1. Chemical Product and Company Information

Product Name:	Iron Premixes
CAS Number:	Mixture
Synonym:	Steel powder
Material uses:	Industrial applications, Powder metallurgy
Trade Name:	MPIF Std 35 designations.
Manuf. / Supplier:	Advantage Metal Powders, Inc.
Address:	44 Spleen Rd. Ridgway, PA 15853
General Assistance:	Tel. 814.772.5363 / Fax 814.772.5353
Emergency:	814-335-2854

2. Hazard Identification

Emergency overview

Physical state:	Solid. (Powder**)**
Color:	Grey to Black
Signal Word:	Warning
Hazard statement:	May cause allergic skin reaction. Contains material that could cause target organ damage, based on animal data. Suspect cancer hazard-contains material that could cause cancer.
Precautionary:	Do not handle until all safety precautions are read and understood. Do not breathe dust. Do not eat, drink or smoke when using product. Avoid prolonged contact with skin if irritation occurs. Use personal protective equipment if irritation occurs. Wash thoroughly after handling.
OSHA/HCS status:	This material is considered hazardous by OSHA Hazard Communication Standard. May cause long-term adverse effects in an aquatic environment.
Routes of entry:	Dermal contact, Inhalation, Ingestion.

Potential acute health effects

Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Ingestion:	No known significant effects or critical hazards.
Skin:	May cause sensitization by skin contact.
Eyes:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of eyes.

Potential chronic health effects

Chronic effects:	Contains material that may cause target organ damage, based on animal data. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. May cause pneumoconiosis. Contains material which may cause cancer.
Carcinogenicity:	No known significant effects or critical hazards.
Mutagenicity:	No known significant effects or critical hazards.
Teratogenicity:	No known significant effects or critical hazards.
Developmental effects:	No known significant effects or critical hazards.
Fertility effects:	No known significant effects or critical hazards.
Target organs:	Contains materials that may cause damage to the following organs: Kidneys, lungs,

Over-exposure signs/symptoms

Inhalation:	Respiratory tract irritation, coughing.
Ingestion:	No specific data.
Skin:	Irritation, redness.

Eyes: Irritation, redness.

3. Composition / Information on Ingredients

Ingredient	CAS No.	% Weight
Iron	7439-89-6	Bal.
Ethylenebisstearamide (EBS)	110-30-5	1.5 max.
Graphite	7782-42-5	1.5 max.
Zinc Salts (Ferrolube M)	67762-34-9	1.0 max.
Copper	7440-50-8	21.0 max.
Manganese Sulfide	18820-29-6	0.6 max.
Molybdenum	1317-33-5	1.6 max.
Manganese	18820-29-6	0.6 max.
Chromium	7440-47-3	3.5 max.
Phosphorus		0.6 max.
Nickel	7440-02-0	5.5 max.

Additional Info: Refer to Certificate of Analysis.

4. First Aid Measures

Eye: Flush immediately with large amounts of water for a least 15 min. Get immediate medical attention.

Skin: Wash area of contact thoroughly with soap and water. Get medical attention if irritation persists.

Inhalation: Remove affected person from source of exposure. Get medical attention if breathing is difficult.

Ingestion: Do not induce Vomiting. 1-3 Glasses of water. Seek medical attention.

Protection of first-Aiders: If it is suspected that dust is still present, the rescuer should wear appropriate mask or self-contained breathing apparatus. No special protection is required. See Section 8 for info on appropriate personal protective equipment.

Note to physician: No specific treatment. Treat symptomatically.

5. Fire and Explosion Data

Flammability: Non-flammable

Extinguishing media

Suitable: Use a fog nozzle to spray water.

Not suitable: Do not use water jet.

Special exposure hazards: Promptly isolate the scene by removing all persons from the vicinity of fire. No action shall be taken involving any personal risk or without suitable training.
This material is toxic to aquatic organisms. Fire water contaminated with this material should be contained and prevented from being discharged to any waterways, sewer, or drain.

Hazardous thermal decomposition products: Metal oxide/oxides

Special protective equipment for fighters: Should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards: Fine dust clouds may form explosive mixtures with air. As with any finely granulated product. (i.e flour) a risk of fire is present should the material be dispersed in air and exposed to a source of ignition.

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6. Accidental Release

Personal Precautions: No action shall be taken involving any personal risk. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on personal protective equipment (see Section 8).

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up

Small spill: Recycle, if possible. Waste must be disposed of according to applicable regulations.

Large spill: Recycle, if possible. Waste must be disposed of according to applicable regulations. Avoid creating dusty conditions and prevent wind dispersal.

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7. Handling and Storage

Handling: Put on appropriate personal protective equipment as needed (see Section 8). Avoid creating dusty conditions. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should avoid product. Do not get in eyes. Do not ingest. Avoid breathing dust. If during normal use the material presents a respiratory hazard, use with adequate ventilation or wear appropriate respirator. Keep in original container or an appropriate alternative.

Storage: Store in accordance with local regulations. Avoid creating dusty Avoid creating dusty conditions. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

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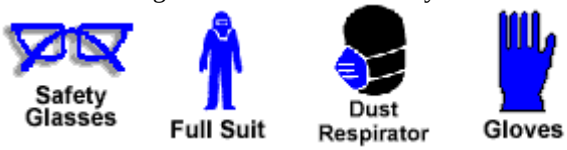
8. Exposure Controls / Personal Protection

Exposure Limits

Ingredient	**OSHA PEL TWA (mg/m3)**	**ACGIH TLV TWA (mg/m3)**
Iron	15	10
Ethylenebisstearamide	15	10
Graphite	15	2
Zinc Salts	n/a	10
Copper	1	1

Nickel	1	1

Recommended monitoring procedures:	If product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures:	Use only with adequate ventilation. If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep workers exposure to airborne contaminates below any recommended or statutory limits.
Hygiene measures:	Wash hands, forearms and face thoroughly after handling products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash clothing before reusing.
Personal Protective Equipment: (PPE)	
Eye Protection:	Avoid eye contact with this material. If contact is possible, safety glasses with side-shields should be worn.
Skin Protection:	Wear gloves and protective clothing to prevent skin contact if contact cause dryness and irritation.
Respiratory Protection:	Use a properly fitted respirator complying with an approved standard if a risk assessment indicates this is necessary.
Hands:	Wear suitable gloves if contact cause dryness and irritation.
PPE (Pictograms)	

9. Physical and Chemical Properties

Physical state:	Solid. (Powder)
Flash point:	Not applicable.
Burning time:	Not applicable.
Burning rate:	Not applicable.
Auto-ignition temp:	Not applicable.
Flammable limits:	Not applicable.
Color:	Grey to Black.
Odor:	Odorless.
pH:	Not applicable.
Boiling point:	5181.8F (2861C)
Melting point:	2795F (1535C)
Relative density:	7.8
Bulk density:	2.4-3.3 (g/cc)
Granulometry:	Not applicable.
Vapor pressure:	Not applicable.
Vapor density:	Not applicable.
Odor threshold:	Not applicable.
Evaporation rate:	Not applicable.
Viscosity:	Not applicable.
Solubility:	Insoluble in the following materials: cold and hot water.
Physical/chemical Properties comments:	Not available.

10. Stability and Reactivity

Chemical stability: The product is stable.
Conditions to avoid: Reactive or incompatible with the following materials: oxidizing materials and acids. Emits toxic fumes when heated. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges.
Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials and acids.
Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Iron	LD50 Oral	Rat	7500 mg/kg	
	LCLo Inhalation Dust and mist	Rat	250 mg/cm	
Nickel	LD50 Intratracheal	Rat	38200 ug/kg	6 hours

Conclusion/Summary: No known significant effects or critical hazards.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Iron	Sub-chronic LOAEL Oral	Rat	26 mg/kg	12 week
	Sub-chronic NOAEL Inhalation Dust	Rat	5 mg/cm	4 week

Conclusion/Summary: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation and pneumoconiosis.

Irritation/Corrosion
Conclusion/Summary
Skin: Non-irritating to the skin.
Eyes: Non-irritating to the eyes.
Respiratory: Non-irritating to the respiratory system.

Sensitizer
Conclusion/Summary

Skin: May cause sensitization by skin contact.
Respiratory: No know significant effects or critical hazards.

Carcinogenicity
Conclusion/Summary May cause cancer by inhalation. (Nickel)

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Nickel	A5	2B	_-_	_+_	Reasonably anticipated to be a human carcinogen.	_-_

Mutagenicity
Conclusion/Summary No known significant effect or critical hazards**.**

Teratogenicity
Conclusion/Summary No known significant effect or critical hazards**.**

Reproductive toxicity
Conclusion/Summary No known significant effect or critical hazards**.**

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12. Ecological information

Ecotoxicity: No know significant effects or critical hazards.

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
copper	.	Acute EC305 305 pg/l fresh water	Daphnia- Water Flea Ceriodaphnia dubia Neonate	7 days
nickel	.	Acute EC50 2 ppm Marine water	Algae-Giant Kelp- Macrocystis pyrifera- Young	4 days
Intoxication	.	Acute EC50 1000 pg/l Marine water	Daphnia-Water flea- Daphnia magna- <24 hours	48 hours
Growth	.	Acute EC50 450 pg/l Fresh water	Aquatic plants- Duckweed- Lemna minor	4 days
No Effect Coded	.	Acute IC50 2.86 mg/l Marine water	Crustaceans- Amphipod- Ampelisca Abdita	48 hours
No Effect Coded	.	Acute IC50 0.72 mg/l Marine water	Crustaceans-Opossum Shrimp- Americamysis bahia- Juvenile(Fledgling, Hatchling, Weanling)-<48 hours	48 hours
No Effect Coded	.	Acute IC50 0.61 mg/l Marine	Crustaceans-Opossum Shrimp-Americamysis Bahia-	48 hours

		water	Juvenile(Fledgling, Hatchling, Weanling)-<48 hours	
No Effect Coded	.	Acute IC50 0.31 mg/l Marine water	Crustaceans-Opossum Shrimp-Americamysis Bahia- Juvenile(Fledgling, Hatchling, Weanling)-<48 hours	48 hours
Mortality	.	Acute LC50 1.64 ppm Fresh water	Fish- common carp- Cyprinus carpio- Juvenile(Fledgling, Hatchling, Weanling)-6 cm	96 hours
Mortality	.	Acute LC50 1.64 ppm Fresh water	Fish- common carp- Cyprinus carpio- Juvenile(Fledgling, Hatchling, Weanling)-6 cm	96 hours
Mortality	.	Acute LC50 1.54 ppm Fresh water	Fish- common carp- Cyprinus carpio- Juvenile(Fledgling, Hatchling, Weanling)-3.5 cm	96 hours
Mortality	.	Acute LC50 1.3 ppm Fresh water	Fish- common carp- Cyprinus carpio- Juvenile(Fledgling, Hatchling, Weanling)-3.5 cm	96 hours
Mortality	.	Acute LC50 1280 pg/l Marine water	Crustaceans-Greasyback Shrimp- Metapenaeus ensis- 3 stage	48 hours
Population	.	Chronic NOEC 100 mg/l Marine water	Algae- Dinoflagellate- Glenodinium hali	72 hours
Enzymes	.	Chronic NOEC 0.025 ppm Fresh water	Fish -common carp- Cyprinus carpio	45 days
Accumulation	.	Chronic NOEC 13 pg/l Fresh water	Fish-common carp- Cyprinus carpio- 13 months-10.5 cm- 27.8 g	4 weeks
Accumulation	.	Chronic NOEC 6.3 pg/l Fresh water	Fish-common carp- Cyprinus carpio-13 months-10.5 cm- 27.8 g	4 weeks
Accumulation	.	Chronic NOEC 6 pg/l Fresh water	Fish-common carp- Cyprinus carpio-13 months-10.5 cm- 27.8 g	4 weeks
Accumulation	.	Chronic NOEC 3.5 pg/l Fresh water	Fish-common carp- Cyprinus carpio-13 months-10.5 cm- 27.8 g	4 weeks

Conclusion/Summary: Toxic to aquatic organisms.

Persistence/degradability
Conclusion/Summary: Inorganic: Not readily biodegradable.

13. Disposal considerations

Waste disposal: Recycle, if possible. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

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

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS?PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory Info	UN Number	Proper shipping name	Classes	PG *	Label	Additional Info
DOT Classification	3077	Environmentally hazardous substance, solid, N.O.S. (copper) Marine pollutant (copper) RQ (nickel)	9	III		**Reportable quantity** 3921.6lbs/1780.4kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Classification	3077	Environmentally hazardous substance, solid, N.O.S. (copper) Marine pollutant (copper) RQ (nickel)	9	III		
Mexico Classification	3077	Environmentally hazardous substance, solid, N.O.S. (copper) Marine pollutant (copper) RQ (nickel)	9	III		
ADR/RID Class	Not regulated					
IMDG Class	3077		9	III		

IATA-DGR Class	3077	Environmentally hazardous substance, solid, N.O.S. (copper)	9	III		

PG*: Packing group

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15. Regulatory information

HCS Classification: Sensitizing material. Carcinogen. Target organ effect.

U.S. Fed Reg:
TSCA 8(a) CDP Exempt/Partial exemption: Not determined.
US inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Immediate (acute) health hazard, Delayed (chronic) health hazard.
Clean Water Act (CWA) 307: copper, nickel.

Clean Air Act Section 112: (b) Hazardous Air Pollutants (HAPs) Listed

Clean Air Act Section 602: Class I Substances Not listed

Clean Air Act Section 602: Class II Substances Not listed

DEA List I Chemical: (Precursor chemicals) Not listed

DEA List II Chemical: (Essential chemicals) Not listed

SARA 313

	Product name	CAS number	Concentration
Form R-Reporting requirements	Copper Nickel	7440-50-8 7440-02-0	1-21 .1-5
Supplier notification	Copper Nickel	7440-50-8 7440-02-0	1-21 .1-5

SARA 313 notification must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts: The following components are listed: Copper; Nickel
New York: The following components are listed: Copper; Nickel
New Jersey: The following components are listed: Copper; Nickel
Pennsylvania: The following components are listed: Copper Fume; Nickel

California Prop. 65:

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Nickel	Yes	No	No	No

Canada

WHMIS (Canada): Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
Canadian NPRI: The following components are listed: Copper, Nickel (and its compounds)
Canada inventory: All components are listed or exempted.

International regulations

International lists: **Australia inventory (AICS):** All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia inventory: (EHS Register): Not determined.
New Zealand inventory of chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical weapons Convention list schedule I chemicals. Not listed.

Chemical weapons Convention list schedule II chemicals. Not listed

Chemical weapons Convention list schedule III chemicals. Not listed

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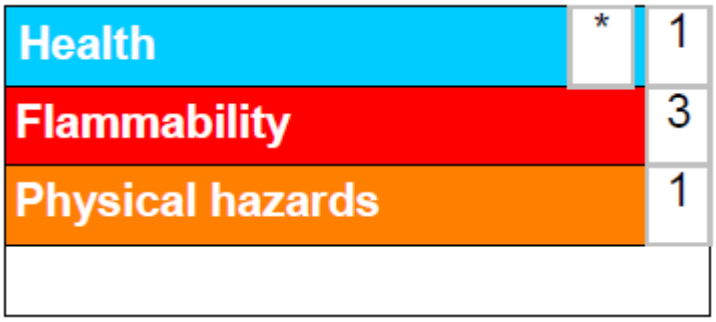
16. Other information

Label requirements: May cause allergic skin reaction. Contains material that may cause target organ damage, based on animal data. Suspect cancer hazard-contains material which may cause cancer.

Date of printing: 6-9-15

Date of issue: 6-9-15
Revision 1

Hazardous Material:
Info System (U.S.A.)



Caution: HMIS ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS ratings are to be used with fully implemented HMIS program. HMIS is a registered mark of the National Paint $ Coatings Association (NPCA). HMIS materials may be purchased exclusively from J.J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection:
Association (U.S.A.)

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in FFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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