* * *Section 1 – Identification* * *

Product Identifier: Ferronickel
Chemical Family: Alloy
Recommended Use: Stainless, special steels and special alloy clusters
Restriction on Use: None identified

Manufacturer Information

The David J. Joseph Company
300 Pike Street
Cincinnati, OH 45202

Non-Emergency Contact: Safety Department
Non-Emergency Phone: 513-419-6200
Emergency Contact: DJJ
Emergency Phone: 513-562-1699

* * *Section 2 – Hazard(s) Identification

Classification

Health

STOT rep. exp. Cat 1: Causes damage to organs by inhalation (particles under 0.1 mm diameter).
Skin Sens. Cat 1: May cause an allergic skin reaction.
Carc. Cat 2: Suspected of causing cancer by inhalation (inhalable size particles only).

GHS Label Elements

Symbol(s)

Signal Word

Warning

Hazards Statement(s)

May cause allergic skin reaction.
Contains cobalt. May cause an allergic respiratory system reaction.

Precautionary Statements

If medical advice is needed, have product container or label at hand.
Avoid breathing dust.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin wash with plenty of soap and water.
If exposed or concerned get medical advice/attention.
Wash contaminated clothes before reuse.

Hazard(s) Not Otherwise Classified

Research suggests that ferronickel in the form it is placed on the market contains less than 0.5% inhalable particles.

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

CAS	Component	Percent
7439-89-6	Iron	65%-85%
7440-02-0	Nickle (massive)	15%-35%
7440-48-4	Cobalt (massive)	<1%

* * *Section 4 – Fist Aid Measures* * *

Inhalation

Seek medical attention.

Skin Contact

Wash thoroughly with water. For rashes seek medical advice. Show label or data sheet if possible.

Eye Contact

Wash eyes thoroughly with water for 10 minutes. If discomfort persists seek medical attention.

Ingestion

Seek medical attention.

* * *Section 5 – Fire Fighting Measures* * *

Extinguishing Media

Any type to be selected according to materials burning in the immediate area.

Unsuitable Extinguishing Media

None identified.

Specific Hazards Arising from the Chemical

Dust may oxidize to metal oxides (nickel monoxide) after exposure to high temperatures within a fire.

Special Protective Equipment and Precautions for Firefighters

None specified.

* * *Section 6 – Accidental Release Measures* * *

Personal Precautions, Protective Equipment and Emergency Procedures

Ferronickel inhalable dust may be generated during prolonged storage in area with insufficient ventilation. Avoid generation of dusty atmospheres.

Methods and Materials for Containment and Cleaning Up

Pick up and replace in original storage. Nickel-containing material is normally collected to recover nickel values. Do not release in water or areas that will transport spill into water bodies or underwater aquifers.

* * *Section 7 – Handling and Storage* * *

Precautions for Safe Handling

Prevent the generation of dusts. Wear appropriate respirator if handling is likely to cause the concentration of airborne nickel to exceed exposure limits. Wear suitable protective gloves and clothing.

Conditions for Safe Storage

Keep in supplied container and keep container closed when not in use. Containers should be stored under cover in a clean and dry environment.

Incompatibilities

Strong oxidizing agents and acids.

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

Exposure Limits

Metallic Nickel

OSHA 8 hour: 1 mg/m3
ACGIH 8 hour: 1.5 mg/m3

Insoluble Nickel

ACGIH 8 hour: 0.2 mg/m3

Cobalt Metal

OSHA 8 hour: 0.1 mg/m3
ACGIH 8 hour: 0.02 mg/m3

Appropriate Engineering controls

Ensure proper ventilation in area where dust accumulation is possible.

Individual Protection Measures

Eyes/Face Protection

When handling dusty materials use appropriate eye protection.

Skin Protection

Wear protective gloves and clothing.

Respiration

If dust is generated, use an approved respirator with particulate filter.

* * *Section 9 – Physical and Chemical Properties* * *

Appearance: Solid brown/ silver metal

Physical state: Solid
Melting/freezing Point: 1440-1460 C
Flash Point: N/A
UFL: Not identified
Vapor Pressure: N/A
Specific Gravity: Not identified
Auto Ignition: N/A

pH: N/A
Boiling Point: N/A
OSHA Flammability Class: Non flammable
LFL: Not identified
Vapor Density: Not identified
Solubility (H20): Insoluble

* * *Section 10 – Chemical Stability & Reactivity* * *

Reactivity

Stable under normal conditions.

Chemical Stability

Chemically stable mixture under normal conditions.

Possibility of Hazardous Reaction

Stable under normal conditions.

Conditions to Avoid

This product can react vigorously with acids to liberate hydrogen, which can from explosive mixtures with air. Under special conditions, nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, a toxic gas. Metal powders may become pyrophoric when heated in reducing atmospheres.

Incompatible Materials

Incompatible with strong oxidizing agents and acids.

Hazardous Decomposition Products

None identified.

* * *Section 11 – Toxicological Information* * *

Acute Dose Effects

Ferronickel is classified as a dermal sensitizer based on its nickel and cobalt content.

Nickel metal has been consistently negative for respiratory carcinogenicity in human studies and was also negative in an animal inhalation study.

Nickel and iron metal are not classified as reproductive toxicants.

Component Analysis

Nickel

Oral LD50: >9000 mg/kg

Inhalation: NOEAC (66min): 10.2 mg/L in air

Iron

Oral LD50: >7500 mg/kg

Inhalation: 250 mg/m3 air

Information on Likely routes of Exposure

Absorption

Oral: 0.9% (Ni)

Dermal: 0.2% (Ni)

Inhalation: 6.1% (Ni)

* * *Section 12 – Ecological Information* * *

Component Analysis – Ecotoxicity – Aquatic Toxicity

Transformation/dissolution testing for Ferronickel showed that particles larger than 3 mm should not be classified for aquatic toxicity. Based on the mixture rules of CLP Regulation (Annex I, Section 4.1.3) in order for Ferronickel to be classified as aquatic chronic 3 or 4, it should contain more than 25% (w/w) of particles smaller than 3 mm. For ferronickel massive, this condition does not exist, so it can be safely said that ferronickel massive is not classified as hazardous to the aquatic environment.

Persistence & Degradability

The PBT and vPvB criteria of Annex XIII to the regulation does not apply to inorganic substances such as ferronickel. The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulation

Nickel does not tend to bioaccumulate or biomagnify in aquatic or terrestrial systems.

Mobility

A log Kp soil for Nickel has a value of 2.86.

* * *Section 13 – Disposal Considerations* * *

Disposal Methods

Recover or recycle if possible. Waste characterization and disposal according to all applicable regulations.

* * *Section 14 – Transportation Information* * *

No transportation regulations or classifications.

* * *Section 15 – Regulatory Information* * *

U.S. Federal Regulations

All components are listed in TSCA.

* * *Section 16 – Other Information* * *

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