**Safety Data Sheet**

**Material Name:** Elemental Iron, NX-1000

*** Section 1 - Product and Company Identification ***

**Manufacturer Information**

Ametek Specialty Metal Products  
21 Toelles Road  
Wallingford, CT 06492  
Phone: 203-265-6731

Emergency # 800-424-9300 Chemtrec

*** Section 2 - Hazards Identification ***

**GHS Classification:**
- Flammable Solids - Category 1
- Acute Toxicity Oral - Category 4
- Skin Corrosion/Irritation - Category 2
- Eye Damage/Irritation - Category 2B
- Respiratory Sensitization - Category 1
- Specific Target Organ Toxicity (Single Exposure) - Category 3
- Specific Target Organ Toxicity (Repeated Exposure) - Category 1
- Hazardous to the Aquatic Environment Acute - Category 1

**GHS LABEL ELEMENTS**

**Symbol(s)**

- Flammable
- Caution
- Caution Skin
- Caution Environmental

**Signal Word**

Danger

**Hazard Statements**

- Flammable solid.
- Harmful if swallowed.
- Causes skin and eye irritation.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause respiratory irritation.
- Causes damage to lungs through prolonged or repeated exposure.
- Very toxic to aquatic life.

**Precautionary Statements**

**Prevention**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Ground/Bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Do not breathe dusts.
- Use only outdoors or in a well-ventilated area.
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In case of inadequate ventilation wear respiratory protection.
Avoid release to the environment.

Response
In case of fire: Use dry sand, dry dolomite, or dry graphite powder or other dry chemical extinguishing agent formulated for metal fires to extinguish.
IF SWALLOWED: Call a poison center/doctor if you feel unwell. Rinse mouth.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists get medical advice/attention.
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms call a doctor/physician.
Get medical advice/attention if you feel unwell.
Collect spillage.

Storage
Store locked up.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>Iron</td>
<td>100</td>
</tr>
</tbody>
</table>

*** Section 4 - First Aid Measures ***

First Aid: Eyes
First check the victim for contact lenses and remove if present. Lift eyelids and flush immediately with flooding amounts of water for at least 15 minutes. Do not allow the victim to rub his/her eyes or keep them shut. Consult a physician or ophthalmologist if all material cannot be removed or if there is continuing irritation.

First Aid: Skin
Remove clothing around affected area. Rinse away loose material and wash affected area with soap and water. If there is a severe skin reaction or reddened or blistered skin, consult a physician and be prepared to transport the victim to a hospital for treatment.

First Aid: Ingestion
Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center with information from this SDS and the Technical Data Sheet on the composition of the material ingested. Unless the poison control center advises otherwise, give the person one or two glasses of water, then induce vomiting. After first aid, have the person see a physician for follow up care.

First Aid: Inhalation
Move the person to fresh air and support breathing as required. If symptoms (wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital for treatment.
Safety Data Sheet

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*** Section 5 - Fire Fighting Measures ***

General Fire Hazards
See Section 9 for Flammability Properties.
Powder may burn. Dust is an explosion hazard. Iron can have a violent or explosive reaction with ammonium nitrate + heat, ammonium peroxodisulfate, chloric acid, chlorine triflouride, chloroformadinium nitrate. Iron may also react with water to produce explosive hydrogen gas.

Hazardous Combustion Products
Not Determined.

Extinguishing Media
Use dry sand, dry dolomite, or dry graphite powder or other dry chemical extinguishing agent formulated for metal fires.

Unsuitable Extinguishing Media
None

Fire Fighting Equipment/Instructions
Firefighters should wear full protective gear.

*** Section 6 - Accidental Release Measures ***

Recovery and Neutralization
Collect spilled material and place in sealed containers for reclamation or disposal.

Materials and Methods for Clean-Up
Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter, or similar clean up measure that minimize dust, and place in a closed container for disposal. Avoid inhalation of dust. Remove sources of heat or ignition as dust clouds can burn or explode.

Emergency Measures
Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment
Wear appropriate protective clothing and respiratory protection for the situation.

Environmental Precautions
None

Prevention of Secondary Hazards
None

*** Section 7 - Handling and Storage ***

Handling Procedures
Use local exhaust ventilation to protect against dust and fume inhalation. If workers are exposed to dust provide appropriate respiratory, eye, and skin protection. An eye wash station should be readily available to areas of use.

Storage Procedures
Store in a closed container when possible to prevent accidental dust generation and to prevent possible product contamination (due to dampness, dust, etc.). Protect containers from physical damage. Area should be well ventilated to guard against dust accumulation and dust becoming airborne. Avoid welding in storage area so as not to ignite flammable dusts.
Incompatibilities
Iron is incompatible with the following: ammonium nitrate, heat, ammonium peroxodisulfate, chloric acid, chlorine, trifluoride, chloroformadinium, nitrate, sodium acetylide, chlorine, dinitrogen tetraoxide, liquid fluorine, nitryl fluoride + heat, peroxyl formic and potassium dichromate, sodium peroxide (at 240 °C).

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits
ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product’s components.

Engineering Measures
Where feasible, enclose processes to prevent dust dispersion into the work area. Provide local exhaust when possible, and general ventilation as necessary, to keep airborne concentrations below exposure limits and as low as possible.

Personal Protective Equipment: Respiratory
If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Personal Protective Equipment: Hands
Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Personal Protective Equipment: Eyes
Wear safety glasses with side shields and/or goggles as necessary to prevent dust from entering eyes.

Personal Protective Equipment: Skin and Body
Chemical resistant apron or coveralls is recommended. These should be worn one day only if exposed to particulates, and washed before reuse.

*** Section 9 - Physical & Chemical Properties ***

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Silvery gray fine powder.</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>ND</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>ND</td>
</tr>
<tr>
<td>Solubility (H2O)</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>ND</td>
</tr>
<tr>
<td>Octanol/H2O Coeff.:</td>
<td>ND</td>
</tr>
<tr>
<td>Flash Point Method</td>
<td>NA</td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>NA</td>
</tr>
<tr>
<td>(LFL)</td>
<td>NA</td>
</tr>
<tr>
<td>Auto Ignition</td>
<td>NA</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>pH</td>
<td>NA</td>
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<tr>
<td>Vapor Density</td>
<td>ND</td>
</tr>
<tr>
<td>Melting Point</td>
<td>ND</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>8.9</td>
</tr>
<tr>
<td>VOC</td>
<td>ND</td>
</tr>
<tr>
<td>Flash Point</td>
<td>NA</td>
</tr>
<tr>
<td>Upper Flammability Limit</td>
<td>NA</td>
</tr>
<tr>
<td>(UFL)</td>
<td>NA</td>
</tr>
<tr>
<td>Burning Rate</td>
<td>NA</td>
</tr>
</tbody>
</table>

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability
This is a stable material.

Hazardous Reaction Potential
Will not occur.

Conditions to Avoid
Contamination from other materials.
**Safety Data Sheet**

**Material Name:** Elemental Iron, NX-1000

**Incompatible Products**
Iron is incompatible with the following: ammonium nitrate, heat, ammonium, peroxodisulfate, chloric acid, chlorine, trifluoride, chloroformadaminium, nitrate, sodium acetylide, chlorine, dinitrogen tetraoxide, liquid fluorine, nitryl fluoride + heat, peroxyl formic and potassium dichromate, sodium peroxide (at 240 °C).

**Hazardous Decomposition Products**
Contact of iron with strong acids form flammable and explosive hydrogen gas.

| *** Section 11 - Toxicological Information *** |

**Acute Toxicity**

**Component Analysis - LD50/LC50**
Iron (7439-89-6)
Oral LD50 Rat 984 mg/kg

**Potential Health Effects: Skin Corrosion Property/Stimulativeness**
May cause skin irritation and dermatitis especially in creases of the skin where metal may accumulate and rub against skin.

**Potential Health Effects: Eye Critical Damage/ Stimulativeness**
May cause eye irritation.

**Potential Health Effects: Ingestion**
Harmful if swallowed.

**Potential Health Effects: Inhalation**
Inhalation of metal powder may cause chills, fever, sweating, nausea, and cough (symptoms of metal fume fever). Metal fume fever symptoms typically begin within 4 to 12 hours after the initial exposure and lasts from approximately 24 hours without causing permanent damage. Other effects may include nose and throat irritation, metallic taste, difficulty breathing, wheezing, coughing, weight loss, pulmonary damage and chest pain. Inhalation of iron dust and/or powder may attribute to iron poisoning. Large amounts of iron may cause iron pneumoconiosis.

**Respiratory Organs Sensitization/Skin Sensitization**
Effects of long term or repeated exposure to metal powders may include respiratory disease, pneumoconiosis, bronchial asthma, lung fibrosis, and obstructive airway syndrome. May cause chronic iron poisoning and pathological deposition of iron in the body tissue.

**Generative Cell Mutagenicity**
This product is not reported to produce mutagenic effects in humans.

**Carcinogenicity**

**A: General Product Information**
This product is not reported to have carcinogenic effects.

**B: Component Carcinogenicity**
None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

**Reproductive Toxicity**
This product is not reported to cause reproductive effects in humans.

**Specified Target Organ General Toxicity: Single Exposure**
May cause respiratory irritation.
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**Specified Target Organ General Toxicity: Repeated Exposure**
Causes damage to lungs through prolonged or repeated exposure.

**Aspiration Respiratory Organs Hazard**
None

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### *** Section 12 - Ecological Information ***

**Ecotoxicity**

**A: General Product Information**
Powders and dusts are very toxic to aquatic life.

**B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

- **Iron (7439-89-6)**
  - Test & Species: 96 Hr LC50 Morone saxatilis
    - Conditions: 13.6 mg/L [static]
  - Test & Species: 96 Hr LC50 Cyprinus carpio
    - Conditions: 0.56 mg/L [semi-static]

**Persistence/Degradability**
Metal powders may cause ecological damage through silting or sedimentation effect in water depriving organisms of habitat and mobility, and/or fouling of gills, lungs and skin thus limiting oxygen uptake.

**Bioaccumulation**
Metal powders in water or soil may form metal oxides or other metal compounds that could become bioavailable and harm aquatic or terrestrial organisms.

**Mobility in Soil**
Metal powder would be relatively immobile in soils but some metal compounds may be transported with ground water.

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### *** Section 13 - Disposal Considerations ***

**Waste Disposal Instructions**
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

**Disposal of Contaminated Containers or Packaging**
Dispose of contents/container in accordance with local/regional/national/international regulations.

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### *** Section 14 - Transportation Information ***

**DOT Information**

- **Shipping Name:** Metal Powders, flammable, n.o.s.
- **UN #:** 3089  **Hazard Class:** 4.1  **Packing Group:** II

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### *** Section 15 - Regulatory Information ***

**Regulatory Information**

- **Component Analysis**
  None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).
State Regulations

Component Analysis - State
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Component Analysis - WHMIS IDL
No components are listed in the WHMIS IDL.

Additional Regulatory Information

Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>TSCA</th>
<th>CAN</th>
<th>EEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>Yes</td>
<td>DSL</td>
<td>EINECS</td>
</tr>
</tbody>
</table>

*** Section 16 - Other Information ***

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References
Available on request.

End of Sheet