

# NOVAMET

## NOVAMET<sup>®</sup> Nickel Flake Paste

\*\*THIS DATA SHEET IS PREPARED IN COMPLIANCE WITH EU DIRECTIVE 93/112\*\*

### 1. Substance and Company Identification

This MSDS covers the family of products identified as:

**NOVAMET Nickel Flake Paste**

This includes the following grades:

**Fine Leafing**

**Fine Water**

**UFNL**

Company identification:

**NOVAMET SPECIALTY PRODUCTS CORPORATION**

681 Lawlins Road

Wyckoff, New Jersey 07481

Emergency Tel No. 24 hr: 1-800-424-9300

### 2. Composition

Hazardous Ingredient	Typical Composition	C.A.S. Number	EINECS/EC LABEL No.	TRK <sup>(1)</sup> mg/m <sup>3*</sup>	TLV <sup>(2)</sup> mg/m <sup>3*</sup>	MEL <sup>(3)</sup> mg/m <sup>3*</sup>
Nickel Metal (Ni)**	90%	7440-02-0	231-111-4	0.5	1.5	0.5
Mineral Spirits	10%	64742-47-8	649-422-002	N.Av.	N.Av.	N.Av.

\*expressed as Ni inhalable size fraction

\*\*There is <0.06% oxygen contained in the nickel

### 3. Hazards Identification

Nickel:

**Xn – Harmful - Category 3 carcinogen**

R40 – Limited evidence of a carcinogenic effect

R43 - May cause sensitisation by skin contact.

Mineral Spirits:

**Xn- Harmful**

R65 - Harmful: may cause lung damage if swallowed.

**If user operations change the substance to other chemical forms, whether as end products, intermediates or fugitive emissions, the user must determine the possible health hazards of such forms.**

### 4. First Aid Measures

*Ingestion:*

do not induce vomiting if this product is ingested. This may cause the aspiration of mineral spirits in the lung. The resulting widespread lung irritation can cause edema and possible death. Seek medical attention.

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<i>Inhalation:</i>	If mineral spirit vapours are inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. Seek medical attention immediately. If exposure to nickel carbonyl is suspected, seek medical attention.
<i>Skin:</i>	Wash thoroughly with water. For rashes seek medical advice. Show label if possible.
<i>Eyes:</i>	Irrigate eyeball thoroughly with water for at least 10 minutes. If discomfort persists seek medical attention.
<i>Wounds:</i>	Cleanse thoroughly to remove any nickel particles.

## 5. Fire Fighting Measures

<i>Suitable extinguishing media:</i>	Any, type to be selected according to materials stored in the immediate neighborhood.
<i>Special risks:</i>	Mineral spirits is a combustible liquid. Metal powders heat treated in reducing atmospheres may become spontaneously combustible.
<i>Special protective equipment for fire fighting:</i>	Wear protective equipment if required for other materials within the immediate vicinity.

## 6. Accidental Release Measures

<i>Person related precautionary measures:</i>	Keep work areas free of hot surfaces and other sources of ignition.
<i>Environmental Protection measures:</i>	No specific measures needed.
<i>Procedures for cleaning/absorption:</i>	Collect spills by wet sweeping or if applicable by vacuuming with the vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if exhaust is discharged into the work place. Wear appropriate nationally approved respirators if collection and disposal of spills is likely to cause the concentration limits of airborne nickel or mineral spirits to exceed the locally prescribed exposure limits.

## 7. Handling and Storage

<i>Handling:</i>	Prevent the generation of inhalable flake or mineral spirit vapor e.g. by the use of suitable ventilation. Do not inhale particulate or vapor. Wear appropriate nationally approved respirators if handling is likely to cause the concentration limits of airborne nickel or mineral spirits to exceed the locally prescribed exposure limits. Wear suitable protective clothing and gloves.
<i>Storage:</i>	Keep in the container supplied, in dry conditions and keep container tightly closed when not in use. Nickel metal is no longer subject to the Control of Major Accident Hazards Directives 82/501EEC, 96/82/EC & 98/433/EC (The Seveso Directive). Local regulations should be followed regarding the storage of this product.

## 8. Exposure Controls / Personal Protection

**Exposure limit values:** See Section 2 for values. Maintain airborne nickel levels as low as possible.

**Occupational exposure controls:**

Ventilation is normally required when handling or using this product to keep airborne nickel and or petroleum distillates below the nationally authorized limits. If ventilation alone cannot control exposure, respiratory protection must be used.

**a. Respiratory protection:** If ventilation alone cannot control exposure, respiratory protection (selected specifically for the working place, depending on concentration and quantity of the hazardous material) must be used. Use approved respirators.

**b. Eye protection:** Avoid repeated contact with eyes. Wear goggles or face shield.

**c. Hand & Skin Protection:** Avoid repeated skin contact. Wear suitable protective clothing and gloves, which should be selected specifically for the working place, depending on concentration and quantity of the hazardous material (overalls and rubber gloves). Wash skin thoroughly after handling and before eating, drinking or smoking. Change contaminated clothing frequently. Launder clothing and gloves as needed. Use of skin-protective barrier cream advised.

## 9. Physical and Chemical Properties

Grey odourless solid (powder).

Ingredient	Mol. Wt.
Nickel	58.71

pH	Not Applicable (N/A)
Boiling point/ boiling range – Ni - mineral spirits	2732 °C 149 °C
Freezing point / freezing range	1453°C
Flash Point	N/A
Autoflammability	N/A
Explosive properties	Not explosive
Oxidising properties	Not oxidising
Vapour pressure – mineral spirits	2.9 mm Hg at 20°C
Solubility cold water	Insoluble
Solubility hot water	Insoluble
Partition coefficient	N/A
Viscosity	N/A
Bulk density	0.9 – 2.3/cm <sup>3</sup>
Particle size	0.8 - 1.5µm
Magnetic properties	Ferromagnetic

## 10. Stability and Reactivity

**Conditions to be avoided:**

Hazardous exothermic reaction improbable. This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, Ni(CO)<sub>4</sub>, a toxic gas. Metal powders when heated in reducing atmospheres may become pyrophoric.

*Substances to be avoided:* Acids, bases, strong, oxidizing agents.

*Hazardous decomposition products:* No information available.

## 11. Toxicological Information

### **Nickel**

LD50 ORAL RAT >9000 mg/kg

#### **Inhalation:**

The National Toxicology Program has listed nickel as reasonably anticipated to be a carcinogen based on the production of injection site tumors. The International Agency for Research on Cancer (IARC) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans. In 1997, the ACGIH categorized elemental nickel as: A5 "Not Suspected as a Human Carcinogen". Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard.

Evidence for the association of nickel compound exposures and cancer risk comes mainly from workers in now obsolete nickel refining operations where very high concentrations of airborne nickel, mostly present as oxidic or sub-sulphidic species at up to 100 mg/m<sup>3</sup> or more, were associated with excess nasal and lung cancers.

The inhalation of nickel powder has not resulted in an increased incidence of malignant lung tumors in rodents. Repeated intratracheal instillation of nickel powder produced an increased incidence of malignant lung tumors in rats. Repeated intratracheal instillation of nickel powder did not produce an increased incidence of malignant lung tumors in hamsters when administered at the maximum tolerated dose. Single intratracheal instillations of nickel powder in hamsters at doses near the LD50 produced an increased incidence of fibrosarcomas, mesotheliomas and rhabdomyosarcomas.

Inhalation of nickel powder at concentrations 15 times the TLV irritated the respiratory tract in rodents.

Inhalation of nickel may induce asthma. This effect is rare, it has been reported in welders where exposures to nickel are often mixed with other chemical substances. Persons with a known history of nickel sensitive asthma should avoid such contact.

#### **Skin Contact:**

Prolonged and intimate contact with metallic nickel may cause irritation to the skin and nickel sensitivity which may result in allergic skin rashes.

One case has been reported of asthma induced by external exposure to a nickel-containing skin clip and by skin contact with nickel.

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**Wounds:** Nickel metal powder has caused tumors at the site of injection in rodents. However, studies do not suggest a significant risk for humans from nickel-containing prostheses.

**Ingestion:** The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded there is no evidence that nickel and its inorganic compounds are carcinogenic when ingested. The U.S. Food and Drug Administration has affirmed that nickel is generally recognized as safe (GRAS) as a direct human food ingredient.

**Preexisting Conditions:** Prolonged and intimate skin contact can cause an allergic skin rash in previously sensitized individuals.

**Reproductive Toxicity:** Animal experiments indicate that soluble nickel ingestion causes adverse effects on fetal development at a threshold oral exposure of 2.2 mg/ Ni/kg/day by pregnant rats. Data are insufficient to determine if this effect occurs in humans and no regulatory agency has classified soluble forms of nickel as reproductive risks for humans.

### Mineral Spirits

**Inhalation:** Inhalation of mineral spirits vapors at concentrations above the PEL may cause lightheadedness, dizziness, breathing difficulties and unconsciousness.

**Skin Contact:** Repeated or prolonged contact with mineral spirits may cause skin irritation.

**Eye Contact:** Mineral spirits may be an eye irritant.

## 12. Ecological Information

This material is not classified as dangerous or harmful to the environment.

## 13. Disposal Considerations

Nickel-containing material is normally collected to recover nickel values. Should disposal be deemed necessary, follow local regulations.

## 14. Transport Information

International Maritime Dangerous Goods Code	Not regulated
International Civil Aviation Organization Technical Instructions for the Carriage of Dangerous Goods by Air	Not regulated
U.S. Dept. of Transportation Regulations	Apply to nickel powders if they are less than 100micron in particle size and if they are packaged in quantities greater than 100 pounds.
Canadian Transportation of Dangerous Goods Act	Not regulated
European Agreement Concerning the International Carriage of Dangerous Goods by Road	Not regulated

## 15. Regulatory Information

Nickel metal is classified as a Category 3 carcinogen, (a substance which causes concern for man owing to the possible carcinogenic effect, but in respect of which, the available information is not adequate for making a satisfactory assessment), by the EU in Directive 67/548/EEC (Classification, Packaging and Labelling Directive) and in the UK in the Chemicals Hazard Information and Packaging for Supply Regulations 2002 (CHIP3). As such it requires to be labelled with the following risk and safety phrases.

### **Xn – Harmful - Category 3 carcinogen**

R40 – Limited evidence of a carcinogenic effect

R20 – Harmful by inhalation

R43 - May cause sensitisation by skin contact.

S22 - Do not breathe dust.

S36 - Wear suitable protective clothing.

Mineral Spirits:

### **Xn- Harmful**

R65 - Harmful: may cause lung damage if swallowed.

S2 - Keep out of the reach of children.

S23 - Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).

S24 - Avoid contact with skin.

S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

## 16. Other Information

Medical staff should note that this data sheet has been lodged with the following Poisons Information Centers: - National Poison Center Phone line:44-0870 6006266

E- Mail: [wnpu@compuserve.com](mailto:wnpu@compuserve.com)

Fax:44-02920 704357

## 17. Notes and Bibliography

This MSDS has been updated generally, incorporating re-formatting and addition of ecological hazards and toxicity.

**Disclaimer:** The information in this Data Sheet is provided in good faith and is accurate to Novamet's best knowledge and belief but except as implied by law, no representation or warranty is given in relation to the information and Novamet accepts no liability.

1. T.R.K. is Technische Richtkonzentrationen as defined in the Deutsche Forschungsgemeinschaft, List of MAK & BAT values. 2000
2. Threshold Limit Values of the American Conference of Governmental Industrial Hygienists. 2000.
3. Maximum Exposure Limit of the Health and Safety Executive in the U.K. in EH40/00