

**Material Safety Data Sheet****Metglas® 2826MB3 Nickel-Iron Base Magnetic Core****1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****PRODUCT NAME:** Metglas® 2826MB3 Nickel - Iron Base Magnetic Alloy**OTHER/GENERIC NAMES:** 2826MB3 magnetic sensor ribbon**PRODUCT USE:** Manufacture of magnetic sensors**MANUFACTURER:** Metglas®, Inc.  
440 Allied Dr.  
Conway, SC - 29526**FOR MORE INFORMATION CALL:**  
(Monday-Friday, 8:00am-5:00pm)  
1-800-581-7654**IN CASE OF EMERGENCY CALL:**  
(24 Hours/Day, 7 Days/Week)  
1-800-581-7654 or Chemtrec 1-800-424-9300**2. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Boron	7440-42-8	1 - 5
Iron	7439-89-6	35 - 45
Molybdenum	7439-92-1	5 - 10
Nickel	7440-02-0	45 - 55

Trace impurities and additional material names may appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

**3. HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW:** A silver to gray metallic foil. As shipped, the primary hazard is the sharp edges of the product. Some individuals may develop allergic skin reactions after repeated handling. If melted in a fire, toxic fumes may be released.

**POTENTIAL HEALTH HAZARDS**

**SKIN:** Handling of sharp edges may cause cuts. Repeated contact may cause allergic skin reaction resulting in irritation or dermatitis.

**EYES:** Not a normal route of entry. Solid particles generated by grinding and sanding may cause irritation.

**Material Safety Data Sheet****Metglas® 2826MB3 Nickel-Iron Base Magnetic Core**

**INHALATION:** Vapors and fumes resulting from the grinding, sanding, cutting and/or welding of this material are harmful if inhaled. Symptoms may include irritation of throat and respiratory tract. Exposures may result in "metal fume fever" which can produce flu-like symptoms.

**INGESTION:** Not a route of entry.

**DELAYED EFFECTS:** Repeated inhalation of vapors and fumes may result in toxic effects to the lungs. Cobalt and cobalt compounds and nickel and nickel compounds have caused cancer in laboratory animals and should be treated as 'possible' carcinogens. At present there is no reliable evidence that cobalt or nickel metal has caused cancer in humans. Long term nickel exposure may affect kidney function.

Health Rating (HMIS): Health: 1 Fire: 0 Reactivity: 0 Special: None

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**4. FIRST AID MEASURES**

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**SKIN:** Wash hands with soap and water.

**EYES:** For irritation caused by particles of dust flush eyes with running water. Seek medical assistance if irritation persists.

**INHALATION:** Remove to fresh air immediately. If breathing is difficult, get immediate medical assistance. Oxygen may be given by a person trained and qualified to administer it.

**INGESTION:** Not a route of entry.

**ADVICE TO PHYSICIAN:** Treat symptomatically.

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**5. FIRE FIGHTING MEASURES**

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**FLAMMABLE PROPERTIES**

**FLASH POINT:** None

**FLASH POINT METHOD:** Not applicable

**AUTOIGNITION TEMPERATURE:** Not applicable

**UPPER FLAME LIMIT (volume % in air):** Not applicable

**LOWER FLAME LIMIT (volume % in air):** Not applicable

**FLAME PROPAGATION RATE (solids):** Not determined.

**OSHA FLAMMABILITY CLASS:** None

**EXTINGUISHING MEDIA:**

Use any standard agent for surrounding fire but flooding amounts of water is recommended if the metallic ribbon starts to burn.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Product may burn if involved in a structural fire.

**SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:**

Toxic and irritating vapors may be released if the product melts or burns in a fire. Use self-contained respiratory protection.

## *Material Safety Data Sheet*

# **Metglas<sup>®</sup> 2826MB3 Nickel-Iron Base Magnetic Core**

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### **6. ACCIDENTAL RELEASE MEASURES**

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#### **IN CASE OF SPILL OR OTHER RELEASE:**

Material is shipped as an article. Pick up and place into proper storage. Use caution in handling as edges are very sharp.

**Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.**

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### **7. HANDLING AND STORAGE**

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**NORMAL HANDLING:** (Always wear recommended personal protective equipment.)  
Handle with care. Edges of material are very sharp.

#### **STORAGE RECOMMENDATIONS:**

Inside storage is recommended in a facility that will protect the product from physical damage. Prevent contamination from foreign material. (Do not exposure to moisture or any other substance.)

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### **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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#### **ENGINEERING CONTROLS:**

Use mechanical ventilation when cutting, grinding, sanding and/or welding product.

#### **PERSONAL PROTECTIVE EQUIPMENT**

##### **SKIN PROTECTION:**

Wear cut-resistant gloves.

##### **EYE PROTECTION:**

Wear safety glasses when grinding, sanding, cutting and/or welding product.

##### **RESPIRATORY PROTECTION:**

If necessary to meet exposure limits listed in section 8, wear an air-purifying respirator during grinding, sanding, cutting and/or welding activities.

##### **ADDITIONAL RECOMMENDATIONS:**

A safety shower, eyewash or another source of running water should be available in areas where grinding, sanding, cutting and/or welding operations take place.

## Material Safety Data Sheet

# Metglas® 2826MB3 Nickel-Iron Base Magnetic Core

### EXPOSURE GUIDELINES

<u>ELEMENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Cobalt (possible trace impurity)	0.02 mg/m <sup>3</sup> (TWA)	0.1 mg/m <sup>3</sup> (TWA)	*End of shift: 15 ug/l - urine 1 ug/l - blood
Iron	5 mg/m <sup>3</sup> (TWA) as iron oxide	10 mg/m <sup>3</sup> (TWA) as iron oxide fume	None
Molybdenum	10 mg/m <sup>3</sup> (TWA)	10 mg/m <sup>3</sup> (TWA) total dust	None
Nickel	1.5 mg/m <sup>3</sup> (TWA) inhalable fraction	1 mg/m <sup>3</sup> (TWA)	None

\* = Biological Exposure Index (ACGIH).

### OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>APPEARANCE:</b>	A shiny silver to gray metallic ribbon.	
<b>PHYSICAL STATE:</b>	Solid	
<b>MOLECULAR WEIGHT:</b>	Metal alloy mixture	
<b>CHEMICAL FORMULA:</b>	Metal alloy mixture	
<b>ODOR:</b>	None	
<b>SPECIFIC GRAVITY (water = 1.0):</b>	7.90	
<b>SOLUBILITY IN WATER (weight %):</b>	None	
<b>pH:</b>	Not applicable	
<b>CURIE TEMPERATURE:</b>	793 °F (423 °C)	
<b>CRYSTALLIZATION TEMP:</b>	957 °F (514 °C)	
<b>VAPOR PRESSURE:</b>	Not applicable	
<b>VAPOR DENSITY (air = 1.0):</b>	Not applicable	
<b>EVAPORATION RATE:</b>	Not applicable	<b>COMPARED TO:</b>
<b>% VOLATILES:</b>	None	
<b>FLASH POINT:</b>	None	

(Flash point method and additional flammability data are found in Section 5.)

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## 10. STABILITY AND REACTIVITY

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### NORMALLY STABLE? (CONDITIONS TO AVOID):

Normally stable.

### INCOMPATIBILITIES:

Product can be attacked by moisture and corrosive materials.

### HAZARDOUS DECOMPOSITION PRODUCTS:

Toxic vapors and metallic fumes may be released if melted or ignited in a fire (see section 3).

**Material Safety Data Sheet****Metglas® 2826MB3 Nickel-Iron Base Magnetic Core****HAZARDOUS POLYMERIZATION:**

Not applicable.

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**11. TOXICOLOGICAL INFORMATION**

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**IMMEDIATE (ACUTE) EFFECTS:**Iron: LD<sub>50</sub> (oral, rat) 30 g/kgNickel: LD<sub>50</sub> (dermal, rabbit) >2 g/kg Nickel may cause dermal sensitization.**DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:**

Nickel: IARC lists cobalt as a class 2b possible carcinogen based on animal test data. Listed as a 'suspect carcinogen' by NTP. Chronic inhalation may cause pneumoconiosis and kidney effects.

**OTHER DATA:**

None

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**12. ECOLOGICAL INFORMATION**

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Not anticipated to present an ecological hazard.

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**13. DISPOSAL CONSIDERATIONS**

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**RCRA****Is the unused product a RCRA hazardous waste if discarded?** No**If yes, the RCRA ID number is:****OTHER DISPOSAL CONSIDERATIONS:** Observe all Federal, State, and Local Environmental regulations. Some local regulations may restrict disposal of metallic waste based on composition. Recycling of metallic products is recommended where recycling programs are available.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

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**14. TRANSPORT INFORMATION**

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**US DOT PROPER SHIPPING NAME:** Not regulated**US DOT HAZARD CLASS:** Not regulated**US DOT ID NUMBER:** Not regulated

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

## Material Safety Data Sheet

# Metglas® 2826MB3 Nickel-Iron Base Magnetic Core

### 15. REGULATORY INFORMATION

#### TOXIC SUBSTANCES CONTROL ACT (TSCA)

**TSCA INVENTORY STATUS:** An article manufactured from ingredients listed on the TSCA Inventory.  
**OTHER TSCA ISSUES:** None

#### SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>ELEMENT NAME</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPQ (lb)</u>
Nickel	100	None

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

**SECTION 311 HAZARD CLASS:** Immediate

#### **SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 "Toxic Chemicals".

<u>ELEMENT NAME</u>	<u>COMMENT</u>
Cobalt (possible trace element)	CAS 7440-48-4 0.3 max wt. %
Nickel	

#### STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>ELEMENT NAME</u>	<u>WEIGHT %</u>	<u>COMMENT</u>
Cobalt	0.3 max	Listed as California Proposition 65 carcinogen.
Nickel	45 - 55	Listed as California Proposition 65 carcinogen.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
Nickel	Suspect carcinogen	2b - possible carcinogen	None

#### **ADDITIONAL REGULATORY INFORMATION:**

None

*Material Safety Data Sheet*

**Metglas® 2826MB3 Nickel-Iron Base Magnetic Core**

**WHMIS CLASSIFICATION (CANADA):**

D2B (sensitizer) Basis: Product as shipped.

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**FOREIGN INVENTORY STATUS:**

Article: Ingredients are listed on Canadian DSL and European EINECS.

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**16. OTHER INFORMATION**

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**CURRENT ISSUE DATE:** October , 2007

**PREVIOUS ISSUE DATE:** N/A

**CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:**

New MSDS.

**OTHER INFORMATION:** Contact Metglas®, Inc. if you have specific questions regarding the handling of or applications for this product.