**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
- Carcinogenicity Category 2
- Specific target organ toxicity - repeated exposure Category 1 (Lung, Respiratory system)

**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
May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs (Lung, Respiratory system) through prolonged or repeated exposure.

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** **

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-02-0</td>
<td>Nickel</td>
<td>99.9%-100%</td>
</tr>
</tbody>
</table>

** **Section 4 – First 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
Special powder against metal fires. Dry sand. Water spray, fog or mist.
**Nickel Pellet**

**SAFETY DATA SHEET**

**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**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Special protective equipment for firefighters**
Move containers from fire area if you can do so without risk.

**Personal precautions, protective equipment and emergency procedures**
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.

**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.

**Control parameters**

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel (7440-02-0)</td>
<td>OSHA PEL</td>
<td>1 mg/m3</td>
</tr>
</tbody>
</table>

**Biological limit values**
No biological exposure limits noted for the ingredient(s).

**Recommended monitoring procedures**
Follow the schedule for workplace measurements.
**Nickel Pellet**

**SAFETY DATA SHEET**

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

**PNEC**

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

**Exposure 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.

**Appropriate engineering controls**

**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

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

**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


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

<table>
<thead>
<tr>
<th>Product</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel (7440-02-0)</td>
<td>Acute Oral LD50 Rat: &gt; 9000 mg/kg</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>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).</td>
</tr>
<tr>
<td>Serious eye damage/eye</td>
<td>No studies of eye irritation by metallic nickel have been found. Toxicity data from water-soluble irritation nickel compounds can be used to estimate the potential of nickel metal to cause eye irritation. No classification for eye irritation is proposed.</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Not classified.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Sufficient data from human studies exists to warrant classification of Ni metal as a dermal sensitizer.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Test data conclusive but not sufficient for classification.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Suspected as carcinogen for human by inhalation. IARC Monographs.</td>
</tr>
<tr>
<td>Overall Evaluation of Carcinogenicity</td>
<td>Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Test data conclusive but not sufficient for classification.</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td>Test data conclusive but not sufficient for classification.</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Causes damage to organs through prolonged or repeated exposure: Lungs. Respiratory system.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified.</td>
</tr>
<tr>
<td>Mixture versus substance information</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
**Section 12 – Ecological Information**

<table>
<thead>
<tr>
<th>Product</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel (7440-02-0)</td>
<td>EC50 Pseudokirchneriella subcapitata: 81.5 - 148 µg/l 72 Hours (Nickel dichloride)</td>
</tr>
<tr>
<td></td>
<td>EC50 Water flea (Ceriodaphnia dubia): 121.6 µg/l 48 Hours (Nickel dichloride, hexahydrate)</td>
</tr>
<tr>
<td></td>
<td>LC50 Oncorhynchus mykiss: 15.3 mg/l 96 Hours (Nickel dichloride)</td>
</tr>
</tbody>
</table>

**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.

The data on this sheet applies only to products sold by corporate subsidiaries of The David J. Joseph Company and may not apply to products sold by others.