, preferably by mouth-to-mouth method.

**Skin Contact** It is always wise to minimise skin contact with industrial products. Normal hygiene rules apply.

**Eye Contact** If dust enters the eye, wash eye thoroughly with copious quantities of running water. Obtain immediate medical attention.

**Ingestion** If normal hygiene rules are applied, any hazards associated with ingestion will be eliminated. In the unlikely event of a problem, do not induce vomiting. Give one pint (500ml) of water to drink and seek immediately medical attention.

### **5. Fire Fighting Measures**

**Extinguishing Media** Use suitable dry powder extinguisher.  
**Exposure Hazards** None known.  
**Equipment** No particular equipment is known to be required.

### **6. Accidental Release Measures**

**Personal Precautions** Avoid inhalation of dust and contact with eyes.

**Environmental Precautions** Avoid generation of airborne dust.  
Do not allow spillage to enter drains or water courses.

**Decontamination Procedures** Remove dust contamination using a suitable vacuum cleaner.

## 7. Handling & Storage

**Handling Precautions** Wear personal protective equipment to avoid inhalation and contact with eyes.

**Storage Conditions** Store in a dry location.

## 8. Exposure Controls / Personal Protection

### Occupational Exposure Limits (UK)

Substance	Type of OEL	8 hour TWA (mg.m <sup>-3</sup> )	15 minute STEL (mg.m <sup>-3</sup> )	Reference
Total inhalable nuisance dust	OES	10	-	1
Iron Oxide	OES	5	10	1
Boron Oxide	ACGIH	10	-	-
Dibron Trioxide	OES	10	20	1

OEL : Occupational exposure limit

TWA : Time weighted average

STEL : Short term exposure limit

MEL : Maximum exposure limit

OES : Occupational exposure standard

ACGIH : American Conference of Government Industrial Hygienists

If outside the UK, the user should consult the appropriate literature to determine the relevant standard(s).

**Monitoring** Dependent upon the user's assessment of risks to health regarding the process(es) employed, it may be necessary to undertake a programme of exposure monitoring to demonstrate that the OEL is not normally exceeded.

**Engineering Control Measures** Engineering control measures such as local exhaust ventilation (LEV) may be required to control dust exposure. Such methods of control should take precedence over the use of respiratory equipment.

## 9. Personal Protective Equipment

**Respiratory Protection** If LEV is not used, a suitable dust mask fitted with an appropriate filter may be required. The type of dust mask and filter will be dependent upon dust concentrations.

<b>Hand Protection</b>	None known to be required.
<b>Eye Protection</b>	Wear dust resistant safety goggles or glasses.
<b>Skin Protection</b>	None known to be required.

## **10. Physical & Chemical Properties**

<b>Appearance</b>	Grey lump or powder.
<b>Odour</b>	None
<b>pH</b>	N/A
<b>Boiling Point</b>	N/A
<b>Melting Point</b>	N/A
<b>Flash Point</b>	N/A
<b>Flammability</b>	N/A
<b>Autoflammability</b>	N/A
<b>Explosive Properties</b>	N/A
<b>Oxidising Properties</b>	N/A
<b>Vapour Pressure</b>	N/A
<b>Relative Density</b>	N/A
<b>Solubility</b>	Insoluble

## **11. Stability & Reactivity**

**Conditions To Avoid** The product should be kept dry to avoid the hazard of being in a wet or damp condition when added to molten metal. Avoid extremes of temperature and humidity. The product is stable in air at normal room temperatures.

**Materials To Avoid** Iron dust is incompatible with Cl<sub>2</sub>, H<sub>2</sub> O<sub>2</sub>, H<sub>2</sub> SO<sub>4</sub> and polystyrene.

**Hazardous Decomposition Products** None known.

## **12. Toxicological Information**

### **Health Effects**

**Inhalation** As with all nuisance dust, excessive and repeated exposure may harm the respiratory tract.

**Ingestion** May cause soreness of throat and mild abdominal pain.

**Skin Contact** Irritation, pain and redness may result at the point of contact.

**Eye Contact** May cause irritation and pain at the point of contact.

**Acute Toxicity** Excessive ingestion may result in vomiting and diarrhoea. Eye contact with dust may cause conjunctivitis and other disorders.  
Boron : LD50 oral, mouse 2000mg/kg (2)

**Chronic Toxicity** Chronic effects are not likely if dust exposure levels

are adequately controlled.

### **13. Ecological Information**

The product is insoluble in water. The majority of any quantity released into water will ultimately be deposited in the sediment.

Prolonged contact with soil or water following spillage or inappropriate disposal may lead to localised environmental contamination.

### **14. Disposal Considerations**

Disposal of waste should be undertaken by a licensed contractor in accordance with appropriate national and local regulations.

### **15. Transport Information**

<b>Packaging</b>	-
<b>Substance Identification</b>	-
<b>Number</b>	-
<b>ADR / RID</b>	-

There are no special precautions for the transport or conveyance of this product.

### **16. Regulatory Information (Supply & Labelling)**

<b>Substance</b>	Ferro Boron
<b>Supply Classification</b>	N/A
<b>Symbol</b>	N/A
<b>Risk Phrases</b>	
<b>Safety Phrases</b>	S22 Do not breathe dust. S25 Avoid contact with eyes

### **17. Relevant Legislation**

Health & Safety at Work etc Act 1974.  
Chemical (Hazard Information & Packaging) Regulations 1993 (CHIP).  
Control of Substances Hazardous to Health Regulations 1988.  
Environmental Protection Act 1990 (EPA).  
Duty of Care Regulations (section 34 of EPA).

### **18. Other Documentation**

CHIP Approved Supply List ISBN 0 11 882156 3.  
CHIP Approved Guide To Classification ISBN 0 11 882155 5.

## **19. Other Information**

The information contained within this data sheet is provided to assist customers in assessing the health and safety requirements associated with the use of the product.

The information was obtained from sources which were believed to be reliable.

Stanford Advanced Materials cannot accept responsibility for loss or damage arising from the use of or reliance upon this information.

This data sheet does not constitute an assessment of risk as required by Health & Safety legislation.

## **20. References**

1. EH40 Occupational Exposure Limits, publ HSE Latest Issue.
2. Sax NI Dangerous Properties of Industrial Materials, publ Van Nostrand Reinhold 1984.