

NOVAMET

NOVAMET STAINLESS STEEL FLAKE

** THIS DATA SHEET IS PREPARED IN COMPLIANCE WITH EU DIRECTIVE 2001/58/EC**

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1. Identification of the Substance/Preparation and of the Company/Undertaking

This MSDS covers the family of products identified as: NOVAMET® Stainless Steel Flake

This includes the following grades:

- Fine Leafing
- Standard Leafing
- Fine Water
- Standard Water

Manufactured By: NOVAMET Specialty Products Corporation
681 Lawlins Road, Wyckoff, New Jersey, 07481 USA
Tel. No.: 201-891-7976
Fax No.: 201-891-9467

24 hr Emergency Telephone Number:
In North America (Chemtrec) +1-800-424-9300

2. Hazards Identification

The hazard classification of the alloy is unknown. This MSDS contains the hazard classification for the components.

Nickel

T - Toxic

R40 Limited evidence of a carcinogenic effect

R43 May cause sensitization by skin contact

R48/23 Toxic: Danger of serious health damage in case of prolonged exposition by inhalation

S 22 Do not breathe dust.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions / Safety data sheets

3. Composition/Information on Ingredients

Ingredients	Typical Composition (%)	EC (EINECS) Number	CAS Number
Nickel Metal (Ni)	12	231-111-4	7440-02-0
Chromium (Cr)	17	231-157-5	7440-47-3
Molybdenum (Mo)	2	231-107-2	7439-98-7
Iron (Fe)	69	231-096-4	7439-89-6

Nickel classification:

UE: T – Toxic – R40,43,48/23,52/53 Carcinogenic Cat. 3

CLP/GHS: STOT RE1; Carcinogenic Cat. 2; Skin sens. 1; Aquatic Chronic 3;
H317, H351, H372, H412

Chromium, Molybdenum and Iron do not have an EU hazard classification.

4. First Aid Measures

Ingestion No specific first aid required.

Inhalation Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.

Skin Wash thoroughly with soap and water. For rashes, seek medical attention. Show label if possible.

Eyes Irrigate eyeball thoroughly with water for at least 10 minutes. If discomfort persists seek medical attention.

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Wounds Cleanse thoroughly to remove any particles.

5. Fire Fighting Measures

Extinguishing media Use extinguishing media appropriate for other materials stored nearby.

Special risks Not classified as flammable for transport purposes.

Special protective None needed. Wear protective equipment if required for other materials within the equipment for fire fighting immediate vicinity.

6. Accidental Release Measures

Wear appropriate nationally approved respirators if collection and disposal of spills is likely to cause the concentration limits of airborne nickel or chromium to exceed the locally prescribed exposure limits. Disposal must be done in accordance with local regulations. Stainless Steel is normally collected to recover metal values.

7. Handling and Storage

Do not inhale. Keep container closed when not in use. Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below the exposure limits.

Do not store near acids or reactive substances. Metals can react with acids to liberate hydrogen gas, which can form explosive mixtures in air. Metal flake may react explosively or incandescently with substances such as ammonium nitrate, per chlorates, phosphorus, etc.

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.

Hazardous Ingredients	TLV 1 3 mg/m ³	WEL 2 3 mg/m ³
Nickel Metal (Ni)	1.5 *	0.5
Chromium (Cr)	0.5	0.5
Molybdenum (Mo)	-	10

*-inhalable particle size fraction

Maintain airborne dust levels as low as possible.

Occupational exposure controls:

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

a) Respiratory protection

Do not inhale dust. 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.

b) Eye protection

Avoid contact with eyes. Wear goggles or face shield.

c) Hand and 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 leather/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.

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9. Physical and Chemical Properties

Shiny metallic appearing flake.

Ingredient	Mol. Wt.
Ni	58.71
Cr	52.00

Viscosity	N/A
Melting point Ni	1453 °C
Melting point Cr	1890 °C
Boiling point Ni	2732 °C
Boiling point Cr	2482 °C
Flash Point	N/A
Auto-flammability	N/A
Explosive properties	N/A
Bulk density	0.4 – 1.0g/cm ³
Particle size	15-40 microns (by laser)
Magnetic Properties	Ferro magnetic
Explosion classification	ST.O
Vapor pressure	N/A
Density Ni	8.9 g/cm ³
Solubility Ni	0 g/100 ml H ₂ O
Solubility Cr	0 g/100 ml H ₂ O
Partition coefficient	N/A

10. Stability and Reactivity

Stable. Metal flake heat treated in reducing atmospheres may become spontaneously combustible.

11. Toxicological Information

The Stainless Steel Flake is made of 316-grade stainless steel. Since we are unaware of any toxicological tests of 316 stainless steel, we have written this MSDS as though this product were a mixture of metallic chromium and nickel. This is probably a very conservative assumption as indicated by the results of some cancer bioassays conducted on nickel-containing alloys. The routes of administration used in these studies are irrelevant to human exposure but within a given route and animal species, the results may indicate the relative carcinogenic potency of the different alloys. The results suggest that the alloys containing 40% or less nickel are not carcinogenic even by potential routes of administration.

NICKEL

Acute Toxicity:

- a) *Oral:* Non toxic - LD50 ORAL RAT >9000 mg/kg
- b) *Inhalation:* No information available
- c) *Dermal:* No information available.

Corrosivity/Irritation:

- a) *Respiratory Tract:* None
- b) *Skin:* See sensitization section.
- c) *Eyes:* Mechanical irritation may be expected.

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Sensitization:

- a) *Respiratory tract:* Nickel metal induced asthma is very rare. 3 case reports are available; the data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer.
- b) *Skin:* Nickel metal is a well-known skin sensitizer. Direct and prolonged skin contact with metallic nickel may induce nickel allergy and elicit nickel allergic skin reactions in those people already sensitized to nickel, so called nickel allergic contact dermatitis.
- c) *Pre-existing conditions:* Individuals known to be allergic to nickel should avoid contact with nickel whenever possible to reduce the likelihood of nickel allergic contact dermatitis reactions (skin rashes). Repeated contact may result in persistent chronic palmar/hand dermatitis in a smaller number of individuals, despite efforts to reduce or avoid nickel exposure.

Chronic toxicity:

- a) *Oral:* No information available
- b) *Inhalation:* Animal studies (rats) show that repeated dose inhalation of nickel damages the lung. Chronic inflammation, lung fibrosis and accumulation of nickel particles were observed.
- c) *Dermal:* Direct and prolonged skin contact with nickel metal may cause nickel sensitization resulting in nickel allergic contact dermatitis /skin rash.

Mutagenicity /

Reproductive toxicity:

No data.

Carcinogenicity:

- a) *Ingestion:* The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded that there is no evidence that nickel metal is carcinogenic when ingested.
- b) *Inhalation:* There is limited information available from inhalation and intratracheal studies in animals. The U.S. National Toxicology Program has listed metallic nickel as reasonably anticipated to be a human carcinogen. To date, there is no evidence that nickel metal causes cancer in humans based on epidemiology data from workers in the nickel producing and nickel consuming industries. The International Agency for Research on Cancer (IARC)(Vol 49) 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 (Group 2B). 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.

CHROMIUM

Inhalation:

The National Toxicology Program (NTP) concluded there is inadequate evidence for the carcinogenicity of chromium metal in humans. NTP states there is sufficient evidence for increased incidence of lung cancer among workers in the chromate-producing industry and possibly also among chromium platers and chromium alloy workers. The International Agency for Research on Cancer (IARC) has concluded that chromium metal is not classifiable as to its carcinogenicity to humans.

12. Ecological Information

Not classified as dangerous for the environment.

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13. Disposal Considerations

Stainless steel is normally collected to recover metal values. Should disposal be deemed necessary, dispose of as a hazardous waste.

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	Not regulated.
Canadian Transportation of Dangerous Goods Act	Not regulated.
European Agreement Concerning the International Carriage of Dangerous Goods by Road	Not regulated.

15. Regulatory Information

T - Toxic Category 3 Carcinogen

R40 Limited evidence of a carcinogenic effect.

R43 May cause sensitization by skin contact.

R48/23 Toxic: Danger of serious health damage in case of prolonged exposition by inhalation

S22 Do not breathe dust

S36/37/39 Use suitable protective clothing, gloves, eye/face protection

S45 In case of accident or discomfort consult a physician

S61 Avoid release to the environment. Refer to special instructions/safety data sheets

16. Other Information

R40 Limited evidence of a carcinogenic effect.

R43 May cause sensitization by skin contact.

R48/23 Toxic: Danger of serious health damage in case of prolonged exposition by inhalation

S22 Do not breathe dust

S36/37/39 Use suitable protective clothing, gloves, eye/face protection

S45 In case of accident or discomfort consult a physician

S61 Avoid release to the environment. Refer to special instructions/safety data sheets

Medical staff should note that this data sheet has been lodged with the following Poisons Information Centre

National Poison Centre Phone Line: 44-0870 6006266

E-Mail: wnpu@compuserve.com

Fax: 44-02920 704357

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17. Notes and Bibliography

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MSDS available online at www.novametcorp.com

Note:

Novamet believes that the information in this Material Safety Data Sheet is accurate. However, Novamet makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.

Footnotes:

1. Threshold Limit Values of the American Conference of Governmental Industrial Hygienists. 2008.
2. Maximum Exposure Limit of the Health and Safety Executive in the U.K. in EH40/00.
3. Exposure Limits for user operations will depend on the relevant governmental regulations.

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