

ACCORDING TO US CFR 1910.1200

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name Ni718
CAS No. Not applicable.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s) For application in laser-based additive manufacturing technologies (SLS, DMLS and SLM) and cold spray application.

Uses Advised Against Not known.

1.3 Details of the supplier of the safety data sheet

Manufacturer
Company Identification Tekna Plasma Europe
Address 200, boulevard de la résistance
Mâcon, France.
Postal code 71000
Telephone +33(0) 385 231 045
Fax +33(0) 385 210 476
E-mail sds@tekna.com

Supplier
Company Identification Tekna Advanced Materials Inc.
Address 2895, Industrial Blvd.
Sherbrooke, QC, Canada.
Postal code J1L 2T9
Telephone (819) 820-7771
E-mail sds@tekna.com

1.4 Emergency telephone number

Company +33(0) 385 231 045

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

US CFR 1910.1200 Skin Sens. 1 :May cause an allergic skin reaction.
Carc. 2 :Suspected of causing cancer.
STOT RE 1 :Causes damage to organs through prolonged or repeated exposure.

2.2 Label elements

According to US CFR 1910.1200
Product Name Ni718

Hazard Pictogram(s)



GHS08

GHS07

Signal Word(s)

Danger.

Hazard Statement(s)

H317: May cause an allergic skin reaction.
H351: Suspected of causing cancer.
H372: Causes damage to organs through prolonged or repeated exposure.

Precautionary Statement(s)

P201: Obtain special instructions before use.
P260: Do not breathe dust.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P501: Dispose of contents in accordance with local, state or national legislation.

2.3 Other hazards

None known.

2.4 Additional Information

For full text of H/P Statements see section 16.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances

Not applicable.

3.2 Mixtures

Ingredients	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Nickel	7440-02-0	50-55	Skin Sens. 1 H317 Carc. 2 H351 STOT RE 1 H372	GHS08 GHS07
Chromium	7440-47-3	17-21	Not classified	None
Titanium	7440-32-6	10-15	Not classified	None
Iron	7439-89-6	10-15	Not classified	None
Molybdenum	7439-98-7	2.8-3.3	Not classified	None
Aluminium powder (stabilised)	7429-90-5	0.2-0.8	Flam. Sol. 1 H228 Water-react. 2 H261	GHS02

SECTION 4: FIRST AID MEASURES
4.1 Description of first aid measures

Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin Contact	Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention.
Eye Contact	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes.
Ingestion	Wash out mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice/attention. Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES
5.1 Extinguishing media

Suitable Extinguishing media	Extinguish with dry chemical, dry sand or special powder for metal fire only.
Unsuitable extinguishing media	None.

5.2 Special hazards arising from the substance or mixture

Decomposes in a fire giving off toxic fumes: Metal oxides

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid dust generation. Do not breathe dust. Ensure full personal protection (including respiratory protection) during removal of spillages.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Sweep up spilled substance and remove to safe place. Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a container for disposal.

6.4 Reference to other sections

See Also Section 8, 13.

SECTION 7: HANDLING AND STORAGE
7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid build-up of dust. Do not breathe dust. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated work clothing should not be allowed out of the workplace. Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

	Store locked up.
Storage temperature	Ambient.
Storage life	Stable under normal conditions.
Incompatible materials	Acids, Strong oxidizing agents.

7.3 Specific end use(s)

For application in laser-based additive manufacturing technologies (SLS, DMLS and SLM) and cold spray application.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

Occupational Exposure Limits						
SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Nickel, metal and insoluble compounds (as Ni)	7440-02-0		1			OSHA PEL Z-1
Nickel metal, as Ni			0.5			OSHA PEL
Nickel, insoluble compounds, as Ni			0.1			OSHA PEL
Nickel, metal and insoluble compounds (as Ni)			0.015			NIOSH REL Z-1, Ca
Nickel, elemental			1.5			ACGIH TLV, I
Nickel, insoluble compounds, as Ni			0.2			ACGIH TLV, I, d
Nickel, soluble compounds, as Ni			0.1			ACGIH TLV, I, d
Chromium metal	7440-47-3		0.5			OSHA PEL
Chromium (III) inorganic compounds, as Cr			0.003			ACGIH TLV, I, DSEN, RSEN, c
Chromium metal, as Cr (0)			0.5			ACGIH TLV, I
Molybdenum (as Mo) (Insoluble compounds) (total dust)	7439-98-7		15			OSHA PEL Z-1
Molybdenum, insoluble compounds, as Mo (Respirable fraction)			3			OSHA PEL, (n)
Molybdenum, insoluble compounds, as Mo (Total dust)			10			OSHA PEL
Molybdenum and insoluble compounds, as Mo			10			ACGIH TLV, I
Molybdenum and insoluble compounds, as Mo			3			ACGIH TLV, R
Molybdenum and soluble compounds, as Mo			0.5			ACGIH TLV, R
Aluminum, metal (as Al) (Total dust)	7429-90-5		15			OSHA PEL Z-1
Aluminum, metal (as Al) (Respirable fraction)			5			OSHA PEL Z-1
Aluminum pyro powders			5			OSHA PEL
Aluminum, metal (as Al) (Total dust)			10			NIOSH REL Z-1
Aluminum, metal (as Al) (Respirable fraction)			5			NIOSH REL Z-1
Aluminium, metal and insoluble compounds			1			ACGIH TLV, R

Remark	Notes
OSHA PEL Z-1	Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) from 29 CFR 1910.1000 Z-1 Table
OSHA PEL	Occupational Safety and Health (OSHA) Permissible Exposure Limits (PELs).
NIOSH REL Z-1	National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) from the NIOSH Pocket Guide to Chemical Hazards table Z-1: Up to 10-hour time weighted average (TWA) during a 40-hour work week
Ca	Potential occupational carcinogens. See NIOSH Appendix A http://www.cdc.gov/niosh/npg/nengapdx.html
ACGIH TLV	The American Conference of Governmental Industrial Hygienists (ACGIH®) Threshold Limit Values (TLVs®) 2018
I	Measured as Inhalable fraction of the aerosol
D	Simple asphyxiant
d	Measured as Inhalable fraction of the aerosol - For inorganic compounds only
DSEN	May cause dermal sensitization
RSEN	May cause respiratory sensitization
C	Ceiling limit
c	DSEN and RSEN are applicable for water soluble compounds only
(n)	The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: (aerodynamic Diameter (µm))/% Passing Selector): 0/100; 1/97; 2/91; 3/74; 4/50; 5/30; 6/17; 7/9; 8/5; 10/1.
R	Measured as respirable fraction of the aerosol

8.2 Exposure controls

8.2.1. Appropriate engineering controls Use with ventilation, local exhaust ventilation or breathing protection. A washing facility/water for eye and skin cleaning purposes should be present.

8.2.2. Personal protection equipment


Eye Protection

Wear eye protection with side protection (EN166).


Skin protection

Wear protective clothing and gloves: Impervious gloves (EN 374).


Respiratory protection

A suitable dust mask or dust respirator with filter type P (EN143 or EN405) may be appropriate.


Thermal hazards

Not applicable.

8.2.3. Environmental Exposure Controls Do not allow to enter drains, sewers or watercourses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties

Appearance	Powder.
	Color : Grey.
Odor	Characteristic.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash Point	Not available.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Density (g/ml)	Not available.
Relative density	8 (Water = 1 @ 20°C)
Solubility(ies)	Solubility (Water) : Immiscible with water. Solubility (Other) : Not known.
Partition coefficient: n-octanol/water	Not applicable.
Auto-ignition temperature	Not available.
Decomposition Temperature (°C)	Not available.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

9.2 Other information

None.

SECTION 10: STABILITY AND REACTIVITY
10.1 Reactivity

Stable under normal conditions.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

 No hazardous reactions known if used for its intended purpose.
 Nickel: Can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air.

10.4 Conditions to avoid

Heat and direct sunlight.

10.5 Incompatible materials

Acids, Strong oxidizing agents.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects**

Acute toxicity - Ingestion	Low acute toxicity.
Acute toxicity - Skin Contact	Low acute toxicity.
Acute toxicity - Inhalation	Low acute toxicity.
Skin corrosion/irritation	Non-irritant.
Serious eye damage/irritation	Non-irritant.
Skin sensitization data	May cause an allergic skin reaction. No data.
Respiratory sensitization data	None anticipated.
Germ cell mutagenicity	There is no evidence of mutagenic potential.
Carcinogenicity	Suspected of causing cancer. No data.
Reproductive toxicity	No evidence of reproductive effects.
Lactation	Not classified.
STOT - single exposure	None anticipated.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. No data.
Aspiration hazard	Not classified.

11.2 Other information

None.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

	Harmful to aquatic life with long lasting effects.
Toxicity - Aquatic invertebrates	No data.
Toxicity - Fish	No data.
Toxicity - Algae	No data.
Toxicity - Sediment Compartment	Not classified.
Toxicity - Terrestrial Compartment	Not classified.

12.2 Persistence and Degradation

No information available.
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No information available.
Nickel: The substance has low potential for bioaccumulation.

12.4 Mobility in soil

Insoluble in water. The product is predicted to have low mobility in soil.

12.5 Other adverse effects

None.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Dispose of this material and its container as hazardous waste.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION**Not classified as hazardous for transport.****14.1 UN number**

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not classified as a Marine Pollutant.

14.6 Special precautions for user

Not known

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not known

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Toxic and hazardous substances (29 CFR 1910; Subpart Z)	Listed : 7440-02-0, 7439-98-7, 7429-90-5
National emission standards for hazardous air pollutants (40 CFR 61.01)	Listed : 7440-02-0, 7440-47-3
SARA Title III Section 313	Listed : 7440-02-0
TSCA (Toxic Substance Control Act)	Listed : 7440-02-0 (Active), 7440-47-3 (Active), 7439-98-7 (Active), 7429-90-5 (Active), 7440-32-6 (Active), 7439-89-6 (Active)
CAA 602 - Ozone Depleting Substances (ODS)	Not listed

15.2 US State Regulations

State Right to Know Lists	
Proposition 65 (California)	Listed : 7440-02-0
Minnesota	Listed : 7440-02-0, 7440-47-3, 7439-98-7, 7429-90-5
New Jersey	Listed : 7440-02-0, 7440-47-3, 7439-98-7, 7429-90-5, 7440-32-6
Pennsylvania	Listed : 7440-02-0, 7439-98-7, 7429-90-5
Rhode Island	Listed : 7440-02-0, 7440-47-3, 7439-98-7, 7429-90-5

15.3 Other

OSPAR List of Chemicals for Priority Action	Not listed
OSHA (List of Highly Hazardous Chemicals, Toxics and Reactives)	Not listed
NTP (National Toxicology Program)	Listed : 7440-02-0
IARC (International Agency for Research on Cancer)	Listed : 7440-02-0, 7440-47-3

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16

LEGEND

Hazard classification	Flam. Sol. 1 : Flammable solid, Category 1 Water-react. 2 : Substance or mixture which in contact with water emits flammable gas, Category 2 Skin Sens. 1 : Skin sensitization, Category 1 Resp. Sens. 1 : Respiratory sensitization, Category 1 Carc. 2 : Carcinogenicity, Category 2 STOT RE 1 : Specific target organ toxicity — repeated exposure, Category 1
Hazard Statement(s)	H228: Flammable solid. H261: In contact with water releases flammable gases. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H351: Suspected of causing cancer. H372: Causes damage to organs through prolonged or repeated exposure.
Precautionary Statement(s)	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe dust. P264: Wash hands and exposed skin thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308+P313: IF exposed or concerned: Get medical advice/attention. P314: Get medical advice/attention if you feel unwell. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. P362+P364: Take off contaminated clothing and wash it before reuse. P405: Store locked up. P501: Dispose of contents in accordance with local, state or national legislation.



SAFETY DATA SHEET
Ni718

Revision: 1.0.0

Acronyms

CAS : Chemical Abstracts Service
LTEL : Long term exposure limit
STEL : Short term exposure limit
STOT : Specific Target Organ Toxicity

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