

Plasmaterials, Inc.  
 2268 Research Drive  
 Livermore, CA 94550  
 Ph: (925) 447-4030 Fx: (925) 447-4031  
<http://plasmaterials.com>

## SAFETY DATA SHEET

### Section 1- IDENTIFICATION

COMPOSITION <b>Ni</b>		PRODUCT NAME <b>Nickel</b>
SUPPLIER: <b>Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030</b>	RECOMMENDED USE: <b>Laboratory Chemicals Scientific Research</b>	EMERGENCY TELEPHONE NUMBERS <b>US: 001-800-424-9300 Europe: 001-703-527-3887</b>

### Section 2- HAZARD(S) IDENTIFICATION

<b>HEALTH HAZARDS:</b> - <b>Serious Eye Damage/Eye Irritation:</b> Category 2A (H318) - <b>Sensitization, Respiratory:</b> Category 1 (H334) - <b>Sensitization, Skin:</b> Category 1 (H317) - <b>Carcinogenicity:</b> Category 1A (H351) - <b>Specific Target Organ Toxicity, Repeated Exposure:</b> Category 1 (H372)	
<b>ENVIRONMENTAL HAZARDS:</b> - <b>Hazardous to the Aquatic Environment, Acute Hazard:</b> Category 1 (H400) - <b>Hazardous to the Aquatic Environment, Long-Term Hazard:</b> Category 1 (H410)	
<b>Physical Hazards:</b> Not Classified	<b>OSHA Defined Hazards:</b> Not Classified
<b>LABEL ELEMENTS: Signal Word: Danger</b>	



#### **HAZARD STATEMENTS**

- H317: May cause an allergic skin reaction
- H318: Causes serious eye irritation
- H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H351: Suspected of causing cancer
- H372: Causes damage to organs through prolonged or repeated exposure
- H400: Very toxic to aquatic life
- H410: Very toxic to aquatic life with long lasting effects

#### **PRECAUTIONARY STATEMENTS**

- P201: Obtain special instructions before use
- P202: Do not handle until all safety precautions have been read and understood
- P261: Avoid breathing dust/fume/gas/mist/vapors/spray
- P264: Wash thoroughly after handling.
- P270: Do not eat, drink, or smoke when using this product.
- P272: Contaminated work clothing must not be allowed out of the workplace
- P273: Avoid release to the environment
- P280: Wear protective gloves/protective clothing/eye protection/face protection

-P285: In case of inadequate ventilation, wear respiratory protection  
 -P302+P352: If on skin: Wash with plenty of water  
 -P304+P341: If inhaled: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing  
 -P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do so. Continue rinsing.  
 -P308+P313: If exposed or concerned: Get medical advice/attention  
 -P333+P313: If skin irritation or rash occurs: Get medical advice/attention  
 -P337+P313: If eye irritation persists: Get medical advice/attention  
 -P342+P311: If experiencing respiratory symptoms: Call a poison center/doctor  
 -P363: Wash contaminated clothing before reuse  
 -P391: Collect spillage  
 -P405: Store locked up.  
 -P501: Dispose of contents/container in accordance with local/regional/national/international regulations

**Hazards not otherwise classified (HNOC):**  
 -None identified.

**Supplemental Information:**  
 -100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment.

### Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Nickel	7440-02-0	58.69 g/mol

### Section 4- FIRST AID MEASURES

**GENERAL ADVICE:** If exposed or concerned: get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Wash contaminated clothing before reuse.

**INHALATION:** If breathing is difficult, remove victim from exposure to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a poison control center or doctor/physician if experiencing respiratory symptoms.

**SKIN CONTACT:** Remove contaminated clothing immediately. Wash skin off with soap and plenty of water. In case of eczema or other skin disorders, seek medical attention and take along these instructions.

**EYE CONTACT:** Do not rub eyes. Immediately flush eyes with plenty of water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and/or persists.

**INGESTION:** Rinse mouth thoroughly. Get medical advice/attention if symptoms occur.

**MOST IMPORTANT SYMPTOMS/EFFECTS:** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling and blurred vision. Difficulty in breathing. May cause an allergic reaction. Dermatitis. Rash.

**NOTES TO PHYSICIAN:** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

### Section 5- FIREFIGHTING MEASURES

<b>Suitable Extinguishing Media:</b> Dry sand, Sodium Chloride powder, Graphite powder or Met-L-X powder	<b>Unsuitable Extinguishing Media:</b> Do not use water jet as an extinguisher, as this will spread the fire. Carbon Dioxide (CO2)
<b>Specific Hazards Arising from the Chemical:</b> During fire, gases hazardous to health may be formed.	
<b>Fire Fighting Instructions:</b> Move containers from fire area if you can do so without risk	
<b>Protective Equipment &amp; Precautions for Firefighters:</b> As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.	

**Specific Methods:**

Use standard firefighting procedures and consider the hazards of other involved materials.

**General Fire Hazards:**

No unusual fire or explosion hazards noted.

**Section 6- ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** Keep unnecessary personnel away and away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see Section 8.

**Environmental Precautions:** Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

**Methods for Containment & Clean Up:** The product is immiscible with water and will spread on the water surface. Prevent product from entering drains.

-Large Spills: Stop the flow of material if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

-Small Spills: Wipe up with absorbent material (e.g., cloth, fleece). Clean surface thoroughly to remove residual contamination.

-Never return spills to original containers for re-use.

-For waste disposal, see Section 13.

**Section 7- HANDLING AND STORAGE**

**Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protection equipment. Avoid release to the environment. Observe good industrial hygiene practices. Wash hands thoroughly after handling.

**Storage:** Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10)

**Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION****Exposure Guidelines: Occupational Exposure Limits**

Component	CAS-No.	Type	Control Parameters	Basis
Nickel	7440-02-0	PEL	1 mg/m <sup>3</sup>	USA. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
		TWA	1.5 mg/m <sup>3</sup> (Inhalable Fraction)	US ACGIH Threshold Limit Values
		TWA	0.015 mg/m <sup>3</sup>	US NIOSH Pocket Guide to Chemical Hazards
		PEL	0.5 mg/m <sup>3</sup>	US California Code of Regulations, Title 8, Section 5155, Airborne Contaminants

**Biological Limit Values:** No biological exposure limits noted for the ingredient(s)

**Engineering Measures:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Good general ventilation normally adequate. Provide eyewash station.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice. Keep away from food and drink. Wash thoroughly after handling and before eating, drinking and/or smoking. Wash hands before breaks and at the end of the workday. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

**Personal Protective Equipment:**

**Eye/Face Protection:** Wear safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin and Body Protection:** Handle with chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** Wear positive pressure self-contained breathing apparatus (SCBA). Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Thermal Hazards:** Wear appropriate thermal protective clothing, when necessary.

**Section 9- PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State:** Solid

**Odor:** No information available

**Odor Threshold:** No information available

**pH:** No information available

**Melting Point/Range:** 1455°C (2651°F)

**Initial Boiling Point/Range:** 2730°C (4946°F)

**Flash Point:** No information available

**Evaporation Rate:** No information available

**Flammability (solid,gas):** No information available

**Flammability or Exposure Limits:**

**Upper:** No information available

**Lower:** No information available

**Vapor Pressure:** No information available

**Vapor Density:** No information available

**Relative Density:** No information available

**Solubility (Water):** Insoluble

**Partition coefficient; n-octanol/water:** No information available

**Auto Ignition Temperature:** No information available

**Decomposition Temperature:** No information available

**Viscosity:** No information available

**Density:** 8.91 g/cm<sup>3</sup> estimated

**Specific Gravity:** 8.91

**Explosive Properties:** Not explosive

**Oxidizing Properties:** Not oxidizing

**Section 10- STABILITY AND REACTIVITY**

**Reactive Hazard:** Stable and non-reactive under normal conditions of use, storage, and transport.

**Stability:** Stable under normal conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur.

**Conditions to Avoid:** Contact with incompatible products.

**Incompatible Materials:** Strong acids

**Hazardous Decomposition Products:** No hazardous decomposition products are known

## Section 11- TOXICOLOGICAL INFORMATION

### **Information on likely Routes of Exposure:**

**Inhalation:** May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.

**Skin Contact:** May cause an allergic skin reaction

**Eye Contact:** Causes serious eye irritation

**Ingestion:** Expected to be a low ingestion hazard

**Symptoms Related to the Physical, Chemical & Toxicological Characteristics:** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Difficulty breathing. May cause an allergic skin reaction. Dermatitis. Rash.

### **Information on Toxicological Effects:**

**Acute Toxicity:** May cause an allergic skin reaction.

**Skin Corrosion/Irritation:** Prolonged skin contact may cause temporary irritation

**Serious Eye Damage/Eye Irritation:** Causes serious eye irritation

**Respiratory Sensitization:** May cause allergy or asthma symptoms or breathing difficulties

**Skin Sensitization:** May cause an allergic skin reaction

**Carcinogenicity:** Suspected of causing cancer

- **IARC Monographs Overall Evaluation of Carcinogenicity:** 2B Possibly carcinogenic to humans

- **US National Toxicology Program (NTP) Report on Carcinogens:** Reasonably anticipated to be a Human Carcinogen. Known to be Human Carcinogen

- **OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052):** Not regulated

**Germ Cell Mutagenicity:** No information available

**Reproductive Toxicity:** No information available

**Development Effects:** No information available

**Specific Target Organ Toxicity – single exposure:** No information available

**Specific Target Organ Toxicity – repeated exposure:** Causes damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure.

**Aspiration Hazard:** No information available

**Chronic Effects:** Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects

**-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.**

## Section 12- ECOLOGICAL INFORMATION

**Ecotoxicity:** Very toxic to aquatic life with long lasting effects

Crustacea	EC50	Water flea ( <i>Daphni magna</i> )	1 mg/l, 48 hours
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> )	2.923 mg/l, 96 hours

**Persistence and Degradability:** No information available

**Bioaccumulation/Accumulation:** No information available

**Mobility in soil:** No information available

**Other Adverse Effects:** No other adverse environmental effects are expected from this component.

## Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Instructions:** Collect and reclaim or dispose in sealed containers to a licensed waste disposal site. Dispose of contaminated packaging as unused product. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways, or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

## Section 14- TRANSPORT INFORMATION

**DOT:** Not regulated as dangerous goods  
**IATA:** Not regulated as dangerous goods  
**IMDG:** Not regulated as dangerous goods

## Section 15- REGULATORY INFORMATION

**US Federal Regulations:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the US EPA TSCA Inventory List.  
**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D):** Not regulated  
**U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052):** Not regulated  
**CERCLA Hazardous Substance List (40 CFR 302.4):** Nickel (CAS 7440-02-0) – Listed  
**SARA 302 Extremely Hazardous Substance:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302  
**SARA 304 Emergency Release Notification:** Not regulated  
**SARA 311/312 Hazardous Chemical:** Yes  
**SARA 313 (TRI reporting):**

Chemical Name	CAS No:	% by Wt
Nickel	7440-02-0	99.9-100

**Safe Drinking Water Act (SWDA):** Not regulated  
**Clean Water Act (CWA) Section 112(r) (40 CFR 68.130):** Priority pollutant, Toxic pollutant  
**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:** Nickel (CAS 7440-02-0)  
**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** Not regulated  
**CERCLA Hazardous Substance List (40 CFR 302.4):** Listed  
**Food and Drug Administration (FDA):** Total food additive. Direct food additive. GRAS food additive  
**US California Proposition 65:** WARNING: This product contains a chemical known to the State of California to cause cancer.  
**US California Controlled Substances. CA Dept of Justice (California Health & Safety Code Section 11100):** Not Listed  
**US California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3 subd. (a)):** Nickel (CAS 7440-02-0)  
**US California Proposition 65 – CRT:** Nickel (CAS 7440-02-0) - Listed date: October 1, 1989  
**US Massachusetts RTK – Substance List:** Nickel (CAS 7440-02-0)  
**US New Jersey RTK-Substances:** Listed substance, Nickel (CAS 7440-02-0)  
**US New Jersey Worker & Community Right-to-Know Act:** Nickel (CAS 7440-02-0)  
**US Pennsylvania RTK – Hazardous Substances:** All compounds of this substance are considered environmental hazards. Special Hazard. Nickel (CAS 7440-02-0)  
**US Pennsylvania Worker & Community Right-to-Know Law:** Nickel (CAS 7440-02-0)  
**US Rhode Island RTK:** Nickel (CAS 7440-02-0)

## Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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