Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

**Product Code**
PM021

**Product Name**
Copper Nickel Alloy Powder

**Synonyms**
Contains Nickel
Copper Nickel Alloy Powder: Cu-30Ni, UNS C71500

1.2. Relevant identified uses of the substance or mixture and uses advised against

**Recommended Use**
Alloy product manufacture

**Uses advised against**

1.3. Details of the supplier of the safety data sheet

**Manufacturer Address**
ATI, 1000 Six PPG Place, Pittsburgh, PA 15222 USA

1.4. Emergency telephone number

**Emergency Telephone**
Chemtrec: +1-703-741-5970

Section 2: HAZARDS IDENTIFICATION

This product is an article and, as such, does not present a hazard to human health by inhalation or ingestion

2.1. Classification of the substance or mixture

**Regulation (EC) No 1272/2008**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

2.2. Label elements

**Emergency Overview**

**Danger**

**Hazard statements**
Harmful if swallowed
May cause an allergic skin reaction
Suspected of causing cancer
Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled
Very toxic to aquatic life
Harmful to aquatic life with long lasting effects
Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wear protective gloves
Wash hands thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume
Avoid release to the environment
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Collect spillage

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

2.3 Hazards not otherwise classified (HNOC)
Not applicable

Other Information
When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated: Zinc, copper, magnesium, or cadmium fumes may cause metal fume fever.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances
Synonyms
Copper Nickel Alloy Powder: Cu-30Ni, UNS C71500.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC No</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>231-159-6</td>
<td>7440-50-8</td>
<td>66 - 71</td>
</tr>
<tr>
<td>Nickel</td>
<td>231-111-4</td>
<td>7440-02-0</td>
<td>29 - 33</td>
</tr>
<tr>
<td>Manganese</td>
<td>231-105-1</td>
<td>7439-96-5</td>
<td>0.2 - 1.0</td>
</tr>
</tbody>
</table>

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures
Inhalation
If excessive amounts of smoke, fume, or particulate are inhaled during processing, remove to fresh air and consult a qualified health professional.

Skin Contact
In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water.

Eye contact
In the case of particles coming in contact with eyes during processing, treat as with any foreign object.
Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

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

Symptoms

May cause allergic skin reaction. May cause acute gastrointestinal effects if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors

Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product.

Small Fire

Smother with salt (NaCl) or class D dry powder fire extinguisher.

Large Fire

Isolate fire and allow to burn out.

Unsuitable extinguishing media

Do not spray water on burning metal as an explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material

5.2. Special hazards arising from the substance or mixture

Intense heat. WARNING: Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimise combustible dust hazard

Hazardous combustion products

Zinc, copper, magnesium, or cadmium fumes may cause metal fume fever.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment as required.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

Use personal protective equipment as required.

For emergency responders


6.2. Environmental precautions

Collect spillage to prevent release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Sweep or shovel material into dry containers. Avoid creating uncontrolled dust.

6.4. Reference to other sections
See Section 12: ECOLOGICAL INFORMATION.

### Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

**Advice on safe handling**

**WARNING:** Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimise combustible dust hazard.

**General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions**

Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

**Incompatible materials**

Dissolves in hydrofluoric acid.

7.3. Specific end use(s)

**Risk Management Methods (RMM)**

The information required is contained in this Safety Data Sheet.

### Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper 7440-50-8</td>
<td>-</td>
<td>STEL: 0.6 mg/m³ TWA: 2 mg/m³ TWA: 0.2 mg/m³ TWA: 1 mg/m³ TWA: 1 mg/m³</td>
<td>TWA: 0.2 mg/m³</td>
<td>TWA: 0.2 mg/m³ TWA: 1 mg/m³</td>
<td>TWA: 0.1 mg/m³ Ceiling / Peak: 0.2 mg/m³</td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>-</td>
<td>STEL: 1.5 mg/m³ TWA: 0.5 mg/m³</td>
<td>TWA: 1 mg/m³</td>
<td>TWA: 1 mg/m³</td>
<td>Skin</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>-</td>
<td>STEL: 1.5 mg/m³ TWA: 0.5 mg/m³</td>
<td>TWA: 1 mg/m³</td>
<td>TWA: 0.2 mg/m³</td>
<td>TWA: 2 mg/m³ TWA: 1.6 mg/m³ Ceiling / Peak: 0.16 mg/m³ TWA: 1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Italy</th>
<th>Portugal</th>
<th>Netherlands</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper 7440-50-8</td>
<td>-</td>
<td>TWA: 0.2 mg/m³ TWA: 1 mg/m³</td>
<td>TWA: 0.1 mg/m³</td>
<td>TWA: 1 mg/m³ TWA: 0.1 mg/m³</td>
<td>TWA: 1 mg/m³ TWA: 1.0 mg/m³</td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>-</td>
<td>TWA: 1.5 mg/m³</td>
<td>-</td>
<td>TWA: 1 mg/m³ TWA: 0.1 mg/m³</td>
<td>TWA: 10 mg/m³ TWA: 0.05 mg/m³</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>-</td>
<td>TWA: 0.2 mg/m³</td>
<td>-</td>
<td>TWA: 0.2 mg/m³ TWA: 0.1 mg/m³</td>
<td>TWA: 0.2 mg/m³ TWA: 0.1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Austria</th>
<th>Switzerland</th>
<th>Poland</th>
<th>Norway</th>
<th>Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper 7440-50-8</td>
<td>STEL 4 mg/m³ TWA 0.4 mg/m³ TWA 0.1 mg/m³</td>
<td>STEL: 0.2 mg/m³ TWA: 0.1 mg/m³</td>
<td>TWA: 0.2 mg/m³</td>
<td>TWA: 0.1 mg/m³ TWA: 1 mg/m³ TWA: 3 mg/m³</td>
<td>TWA: 2 mg/m³ TWA: 1 mg/m³ TWA: 3 mg/m³</td>
</tr>
<tr>
<td>Nickel 7440-02-0</td>
<td>-</td>
<td>TWA: 0.5 mg/m³</td>
<td>TWA: 0.25 mg/m³</td>
<td>TWA: 0.05 mg/m³ TWA: 0.15 mg/m³</td>
<td>TWA: 0.5 mg/m³</td>
</tr>
<tr>
<td>Manganese 7439-96-5</td>
<td>STEL 2 mg/m³ TWA 0.5 mg/m³</td>
<td>TWA: 0.5 mg/m³</td>
<td>TWA: 0.3 mg/m³</td>
<td>TWA: 1 mg/m³ TWA: 0.1 mg/m³ STEL: 3 ppm STEL: 0.3 mg/m³</td>
<td>TWA: 0.2 mg/m³ STEL: 3 mg/m³</td>
</tr>
</tbody>
</table>

**Derived No Effect Level (DNEL)**

No DNELs are available for this product as a whole.
Predicted No Effect Concentration (PNEC) No PNECs are available for this product as a whole.

8.2. Exposure controls

Engineering Controls Avoid generation of uncontrolled particles.

Personal protective equipment

Eye/face protection

When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that shield the eyes from particles.

Skin and body protection

Wear fire/flame resistant/retardant clothing. Wear protective gloves.

Respiratory protection

When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminate concentrations. Respiratory protection must be provided in accordance with current local regulations.

Environmental exposure controls

Section 6: ACCIDENTAL RELEASE MEASURES.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
<td>Odour</td>
</tr>
<tr>
<td>Colour</td>
<td>metallic dark red</td>
<td>Odour threshold</td>
</tr>
<tr>
<td>pH</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>1215 °C / 2220 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>-</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>-</td>
<td>Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product</td>
</tr>
</tbody>
</table>

Flammability Limit in Air

Upper flammability limit: -

Lower flammability limit: -

Vapour pressure - Not applicable

Vapour density - Not applicable

Specific Gravity 8.0 - 8.9

Water solubility Insoluble

Solubility(ies) Insoluble

Partition coefficient Not applicable

Autoignition temperature Not applicable

Decomposition temperature Not applicable

Kinematic viscosity Not applicable

Dynamic viscosity Not applicable

Explosive properties Not applicable

Oxidising properties Not applicable

9.2. Other information

Softening point -

Molecular weight -

VOC Content (%) Not applicable

Density -

Bulk density -

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity
10.2. Chemical stability

Stable under normal conditions.

**Explosion data**
- Sensitivity to Mechanical Impact: None.
- Sensitivity to Static Discharge: None.

10.3. Possibility of hazardous reactions

**Hazardous polymerisation**
Hazardous polymerisation does not occur.

**Possibility of Hazardous Reactions**
None under normal processing.

10.4. Conditions to avoid

Dust formation and dust accumulation;

10.5. Incompatible materials

Dissolves in hydrofluoric acid.

10.6. Hazardous decomposition products

Not applicable.

---

**Section 11: TOXICOLOGICAL INFORMATION**

11.1. Information on toxicological effects

**Product Information**

- **Inhalation**: Suspected of causing cancer if inhaled. Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled.
- **Eye contact**: Product not classified.
- **Skin Contact**: May cause sensitisation by skin contact.
- **Ingestion**: Harmful if swallowed.

**Unknown Acute Toxicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>481 mg/kg bw</td>
<td>&gt;2000 mg/kg bw</td>
<td>&gt;5.11 mg/L</td>
</tr>
<tr>
<td>Nickel</td>
<td>&gt; 9000 mg/kg bw</td>
<td>-</td>
<td>&gt; 10.2 mg/L</td>
</tr>
<tr>
<td>Manganese</td>
<td>&gt;2000 mg/kg bw</td>
<td>-</td>
<td>&gt;5.14 mg/L</td>
</tr>
</tbody>
</table>

**Information on toxicological effects**

**Symptoms**
May cause sensitisation by skin contact. May cause acute gastrointestinal effects if swallowed.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Acute toxicity**
Harmful if swallowed.

**Skin corrosion/irritation**
Product not classified.

**Serious eye damage/eye irritation**
Product not classified.

**Sensitisation**
May cause sensitisation by skin contact.
Germ cell mutagenicity

Product not classified.

Carcinogenicity

May cause cancer by inhalation.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Group 1</td>
<td>Group 2B</td>
<td>Known</td>
<td>Reasonably Anticipated</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Product not classified.

STOT - single exposure

Product not classified.

STOT - repeated exposure

Causes disorder and damage to the: Respiratory System.

Aspiration hazard

Product not classified.

---

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO

This product as shipped is classified for aquatic chronic toxicity. This product as shipped is classified for aquatic acute toxicity.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to Micro-organisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>The 72 h EC50 values of copper chloride to Pseudokirchneriella subcapitata ranged between 30 µg/L (pH 7.02, hardness 250 mg/L CaCO3, DOC 1.95 mg/L) and 824 µg/L (pH 6.22, hardness 100 mg/L CaCO3, DOC 15.8 mg/L).</td>
<td>The 96-hr LC50 for Pimephales promelas exposed to Copper sulfate ranged from 256.2 to 38.4 µg/L with water hardness increasing from 45 to 255.7 mg/L.</td>
<td>The 24 h NOEC of copper chloride for activated sludge ranged from 0.32 to 0.64 mg of Cu/L.</td>
<td>The 48 h LC50 values for Daphnia magna exposed to copper in natural water ranged between 33.8 µg/L (pH 6.1, hardness 12.4 mg/L CaCO3, DOC 2.34 mg/L) and 792 µg/L (pH 7.35, hardness 139.7 mg/L CaCO3, DOC 22.8 mg/L).</td>
</tr>
<tr>
<td>Nickel</td>
<td>NOEC/EC10 values range from 12.3 µg/l for Scenedesmus accuminatus to 425 µg/l for Pseudokirchneriella subcapitata.</td>
<td>The 96h LC50s values range from 0.4 mg Ni/L for Pimephales promelas to 320 mg Ni/L for Brachydanio rerio.</td>
<td>The 30 min EC50 of nickel for activated sludge was 33 mg Ni/L.</td>
<td>The 48h LC50s values range from 0.013 mg Ni/L for Ceriodaphnia dubia to 4970 mg Ni/L for Daphnia magna.</td>
</tr>
<tr>
<td>Manganese</td>
<td>The 72 h EC50 of manganese to Desmodesmus subspicatus was 2.8 mg of Mn/L.</td>
<td>The 96 h LC50 of manganese to Oncorhynchus mykiss was greater than 3.6 mg of Mn/L.</td>
<td>The 3 h EC50 of manganese for activated sludge was greater than 1000 mg/L.</td>
<td>The 48 h EC50 of manganese to Daphnia magna was greater than 1.6 mg/L.</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects
Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

IMDG
14.1 UN/ID no
- 
14.2 Proper shipping name
Regulated per IMDG, if transported in bulk or by vessel: UN/ID No. 3077 Environmentally hazardous substance, solid, n.o.s. (nickel/copper alloy powder)
14.3 Hazard Class
9 
14.4 Packing Group
III 
14.5 Marine pollutant
This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO 
14.6 Special Provisions
8, 146, 335, A112, B54, B120, IB8, IP3, N20, N91, T1, TP33

RID
14.1 UN/ID no
Not regulated 
14.2 Proper shipping name
Not regulated 
14.3 Hazard Class
Not regulated 
14.4 Packing Group
Not regulated 
14.5 Environmental hazard
- 
14.6 Special Provisions
None 

ADR
14.1 UN/ID no
Not regulated 
14.2 Proper shipping name
Not regulated 
14.3 Hazard Class
Not regulated 
14.4 Packing Group
Not regulated 
14.5 Environmental hazard
- 
14.6 Special Provisions
None 

ICAO (air)
14.1 UN/ID no
Not regulated 
14.2 Proper shipping name
Not regulated 
14.3 Hazard Class
Not regulated 
14.4 Packing Group
Not applicable 
14.5 Environmental hazard
- 
14.6 Special Provisions
None 

IATA
14.1 UN/ID no
Not regulated 
14.2 Proper shipping name
Not regulated 
14.3 Hazard Class
Not regulated 
14.4 Packing Group
Not applicable 
Description
Not applicable 
14.5 Environmental hazard
- 
14.6 Special Provisions
None
Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>French RG number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nickel</td>
<td>RG 37ter</td>
<td>-</td>
</tr>
<tr>
<td>Manganese</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippine Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

No chemical safety assessment has been performed for this product.

Section 16: OTHER INFORMATION

Issue Date: 02-Mar-2017
Revision Date: 08-Mar-2017
Revision Note: Updated to comply with GHS.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Note:
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to
the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Additional information available from:

End of Safety Data Sheet

Safety data sheets and labels available at ATImetals.com