

### SECTION 1: IDENTIFICATION

#### 1.1. Product Identifier

**Product Form:** Mixture

**Product Name:** Arnokrome 3

#### 1.2. Intended Use of the Product

**Use of the substance/mixture:** Cast and Sintered Permanent Magnets

#### 1.3. Name, Address, and Telephone of the Responsible Party

##### Manufacturer

Arnold Magnetic Technologies

770 Linden Ave.

Rochester NY, 14625

800-593-9127

www.arnoldmagnetics.com

#### 1.4. Emergency Telephone Number

**Emergency Number :** Within USA and Canada 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

##### Classification (GHS-US)

Not classified

#### 2.2. Label Elements

##### GHS-US Labeling

No labeling applicable

#### 2.3. Other Hazards

Under normal conditions of use and handling in the solid form, harmful substances cannot be released, nor is the solid metal piece considered flammable. Much of the information provided in this SDS is for situations of use in which hazardous exposures may occur, such as in welding applications or for metals in powder form.

#### 2.4. Unknown Acute Toxicity (GHS-US)

No data available

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Proprietary Metal 1*	CAS No. Proprietary	60 - 70	Comb. Dust Flam. Sol. 1, H228 Self-heat. 1, H251
Proprietary Metal 4*	CAS No. Proprietary	20 - 30	Not classified
Proprietary Metal 2*	CAS No. Proprietary	5 - 8	Acute Tox. 4 (Oral), H302 Acute Tox. 1 (Inhalation:dust,mist), H330 Eye Irrit. 2A, H319 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Carc. 2, H351 Repr. 2, H361 Aquatic Acute 3, H402 Aquatic Chronic 1, H410
Proprietary Metal 3*	CAS No. Proprietary	0.1 - 1	Comb. Dust
Proprietary Metalloid*	CAS No. Proprietary	0.1 - 1	Comb. Dust

Full text of H-phrases: see section 16

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### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of First Aid Measures

**First-aid Measures General:** If medical advice is needed, have product SDS at hand.

**First-aid Measures After Inhalation:** If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

**First-aid Measures After Skin Contact:** Wash immediately with plenty of soap and water. Rinse with plenty of water. Remove contaminated clothing. Wash contaminated clothing before reuse. Obtain medical attention if irritation develops or persists.

**First-aid Measures After Eye Contact:** Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

**First-aid Measures After Ingestion:** If swallowed, do not induce vomiting: seek medical advice immediately and show this SDS.

#### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/Injuries:** The primary acute health hazard associated with this product would be the potential for exposure to fumes during metal processing operations. Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten material may release toxic, and irritating fumes.

**Symptoms/Injuries After Inhalation:** During processing, inhalation of fumes may cause lung inflammation and injury with symptoms of chest pains, chills, cough, headache, and diarrhea. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

**Symptoms/Injuries After Skin Contact:** During metal processing, . Dust may cause irritation in skin folds or by contact in combination with tight clothing.

**Symptoms/Injuries After Eye Contact:** Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause mechanical irritation or injure the eye.

**Symptoms/Injuries After Ingestion:** If a large quantity has been ingested: Gastrointestinal irritation.

**Chronic Symptoms:** Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion.

#### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product SDS at hand.

### SECTION 5: FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Earth, sand, dry chemical powder or foam.

**Unsuitable Extinguishing Media:** Water may be ineffective.

#### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp.

**Explosion Hazard:** Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

#### 5.3. Advice for Firefighters

**Firefighting Instructions:** Do not breathe fumes from fires or vapours from decomposition. Keep upwind.

**Protection During Firefighting:** Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

##### 6.1.1. For Non-emergency Personnel

**Protective Equipment:** Wear eye protection.

**Emergency Procedures:** Avoid creating or spreading dust. Eliminate ignition sources.

##### 6.1.2. For Emergency Responders

**Protective Equipment:** Safety glasses.

**Emergency Procedures:** Ventilate area. Eliminate ignition sources. Evacuate unnecessary personnel.

#### 6.2. Environmental Precautions

Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

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### 6.3. Methods and Material for Containment and Cleaning Up

**For Containment:** Contain and collect as any solid.

**Methods for Cleaning Up:** Avoid generation of dust during clean-up of spills. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up. Use only non-sparking tools. Use explosion-proof equipment.

### 6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Do not handle until all safety precautions have been read and understood. Fine dust dispersed in air may ignite. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

**Precautions for Safe Handling:** Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid creating or spreading dust. Always wash hands after handling the product. Do not eat, drink or smoke when using this product. Ensure there is adequate ventilation. Wear recommended personal protective equipment.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke in areas where product is used. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Storage Conditions:** Store in a dry, cool place.

**Incompatible Materials:** Avoid contact with: Strong acids. Mineral acids. Corrosive substances in contact with metals may produce flammable hydrogen gas.

### 7.3. Specific End Use(s) Cast and Sintered Permanent Magnets

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

Proprietary Metal 2		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup>
USA IDLH	US IDLH (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
Proprietary Metal 3		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (STEL) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
USA IDLH	US IDLH (mg/m <sup>3</sup> )	500 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Proprietary Metal 4		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
USA IDLH	US IDLH (mg/m <sup>3</sup> )	250 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Proprietary Metalloid 2		
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>

### 8.2. Exposure Controls

**Appropriate Engineering Controls**

: Ensure adequate ventilation, especially in confined areas. Avoid dust production.

**Personal Protective Equipment**

: Not generally required. The use of personal protective equipment may be necessary as conditions warrant.

**Hand Protection**

: If material is hot, wear thermally resistant protective gloves.

**Eye Protection**

: During metal processing, . Safety glasses.

**Respiratory Protection**

: During metal processing, . If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

**Environmental Exposure Controls**

: Ensure adequate ventilation, especially in confined areas.

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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Metallic gray to black castings
Color	: Metallic
Odor	: Odorless.
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: 1550 °C (2822.00 °F)
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20 °C	: No data available
Relative Density	: No data available
Density	: 7.2 - 7.8 g/cc
Solubility	: Water: Insoluble
Partition Coefficient: N-octanol/water	: No data available
Viscosity	: No data available
Explosive Properties	: None.
Oxidizing Properties	: None.

#### 9.2. Other Information

No additional information available

### SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2 Chemical Stability:** Product is stable.
- 10.3 Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4 Conditions to Avoid:** None known.
- 10.5 Incompatible Materials:** Incompatible with : Strong acids. Mineral acids. Corrosive substances in contact with metals may produce flammable hydrogen gas.
- 10.6 Hazardous Decomposition Products:** Oxides of iron. Cobalt oxide. Silicon oxides. Chromium oxides. Oxides of manganese.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Information On Toxicological Effects

**Acute Toxicity:** Not classified. Not classified.

Proprietary Metal 1	
LD50 Oral Rat	98.6 g/kg
ATE (Oral)	98,600.00 mg/kg body weight
Proprietary Metal 2	
LD50 Oral Rat	215.9 - 1140 mg/kg
LC50 Inhalation Rat	> 10 mg/l (Exposure time: 1 h)
ATE (Oral)	215.90 mg/kg body weight
ATE (Dust/Mist)	0.01 mg/l/4h

**Skin Corrosion/Irritation:** Not classified

**Serious Eye Damage/Irritation:** Not classified.

**Respiratory or Skin Sensitization:** Not classified. Not classified.

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified.

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<b>Proprietary Metal 2</b>	
<b>IARC group</b>	2B
<b>Proprietary Metal 4</b>	
<b>IARC group</b>	3

**Reproductive Toxicity:** Not classified.

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified.

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** During processing, inhalation of fumes may cause lung inflammation and injury with symptoms of chest pains, chills, cough, headache, and diarrhea. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

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## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

<b>Proprietary Metal 2</b>	
<b>LC50 Fish 1</b>	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
<b>Proprietary Metal 3</b>	
<b>NOEC chronic fish</b>	3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)

### 12.2. Persistence and Degradability

<b>Arnokrome 3</b>	
<b>Persistence and Degradability</b>	Not readily biodegradable.

### 12.3. Bioaccumulative Potential

<b>Proprietary Metal 2</b>	
<b>BCF fish 1</b>	(no bioaccumulation)

**12.4. Mobility in Soil** No additional information available

### 12.5. Other Adverse Effects

No additional information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Sewage Disposal Recommendations:** Do not empty into drains; dispose of this material and its container in a safe way.

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, and international regulations.

## SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/IMDG/DOT

**14.1. UN Number** Not regulated for transport

**14.2. UN Proper Shipping Name** Not regulated for transport

**14.3. Additional Information** Not regulated for transport

**Transport by Sea** Not regulated for transport

**Air Transport** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### 15.1 US Federal Regulations

<b>Proprietary Metal 1</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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<b>Proprietary Metal 2</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
<b>Proprietary Metal 3</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	1.0 %
<b>Proprietary Metal 4</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	1.0 %
<b>Proprietary Metalloid 2</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

### 15.2 US State Regulations

<b>Proprietary Metal 2</b>	
<b>U.S. - California - Proposition 65 - Carcinogens List</b>	WARNING: This product contains chemicals known to the State of California to cause cancer.
<b>Proprietary Metal 2</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
<b>Proprietary Metal 3</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
<b>Proprietary Metal 4</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List	
<b>Proprietary Metalloid 2</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List	

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

<b>Revision Date</b>	: 09/02/2014
<b>Other Information</b>	: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### GHS Full Text Phrases:

Acute Tox. 1 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Sol. 1	Flammable solids Category 1
Repr. 2	Reproductive toxicity Category 2

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Resp. Sens. 1B	Respiratory sensitisation Category 1B
Self-heat. 1	Self-heating substances and mixtures Category 1
Skin Sens. 1	Skin sensitization Category 1
H228	Flammable solid
	May form combustible dust concentrations in air
H251	Self-heating: may catch fire
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

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