SAFETY DATA SHEET

* * *Section 1 – Identification* * *

Product Identifier: Nickel Pellet
Synonyms: Nickel Squares, SUPERELECTRO TM, Full Plate Cathode, Nickel Crowns, D-Crowns, Micros, Sundry, Ribs, Starting Sheets.
Chemical Family: Nickel Metal
Recommended Use: Steel making additive.
Restriction on Use: None known

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 of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification Carc. Cat. 3;R40, T;R48/23, R43

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Skin sensitization	Category 1	May cause an allergic skin reaction.
Carcinogenicity	Category 2	Suspected of causing cancer.
Specific target organ toxicity - repeated exposure	Category 1 (Lung, Respiratory system)	Causes damage to organs (Lung, Respiratory system) through prolonged or repeated exposure.

Hazard summary

Physical hazards Not classified for physical hazards.

Health hazards Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Occupational exposure to the substance or mixture may cause adverse health effects.

Environmental hazards Aquatic Acute 1, Aquatic Chronic 3,

Specific hazards Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. The effects might be delayed. Molten material will produce thermal burns. Mechanical processing may generate dust. High concentrations of dust may form explosive mixture with air.

Main symptoms Irritation of nose and throat. Irritation of eyes and mucous membranes. Sensitization.

Label elements None required when in a form that does not present a hazard by inhalation, ingestion, contact with skin or aquatic environment. Otherwise:

Signal word Warning

Hazard statements	May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs (Lung, Respiratory system) through prolonged or repeated exposure.
Precautionary statements	
Prevention	Obtain special instructions before use. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves.
Response	Get medical attention/advice if you feel unwell.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental label information	None.
Other hazards	The PBT and vPvB criteria of Annex XIII to the Regulation does not apply to inorganic substances, such as nickel metal.

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

CAS	Component	Percent
7440-02-0	Nickel	99.9%-100%

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

General information	Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.
Description of first aid measures	
Inhalation	In case of exposure to fumes or particulates: Move to fresh air. Get medical attention if discomfort persists.
Skin contact	Contact with dust: Wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.
Eye contact	Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.
Ingestion	Rinse mouth thoroughly if dust is ingested. Do not induce vomiting. Get medical attention if any discomfort continues.
Most important symptoms and effects, both acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Sensitization.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically. Symptoms may be delayed.

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

General fire hazards	Nickel powder or dust will support combustion and may form explosive mixtures in air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen. Do not use water on molten metal: Explosion hazard could result.
Extinguishing media	
Suitable extinguishing media	Special powder against metal fires. Dry sand. Water spray, fog or mist.

Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Special hazards arising from the substance or mixture	Fire or high temperatures create: Metal oxides.
Advice for firefighters	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special firefighting procedures	Move containers from fire area if you can do so without risk.

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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in section 8 of this safety data sheet.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in section 8 of the SDS.
Environmental precautions	Avoid release to the environment. Avoid spreading dust or contaminated materials.
Methods and material for containment and cleaning up	Collect spillage. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust or particulates using a vacuum cleaner with a HEPA filter.
Reference to other sections	For waste disposal, see section 13. For personal protection, see section 8.

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

Precautions for safe handling	Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts. Provide adequate ventilation. Use appropriate tools. Avoid contact with sharp edges and hot surfaces. Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Wear appropriate personal protective equipment. Avoid contact with molten material. Do not use water on molten metal. Do not eat, drink or smoke when using the product. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Keep dry. Store away from incompatible materials.
Specific end use(s)	For detailed information, see section 15. Recommendations given in the exposure scenario for the uses are distributed and annexed as separate documents to this SDS.

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

Control parameters

Occupational exposure limits

Material	Type	Value
Nickel (7440-02-0)	OSHA PEL	1 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow the schedule for work place measurements.

DNEL

Material	Type	Route	Value	Form
Nickel (7440-02-0)	General Population	Oral	1.2 mg/kg/day	Acute Systemic effects
	Workers	Inhalation	816 mg/m3	Acute Systemic effects
		Dermal	0.015 mg/m3	Long term Local effects
		Inhalation	0.05 mg/m3	Long term Local effects
		Oral	1.1 mg/kg/day	Long term Systemic effects
		Inhalation	0.05 mg/m3	Long term Systemic effects
		Inhalation	1.6 mg/m3	Acute Local effects

PNEC

Material	Type	Route	Value	Form
Nickel (7440-02-0)	Aqua (freshwater)	Not applicable	3.6 µg/l	Dissolved Ni
	Aqua (marine water)	Not applicable	8.6 µg/l	Dissolved Ni
	Not applicable	Not applicable	12.3 mg/kg	Bivalve-eating bird
		Not applicable	4.6 mg/kg	Harbor seal
		Not applicable	12.3 mg/kg	Oystercatcher
	Sewage Treatment Plant	Not applicable	0.33 mg/l	Nickel
	Soil	Not applicable	29.9 mmol/mol	Nickel

Exposure controls

Appropriate engineering controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment if high dust/air concentrations are possible.

Individual protection measures, such as personal protective equipment

General information Wear suitable protective equipment.

Eye/face protection Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.

Skin protection

- Hand protection Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier.

- Other Wear suitable protective clothing.

Respiratory protection In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Seek advice from local supervisor.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Wash hands after handling. Do not eat, drink or smoke when using the product. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Handle in accordance with good industrial hygiene and safety practices. Follow up on any medical surveillance requirements.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Notify relevant authorities if this material is released to the environment.

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

Information on basic physical and chemical properties

Appearance	Massive, solid metal.
Physical state	Solid.
Form	Solid forms such as: Pellets, Offcuts, Briquettes, S sheet, Caths, Cuts, Uncuts and Crowns.
Color	Silver-grey.
Odor	Odorless.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	1.455 °C (2.651 °F)
Boiling point, initial boiling point, and boiling range	2.730 °C (4.946 °F)
Flash point	Not applicable.
Auto-ignition temperature	Not available.
Flammability (solid, gas)	Nonflammable.
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Oxidizing properties	Not oxidizing.
Explosive properties	Not explosive.
Explosive limit	Not applicable.
Vapor pressure	1 mm Hg at 1810°C
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Relative density	8,9
Relative density temperature	25 °C (77 °F)
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable.
Decomposition temperature	Toxic gases and vapors (such as nickel carbonyl) may be released in the decomp of nickel cmpd.
Viscosity	Not applicable.
Viscosity temperature	Not applicable.
VOC (Weight%)	Not applicable.
Percent volatile	Not applicable.
Other information	No relevant additional information available.

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

Reactivity	Massive metal is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	The product is stable.

Possibility of hazardous reactions	Hazardous polymerization does not occur. Hazardous reactions do not occur.
Conditions to avoid	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas.
Incompatible materials	This product is incompatible with nitrates. Fluoride. Oxidizing materials. Phosphorus. Ammonia. Halogens. Sulphur. Acids.
Hazardous decomposition products	Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides.

* * *Section 11 – Toxicological Information* * *

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Ingestion May be ingested by accident.

Inhalation Dust may irritate respiratory system.

Skin contact May cause sensitization by skin contact.

Eye contact Eye contact is possible and should be avoided.

Symptoms Irritation of eyes and mucous membranes. Irritation of nose and throat. Sensitizing.

Information on toxicological effects

Acute toxicity The acute oral toxicity of nickel metal has been determined in a well-performed animal study which concluded the acute oral LD50 was greater than >9000 mg/kg bw. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Data on acute toxicity in animals via dermal exposure have not been found. Dermal acute toxicity is expected to be low in view of the low oral toxicity and the negligible absorption via the skin.

Product	**Test results**
Nickel (7440-02-0)	Acute Oral LD50 Rat: > 9000 mg/kg

Skin corrosion/irritation Not irritant in skin irritation study using the rabbit (animal number: 2, dose: 500mg/animal's ear, exposure period: 24 hours, observation period: 7 days).

Serious eye damage/eye irritation No studies of eye irritation by metallic nickel have been found. Toxicity data from water-soluble nickel compounds can be used to estimate the potential of nickel metal to cause eye irritation. No classification for eye irritation is proposed.

Respiratory sensitization Not classified.

Skin sensitization Sufficient data from human studies exists to warrant classification of Ni metal as a dermal sensitizer.

Germ cell mutagenicity Test data conclusive but not sufficient for classification.

Carcinogenicity Suspected as carcinogen for human by inhalation. **IARC Monographs.**

Overall Evaluation of Carcinogenicity

Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.

Reproductive toxicity Test data conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

Test data conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure: Lungs. Respiratory system.

Aspiration hazard Not classified.

Mixture versus substance information Not available.

Other information Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

* * *Section 12 – Ecological Information* * *

Toxicity

Product	Test results
Nickel (7440-02-0)	EC50 Pseudokirchneriella subcapitata: 81.5 - 148 µg/l 72 Hours (Nickel dichloride)
	EC50Water flea (Ceriodaphnia dubia): 121.6 µg/l 48 Hours (Nickel dichloride, hexahydrate)
	LC50 Oncorhynchus mykiss: 15.3 mg/l 96 Hours (Nickel dichloride)

Persistence and degradability The product is not biodegradable.

Bio accumulative potential Accumulates in soil and sediment. Aquatic organism: BCF= 270 mg/L. Potential to bio accumulate is low.

Mobility Nickel in massive forms is not mobile in the environment.

Environmental fate - Partition coefficient Not applicable.

Mobility in soil Nickel in massive forms is not mobile in the environment.

Results of PBT and vPvB assessment

Not a PBT or vPvB substance or mixture.

Other adverse effects Not expected to be harmful to aquatic organisms. However in case of accidental release of large amounts a hazardous effect cannot be excluded.

* * *Section 13 – Disposal Considerations* * *

Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.

Contaminated packaging Since emptied containers retain product residue, follow label warnings even after container is emptied.

Disposal methods/information Dispose in accordance with all applicable regulations.

* * *Section 14 – Transportation Information* * *

DOT

The product is not regulated.

IATA

The product is not covered by international regulation on the transport of dangerous goods.

IMDG

The product is not covered by international regulation on the transport of dangerous goods.

* * *Section 15 – Regulatory Information* * *

U.S. Federal Regulations
This product is a “Hazardous Chemical” as defined by OSHA.
TSCA
Not Regulated.
CERCLA (Hazardous Substance 40 CFR302.4)
Not Regulated.
SARA 302 and 304 Emergency release notification / EHS
Not Regulated.
SARA 311/312 –Yes Hazardous Chemical
SARA 313 (TRI Reporting) Yes (Molybdenum Trioxide CAS 1313-27-5 (85-98%)
Section 112 (r) Accidental Release – Not regulated
TSCA Inventory – Complies with the requirements in the US.

* * *Section 16 – Other Information* * *

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

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