

Spherical nickel alloy 718 powder, CL 100NB, EBM Powder (45-106 µm)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830. (If language and regulation are from 2 distinct regions, this document is a simple translation under the regulation indicated)
Reference number: Ni718-A-08-EN
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixture
Trade name	: Spherical nickel alloy 718 powder, CL 100NB, EBM Powder (45-106 µm)
Type of product	: (size: 0-20 µm, 15-45 µm, 15-53 µm, 20-63 µm, 45-150 µm, 0-180 µm, or similar.)
Product group	: Metal Alloy powders

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

1.2.1. Relevant identified uses

Main use category	: Industrial use
Use of the substance/mixture	: Raw material for 3D-printing and Powder Metallurgy Uses (HIP, MIM, Additive Manufacturing). For Industrial (including Research & Development - R&D) or Laboratory Use Only. Reserve Only to Trained or Professional personnel.

1.2.2. Uses advised against

Restrictions on use	: Other uses than the identified uses indicated above.
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1.3. Details of the supplier of the safety data sheet

GE Additive / AP&C Advanced Powders and Coatings Inc.
3765 La Vérendrye, suite 110, Boisbriand, Québec, Canada
J7H 1R8
T +1 450.434.1004
GEAdd.SDS@ge.com - www.advancedpowders.com

1.4. Emergency telephone number

Emergency number	: For Chemical Emergency Call Infotrac 24hr/day 7days/week Within USA and Canada: INFOTRAC: 1-800-535-5053 (CAN/US); Canada additional: CANUTEC +1 613.996.6666 Outside USA and Canada: INFOTRAC: +1-352-323-3500 (collect calls accepted)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 2	H351
Specific target organ toxicity — Repeated exposure, Category 1	H372
Hazardous to the aquatic environment — Chronic Hazard, Category 3	H412
Full text of H-statements: see section 16	

Adverse physicochemical, human health and environmental effects

Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Harmful to aquatic life with long lasting effects.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)

:



GHS08

Signal word (CLP)

: Danger

Contains

: cobalt; nickel

Hazard statements (CLP)

: H317 - May cause an allergic skin reaction.
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.
H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements (CLP) : P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dusts or mists.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P363 - Wash contaminated clothing before reuse.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Other hazards which do not result in classification

: Dust clouds may form explosive mixtures with air. Handling and/or processing of this material may generate a dust which may form flammable or explosive mixture with air. Such dust can also cause mechanical irritation of the eyes, skin, nose and throat. May form potentially combustible dust concentrations when suspended in air or other oxidizing medium.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
nickel	CAS-No.: 7440-02-0 EC-No.: 231-111-4 EC Index-No.: 028-002-01-4 REACH-no: 01-2119438727-29-0174, 01-2119438727-29-0182	50 – 55	Carc. 2, H351 Skin Sens. 1, H317 STOT RE 1, H372 Aquatic Chronic 3, H412
iron	CAS-No.: 7439-89-6 EC-No.: 231-096-4 REACH-no: 01-2119462838-24-0485	13 – 25	Not classified

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
chromium	CAS-No.: 7440-47-3 EC-No.: 231-157-5 REACH-no: 01-2119485652-31-0165, 01-2119485652-31-0181	17 – 21	Not classified
niobium	CAS-No.: 7440-03-1 EC-No.: 231-113-5 REACH-no: 01-2119489003-42-0044	4.75 – 5.5	Not classified
molybdenum	CAS-No.: 7439-98-7 EC-No.: 231-107-2 REACH-no: 01-2119472304-43-0104	2.8 – 3.3	Not classified
titanium	CAS-No.: 7440-32-6 EC-No.: 231-142-3 REACH-no: 01-2119484878-14-0059, 01-2119484878-14-0082	0.65 – 1.15	Not classified
cobalt	CAS-No.: 7440-48-4 EC-No.: 231-158-0 EC Index-No.: 027-001-00-9 REACH-no: 01-2119517392-44-0075, N/A	0 – 1	Resp. Sens. 1, H334 Skin Sens. 1, H317 Aquatic Chronic 4, H413
aluminium,	CAS-No.: 7429-90-5 EC-No.: 231-072-3 EC Index-No.: 013-002-00-1 REACH-no: 01-2119529243-45-0371	0.2 – 0.8	Flam. Sol. 1, H228 Water-react. 2, H261
tantalum	CAS-No.: 7440-25-7 EC-No.: 231-135-5	≤ 0.05	Flam. Sol. 1, H228

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact	: May cause an allergic skin reaction.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Dry Sand, Class D extinguisher, Limestone, Unpressurized Water with local Safety Office/Fire Department approved metal fire additive (e.g. surfactants).
Use fire extinguishing methods suitable to surrounding conditions.
- Unsuitable extinguishing media : Any media not listed as suitable (above) and/or not approved by local authorities.).
Water (without local Safety Office/Fire Department approved additive).

5.2. Special hazards arising from the substance or mixture

- Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Complete protective clothing. Wear appropriate protective equipment and self-contained breathing apparatus (SBCA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid generating dust. Avoid breathing dust. Eliminate every possible source of ignition. No open flames. No smoking. Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

6.1.1. For non-emergency personnel

- Emergency procedures : Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Avoid contact with skin, eyes and clothing. Do not touch or walk on the spilled product. Only qualified personnel equipped with suitable protective equipment may intervene. See section 8 of the SDS for more information on personal protective equipment.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses.

6.3. Methods and material for containment and cleaning up

- For containment : Do not use compressed air for pumping over spills. Do not push powder long distances across the floor. Keep in small piles away from each other.
- Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Dust may form flammable and explosive mixture with air. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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Precautions for safe handling	: Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Maintain a supply of "coarse" (rock-type) salt and/or "Class D" (for metal fires) fire extinguisher located near processing and storage areas. Keep work areas clean and free of waste. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Provide local exhaust or general room ventilation to minimize exposure to dust. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures	: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations. Keep in a cool, well-ventilated place away from heat. Store in a well-ventilated place. Keep container tightly closed. Ensure adequate ventilation, especially in confined areas. Ground/bond container and receiving equipment. Maintain air gap between stacks/pallets.
Storage conditions	: Store locked up. Keep cool. Protect from sunlight. Keep away from ignition sources. Store away from other materials. Store in a well-ventilated place.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values

cobalt (7440-48-4)	
Belgium - Occupational Exposure Limits	
OEL TWA	0.02 mg/m ³
Germany - Occupational Exposure Limits (TRGS 910)	
Local name	Cobalt und Cobaltverbindungen, als Carc.1A, Carc.1B eingestuft
Acceptable concentration (Weight conc.)	0.16 µg/m ³ (A)
Notes	b) Akzeptanzkonzentration assoziiert mit Risiko 4:10000
Tolerance concentration (Weight conc.)	5 µg/m ³ (A)
Remark	(4) Die Konzentrationen beziehen sich auf den Elementgehalt des entsprechenden Metalls.; Siehe TRGS 561
Regulatory reference	TRGS 910
Netherlands - Occupational Exposure Limits	
MAC-TGG (OEL TWA)	0.02 mg/m ³
Spain - Occupational Exposure Limits	
Local name	Cobalto elemental
VLA-ED (OEL TWA) [1]	0.02 mg/m ³

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cobalt (7440-48-4)	
Notes	VLB® (Agente químico que tiene Valor Límite Biológico), Sen (Sensibilizante).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Spain - Biological limit values	
Local name	Cobalto y compuestos inorgánicos excepto óxidos
BLV	15 µg/l Parámetro: Cobalto - Medio: Orina - Momento de muestreo: Final de la semana laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB) 1 µg/l Parámetro: Cobalto - Medio: Sangre - Momento de muestreo: Final de la semana laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB), S (Significa que el indicador biológico es un indicador de exposición al agente químico en cuestión, pero la interpretación cuantitativa de su medida es ambigua (semicuantitativa). Estos indicadores biológicos deben utilizarse como una prueba de selección (screening) cuando no se pueda realizar una prueba cuantitativa o usarse como prueba de confirmación, si la prueba cuantitativa no es específica y el origen del determinante es dudoso)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	0.1 mg/m ³
USA - ACGIH - Occupational Exposure Limits	
Local name	Cobalt and inorganic compounds, as Co
ACGIH OEL TWA	0.02 mg/m ³ (Inhalable fraction)
Remark (ACGIH)	TLV® Basis: Pulm func changes. Notations: DSEN; RSEN; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
Regulatory reference	ACGIH 2021
USA - ACGIH - Biological Exposure Indices	
Local name	COBALT AND INORGANIC COMPOUNDS
BEI	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: End of shift at end of workweek - Notations: Ns
Regulatory reference	ACGIH 2021
chromium (7440-47-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	2 mg/m ³
Belgium - Occupational Exposure Limits	
OEL TWA	0.5 mg/m ³
France - Occupational Exposure Limits	
VME (OEL TWA)	2 mg/m ³
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Chrom und anorganische Chrom(II) und (III)-Verbindungen
AGW (OEL TWA) [1]	2 mg/m ³ (E)
Peak exposure limitation factor	1(I)

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chromium (7440-47-3)	
Remark	10;EU
Regulatory reference	TRGS900
Netherlands - Occupational Exposure Limits	
MAC-TGG (OEL TWA)	0.5 mg/m ³
Spain - Occupational Exposure Limits	
Local name	Cromo metal
VLA-ED (OEL TWA) [1]	2 mg/m ³
Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	0.5 mg/m ³
USA - ACGIH - Occupational Exposure Limits	
Local name	Metallic chromium, as Cr(0)
ACGIH OEL TWA	0.5 mg/m ³ (Inhalable fraction)
Remark (ACGIH)	TLV® Basis: Resp tract irr
Regulatory reference	ACGIH 2021
USA - ACGIH - Biological Exposure Indices	
Local name	CHROMIUM
BEI	0.7 µg/l Parameter: Total chromium - Medium: urine - Sampling time: End of shift at end of workweek - Notations: Pop
Regulatory reference	ACGIH 2021
molybdenum (7439-98-7)	
Spain - Occupational Exposure Limits	
Local name	Molibdeno elemental
VLA-ED (OEL TWA) [1]	10 mg/m ³ Fracción inhalable 3 mg/m ³ Fracción respirable
Notes	d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
USA - ACGIH - Occupational Exposure Limits	
Local name	Molybdenum, metal and insoluble compounds, as Mo
ACGIH OEL TWA	3 mg/m ³ (Respirable fraction) 10 mg/m ³ (Inhalable fraction)
Remark (ACGIH)	TLV® Basis: LRT irr
Regulatory reference	ACGIH 2021
nickel, powder, particle diameter < 1 mm (7440-02-0)	
Belgium - Occupational Exposure Limits	
OEL TWA	1 mg/m ³

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nickel, powder, particle diameter < 1 mm (7440-02-0)	
France - Occupational Exposure Limits	
VME (OEL TWA)	1 mg/m ³
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Nickelmetall
AGW (OEL TWA) [1]	0.006 mg/m ³ (A)
Peak exposure limitation factor	8(II)
Remark	AGS;24;Sh;Y
Regulatory reference	TRGS900
Spain - Occupational Exposure Limits	
Local name	Níquel metal
VLA-ED (OEL TWA) [1]	1 mg/m ³
Notes	Sen (Sensibilizante), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) nº 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	0.5 mg/m ³
USA - ACGIH - Occupational Exposure Limits	
Local name	Nickel, elemental
ACGIH OEL TWA	1.5 mg/m ³ (Inhalable fraction)
Remark (ACGIH)	TLV® Basis: Dermatitis; pneumoconiosis. Notations: A5 (Not Suspected as a Human Carcinogen)
Regulatory reference	ACGIH 2021
USA - ACGIH - Biological Exposure Indices	
Local name	NICKEL AND INORGANIC COMPOUNDS
BEI	5 µg/l Parameter: Nickel - Medium: urine after exposure to elemental Nickel and poorly soluble compounds - Sampling time: Post-shift at end of workweek - Notations: B 30 µg/l Parameter: Nickel - Medium: urine after exposure to soluble compounds - Sampling time: Post-shift at end of workweek - Notations: B
Regulatory reference	ACGIH 2021
titanium, powder, dry, slightly self-heating (7440-32-6)	
Bulgaria - Occupational Exposure Limits	
OEL TWA	1 mg/m ³
Latvia - Occupational Exposure Limits	
OEL TWA	10 mg/m ³
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	10 mg/m ³

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titanium, powder, dry, slightly self-heating (7440-32-6)	
NDSch (OEL STEL)	30 mg/m ³
Romania - Occupational Exposure Limits	
OEL TWA	10 mg/m ³
OEL STEL	15 mg/m ³
aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	10 mg/m ³ inhalable fraction
MAK (OEL STEL)	20 mg/m ³ inhalable fraction
Belgium - Occupational Exposure Limits	
OEL TWA	1 mg/m ³
Bulgaria - Occupational Exposure Limits	
OEL TWA	10 mg/m ³ (metal dust) 1.5 mg/m ³ (respirable fraction)
Croatia - Occupational Exposure Limits	
GVI (OEL TWA) [1]	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
Croatia - Biological limit values	
BLV	200 mg/l (Biological Exposure Indices - BEI: Medium: Urine - Time: no restrictions - Parameter: Aluminium)
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	10 mg/m ³ (dust)
Denmark - Occupational Exposure Limits	
OEL TWA [1]	5 mg/m ³ (dust, fume and powder, total) - Limit Values (Prolonged) ("Grænseværdie(langvarig)") 2 mg/m ³ (dust and powder, respirable) - Limit Values (Prolonged) ("Grænseværdie(langvarig)")
Estonia - Occupational Exposure Limits	
OEL TWA	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
Finland - Occupational Exposure Limits	
HTP (OEL TWA) [1]	1.5 mg/m ³
France - Occupational Exposure Limits	
VME (OEL TWA)	10 mg/m ³ 5 mg/m ³
Note (FR)	VME conditions: 10 mg/m ³ - metal; 5 mg/m ³ - dust
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	3 mg/m ³ (dust, fume and powder, total)
AGW (OEL TWA) [2]	1 mg/m ³ (dust and powder, respirable)

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aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
Greece - Occupational Exposure Limits	
OEL TWA	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	6 mg/m ³ (respirable dust)
Ireland - Occupational Exposure Limits	
OEL TWA [1]	1 mg/m ³ (respirable dust)
OEL STEL	3 mg/m ³ (calculated - respirable dust)
Latvia - Occupational Exposure Limits	
OEL TWA	2 mg/m ³
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction) 1 mg/m ³
Netherlands - Occupational Exposure Limits	
MAC-TGG (OEL TWA)	0.05 mg/m ³
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	2.5 mg/m ³ (inhalable fraction) 1.2 mg/m ³ (respirable fraction)
Portugal - Occupational Exposure Limits	
OEL TWA	10 mg/m ³ (dust, fume and powder, total) 5 mg/m ³ (dust and powder, respirable)
Romania - Occupational Exposure Limits	
OEL TWA	3 mg/m ³ (dust) 1 mg/m ³ (inhalable fraction)
OEL STEL	10 mg/m ³ (powder) 3 mg/m ³ (fume)
Romania - Biological limit values	
BLV	200 µg/l (Medium: urine - Time: no restrictions - Parameter: Aluminium)
Remark	Biological Exposure Index
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA) [1]	6 mg/m ³ (total aerosol) 1.5 mg/m ³ (metal)
Slovakia - Biological limit values	
BLV	60 µg/g creatinine (Medium: urine - Time: no restrictions - Parameter: Aluminium)
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA) [1]	10 mg/m ³ (dust)
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable dust)

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aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	10 mg/m ³ 4 mg/m ³
Remark (WEL)	WEL conditions: 10 mg/m ³ - inhalable dust; 4 mg/m ³ - respirable dust
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA) [1]	5 mg/m ³ (pyrotechnical-powder)
Korttidsverdi (OEL STEL)	5 mg/m ³ (pyrotechnical-powder)
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA) [1]	3 mg/m ³ (VME, respirable dust)
Switzerland - Biological limit values	
BAT	60 µg/g creatinine (Medium: urine - Time: no restrictions - Parameter: Aluminium)
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	1 mg/m ³ (Respirable fraction)
Remark (ACGIH)	TLV: 1 mg/m ³ ; OSHA PEL (TWA): 15 mg/m ³ (total dust) & 5 mg/m ³ (respirable fraction); NIOSH REL (TWA): 10 mg/m ³ (total dust) & 5 mg/m ³ (respirable dust)
tantalum, powder (7440-25-7)	
Belgium - Occupational Exposure Limits	
OEL TWA	5 mg/m ³
France - Occupational Exposure Limits	
VME (OEL TWA)	5 mg/m ³
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	5 mg/m ³
WEL STEL (OEL STEL)	10 mg/m ³

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Dust formation: dust mask. Gloves. Safety glasses. Wear fire/flame resistant/retardant clothing.

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Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

8.2.2.3. Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the material, and the safe working limits of the selected respirator. Recommendation: Filter P3 or N95 or P100 based on exposure level.

8.2.2.4. Thermal hazards

Thermal hazard protection:

Wear fire/flammable resistant/retardant clothing.

8.2.3. Environmental exposure controls

Environmental exposure controls:

Install and operate general and/or local exhaust ventilation systems of sufficient power to maintain airborne concentration below the defined or recommended limit. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the material, and the safe working limits of the selected respirator. Avoid release to the environment.

Consumer exposure controls:

Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment can be equipped with proper dust collection devices to minimize explosion risk. Dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product could include explosion relief vents or an explosion suppression system or an oxygen-deficient environment to minimize explosion risk.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid metallic powder, grey.
Colour	: Grey.
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 1320 – 1400 °C
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 8.19

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Solubility	: Water: Insoluble
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosive properties	: Very fine dust clouds (0-15 microns) may form weak explosive mixtures with air, the measured maximum pressure of a dust cloud explosion (Pmax) and the speed of the pressure rise (KSt) are 3.9(bar) and 22(bar.m/s) respectively. Fine dust clouds may form explosive mixtures with air. Risk of explosion if heated under confinement.
Oxidising properties	: No data available
Explosive limits	: Not applicable
Dust deflagration index	: No data available
Dust explosion category	: No data available
Particle size	: See Section 1
Particle shape	: Spherical

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

cobalt (7440-48-4)	
LD50 oral rat	550 mg/kg bodyweight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 15 day(s))
LC50 Inhalation - Rat	≤ 0.05 mg/l (OECD 436: Acute inhalation toxicity-acute toxic class method, 4 h, Rat, Male / female, Experimental value, Inhalation (dust), 14 day(s))

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cobalt (7440-48-4)	
LC50 Inhalation - Rat (Dust/Mist)	≤ 0.05 mg/l Source: ECHA
chromium (7440-47-3)	
LD50 oral rat	> 5000 mg/kg bodyweight (Equivalent or similar to OECD 420, Rat, Male / female, Read-across, Oral, 14 day(s))
LC50 Inhalation - Rat	> 5.41 mg/l (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Read-across, Inhalation (aerosol), 14 day(s))
LC50 Inhalation - Rat (Dust/Mist)	> 5.41 mg/l Source: ECHA
iron (7439-89-6)	
LD50 oral rat	98600 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral)
LC50 Inhalation - Rat	> 0.25 mg/l (6 h, Rat, Male, Experimental value, Inhalation (dust))
molybdenum (7439-98-7)	
LD50 oral rat	> 2000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	> 2000 mg/kg Source: ECHA
LC50 Inhalation - Rat (Dust/Mist)	> 3.92 mg/l Source: ECHA
nickel, powder, particle diameter < 1 mm (7440-02-0)	
LD50 oral rat	> 9000 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 15 day(s))
niobium, solid (7440-03-1)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)
LC50 Inhalation - Rat	> 5.45 mg/l (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
titanium, powder, dry, slightly self-heating (7440-32-6)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity)
aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
LD50 oral rat	> 15900 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Read-across, Oral, 14 day(s))
LC50 Inhalation - Rat	> 0.89 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male, Experimental value, Inhalation (aerosol), 14 day(s))
tantalum, powder (7440-25-7)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 (Acute Toxicity (Oral))
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity)

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tantalum, powder (7440-25-7)	
LD50 dermal rabbit	> 2000 mg/kg Source: ECHA
LC50 Inhalation - Rat	> 5.18 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EPA OPPTS 870.1300 (Acute inhalation toxicity), Guideline: other:J-MAFF test guidelines for acute inhalation studies
LC50 Inhalation - Rat (Dust/Mist)	> 5.18 mg/l Source: ECHA
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer.
cobalt (7440-48-4)	
IARC group	2B - Possibly carcinogenic to humans, 2A - Probably carcinogenic to humans
chromium (7440-47-3)	
IARC group	3 - Not classifiable
nickel, powder, particle diameter < 1 µm (7440-02-0)	
IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Causes damage to organs through prolonged or repeated exposure.
chromium (7440-47-3)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	≥ 0.0044 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
molybdenum (7439-98-7)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	> 0.1 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
nickel, powder, particle diameter < 1 µm (7440-02-0)	
STOT-repeated exposure	Causes damage to organs (lungs) through prolonged or repeated exposure (if inhaled).
niobium, solid (7440-03-1)	
NOAEL (oral, rat, 90 days)	> 1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Aspiration hazard	: Not classified
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Viscosity, kinematic	Not applicable

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Not classified

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Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

Not rapidly degradable

cobalt (7440-48-4)	
LC50 - Fish [1]	100 mg/l Source: ECHA
EC50 - Crustacea [1]	> 890 µg/l Test organisms (species): Daphnia magna
chromium (7440-47-3)	
LC50 - Fish [1]	13.9 – 210 mg/l Source: GESTIS
EC50 - Crustacea [1]	17.7 – 18.9 mg/l Source: ECHA
EC50 72h - Algae [1]	0.1 – 17.8 mg/l Source: GESTIS
iron (7439-89-6)	
LC50 - Fish [1]	8.65 mg/l Source: ECHA
LC50 - Other aquatic organisms [1]	106.3 mg/l Source: ECHA
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	> 10000 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	18 mg/l Source: ECHA
molybdenum (7439-98-7)	
LC50 - Fish [1]	0.79 mg/l (672 h, Salmo gairdneri)
EC50 72h - Algae [1]	289.2 mg/l Source: ECHA
nickel, powder, particle diameter < 1 mm (7440-02-0)	
LC50 - Fish [1]	15.3 mg/l (96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Lethal)
EC50 72h - Algae [1]	81.5 – 148 µg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)
niobium, solid (7440-03-1)	
LC50 - Fish [1]	2589.695 mg/l Source: Ecological Structure Activity Relationships
EC50 96h - Algae [1]	247.252 mg/l Source: Ecological Structure Activity Relationships
titanium, powder, dry, slightly self-heating (7440-32-6)	
EC50 72h - Algae [1]	> 10000 mg/l Test organisms (species): Skeletonema costatum
tantalum, powder (7440-25-7)	
LC50 - Fish [1]	> 100 mg/l Source: ECHA
12.2. Persistence and degradability	
cobalt (7440-48-4)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
chromium (7440-47-3)	
Persistence and degradability	Biodegradability: not applicable.

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chromium (7440-47-3)	
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
iron (7439-89-6)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
molybdenum (7439-98-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
nickel, powder, particle diameter < 1 mm (7440-02-0)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
niobium, solid (7440-03-1)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
titanium, powder, dry, slightly self-heating (7440-32-6)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
tantalum, powder (7440-25-7)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

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12.3. Bioaccumulative potential

cobalt (7440-48-4)

BCF - Fish [1]	< 10 (Pisces, Fresh water, Literature study)
BCF - Other aquatic organisms [1]	< 300 (Invertebrata, Literature study)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

chromium (7440-47-3)

BCF - Fish [1]	0.0048 (Pisces, Literature study, Dry weight)
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC
Bioaccumulative potential	Not bioaccumulative.

iron (7439-89-6)

Bioaccumulative potential	Not bioaccumulative.
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molybdenum (7439-98-7)

BCF - Fish [1]	260 – 500 (Tilapia rendalli)
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC Access on Jan 2006
Bioaccumulative potential	No bioaccumulation data available.

nickel, powder, particle diameter < 1 mm (7440-02-0)

BCF - Fish [1]	47 – 106 (30 day(s), Pimephales promelas, Flow-through system, Fresh water, Experimental value)
BCF - Other aquatic organisms [1]	1555 (Myrriophyllum sp., Fresh water, Experimental value, Nickel ion)
Partition coefficient n-octanol/water (Log Pow)	-0.57 (Estimated value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

niobium, solid (7440-03-1)

Partition coefficient n-octanol/water (Log Pow)	0.23 Source: Ecological Structure Activity Relationships
Bioaccumulative potential	No bioaccumulation data available.

titanium, powder, dry, slightly self-heating (7440-32-6)

Bioaccumulative potential	No bioaccumulation data available.
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aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)

Bioaccumulative potential	No bioaccumulation data available.
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tantalum, powder (7440-25-7)

Bioaccumulative potential	Not bioaccumulative.
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12.4. Mobility in soil

cobalt (7440-48-4)

Ecology - soil	No (test)data on mobility of the substance available.
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chromium (7440-47-3)

Surface tension	No data available (test not performed)
Ecology - soil	No (test)data on mobility of the substance available.

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iron (7439-89-6)	
Ecology - soil	Adsorbs into the soil.
molybdenum (7439-98-7)	
Ecology - soil	Adsorbs into the soil.
nickel, powder, particle diameter < 1 mm (7440-02-0)	
Surface tension	No data available (test not performed)
Ecology - soil	Adsorbs into the soil.
niobium, solid (7440-03-1)	
Mobility in soil	0.199 Source: Quantitative Structure Activity Relation
Ecology - soil	No (test)data on mobility of the substance available.
titanium, powder, dry, slightly self-heating (7440-32-6)	
Mobility in soil	1.582
Ecology - soil	Adsorbs into the soil.
aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	
Surface tension	900 mN/m (700 °C)
Ecology - soil	Adsorbs into the soil.
tantalum, powder (7440-25-7)	
Ecology - soil	Adsorbs into the soil.

12.5. Results of PBT and vPvB assessment

Component	
nickel, powder, particle diameter < 1 mm (7440-02-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
iron (7439-89-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
chromium (7440-47-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
cobalt (7440-48-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
aluminium, powder, uncoated, non pyrophoric, water-reactive (7429-90-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
tantalum, powder (7440-25-7)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

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Product/Packaging disposal recommendations : Disposal must be done according to official regulations. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

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

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

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Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

France	
Occupational diseases	
Code	Description
RG 65	Eczematiform lesions of allergic mechanism
RG 70	Occupational diseases caused by cobalt and its compounds
RG 70 BIS	Respiratory disorders due to sintered or fused metal carbide dust containing cobalt
RG 70 TER	Primary broncho-pulmonary cancer caused by inhalation of cobalt dust associated with tungsten carbide prior to sintering

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK) : WGK 2, Significantly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category : Z(1) - non biodegradable substances with hazardous properties for humans and the environment (carcinogenicity/ mutagenicity/ reprotoxicity/bioaccumulative potential/ toxicity or persistence)

SZW-lijst van kankerverwekkende stoffen : cobalt is listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : cobalt is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

Switzerland

Storage class (LK) : LK 6.1 - Toxic materials

Chemicals Ordinance (SR 813.11) : Group 2

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor

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Abbreviations and acronyms	
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements	
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment — Chronic Hazard, Category 4
Carc. 2	Carcinogenicity, Category 2
Flam. Sol. 1	Flammable solids, Category 1
Resp. Sens. 1	Respiratory sensitisation, Category 1

Spherical nickel alloy 718 powder, CL 100NB, EBM Powder (45-106 µm)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830. (If language and regulation are from 2 distinct regions, this document is a simple translation under the regulation indicated)

Full text of H- and EUH-statements	
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2
H228	Flammable solid.
H261	In contact with water releases flammable gases.
H317	May cause an allergic skin reaction.
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.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new processed material.