



# All M.A. Ford Cutting Tools

## Safety Data Sheet

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Revision Date: 31/03/2022 Date of Issue: 18/03/2015

Version: 2.0

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

#### 1.1. Product Identifier

**Product Form** : Article  
**Product Name** : All M.A. Ford Cutting Tools

**Article Exemption:** This product meets the definition of an article under Article 3(3) of the REACH regulation. Article 3(3) defines an article as: *an object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.*

#### 1.2. Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

##### 1.2.1. Relevant Identified Uses

**Industrial/Professional Use Spec** : Industrial.

**Use of the Substance/Mixture** : Industrial drilling and milling.

##### 1.2.2. Uses Advised Against

For professional use only.

#### 1.3. Details of the Supplier of the Safety Data Sheet

##### Company

M.A. Ford Europe Ltd.  
650 City Gate  
London Road, Derby  
DE24 8WY UK  
Phone number: +44 (0) 1332 267960  
[www.mafordeurope.com](http://www.mafordeurope.com)

#### 1.4. Emergency Telephone Number

**Emergency Number** : +44(0) 1332 267960  
Austria: +43 1 406 43 43  
Belgium: 070 245 245  
Bulgaria: +359 2 9154 233  
Croatia: (+385 1) 23-48-342  
Cyprus: +357 22 40 56 09; +357 22 40 56 08  
Czech Republic: +420 224 919 293, +420 224 915 402  
Denmark: 82 12 12 12  
Estonia: (+372) 626 93 90  
Finland: 09 471977  
France: + 33 (0) 1 45 42 59 59  
Germany: + 49 231 9071 2971  
Greece: +30 210 64 79 286  
Hungary: (06-1) 476-1120  
Iceland: 543 2222  
Ireland: 01 8092566  
Italy: +39 06 59 94 37 33  
Latvia: +371 67042473  
Liechtenstein: +423 236 61 95  
Lithuania: +370 5 236 20 52  
Luxembourg: +352 42 59 91 600  
Malta: 2545 0000  
Netherlands: 030-2748888  
Norway: 22 59 13 00  
Poland: +48 42 2538 424; +48 42 2538 427  
Portugal +351 218 430 500  
Romania: +40 21 207 11 06  
Slovakia: +421 2 4854 4511  
Slovenia: + 386 14 00 60 51  
Spain: + 34 91 562 04 20  
Sweden: 08-331231

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### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

Classification According to Regulation (EC) No. 1272/2008

Not classified

#### 2.2. Label Elements

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

**EUH-statements** : EUH208 - Contains Cobalt(7440-48-4), Nickel(7440-02-0). May produce an allergic reaction.  
EUH210 - Safety data sheet available on request.

#### 2.3. Other Hazards

**Other Hazards Not Contributing to the Classification** : No additional information available

This substance/mixture does not meet the PBT/vPvB criteria of REACH regulation, annex XIII

Component	
Chromium(7440-47-3)	The substance is included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
Nickel(7440-02-0)	The substance is included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

### 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
Iron	(CAS-No.) 7439-89-6 (EC-No.) 215-168-2; 231-096-4	≤ 99	Not classified
Tungsten carbide	(CAS-No.) 12070-12-1 (EC-No.) 235-123-0	≤ 94	Not classified
Tantalum carbide (TaC)	(CAS-No.) 12070-06-3 (EC-No.) 235-118-3	≤ 50	Not classified
Fatty acids, tall-oil, maleated, esters with diethylene glycol, ammonium salts	(CAS-No.) 158706-62-8	≤ 35	Skin Irrit. 2, H315 Eye Irrit. 2, H319
Titanium carbide (TiC)	(CAS-No.) 12070-08-5 (EC-No.) 235-120-4	≤ 30	Not classified
Nickel	(CAS-No.) 7440-02-0 (EC-No.) 231-111-4 (EC Index-No.) 028-002-00-7	≤ 30	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Niobium carbide (NbC)	(CAS-No.) 12069-94-2 (EC-No.) 235-117-8	≤ 20	Flam. Sol. 1, H228
Chromium	(CAS-No.) 7440-47-3 (EC-No.) 231-157-5	≤ 14	Not classified
Cobalt	(CAS-No.) 7440-48-4 (EC-No.) 231-158-0 (EC Index-No.) 027-001-00-9	≤ 12	Acute Tox. 4 (Oral), H302 Acute Tox. 1 (Inhalation), H330 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350 Repr. 1B, H360F Aquatic Chronic 4, H413
Tungsten	(CAS-No.) 7440-33-7 (EC-No.) 215-231-4; 231-143-9	≤ 6,35	Flam. Sol. 1, H228 Self-heat. 2, H252
Chromium carbide (Cr3C2)	(CAS-No.) 12012-35-0 (EC-No.) 234-576-1	≤ 5,1	Not classified
Molybdenum	(CAS-No.) 7439-98-7 (EC-No.) 231-107-2	≤ 5,1	Not classified
Vanadium carbide (VC)	(CAS-No.) 12070-10-9 (EC-No.) 235-122-5	≤ 5	Not classified

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Name	Product Identifier	%	Classification According to Regulation (EC) No. 1272/2008
Titanium nitride	(CAS-No.) 25583-20-4 (EC-No.) 247-117-5	≤ 5	Not classified
Polyethylene glycol	(CAS-No.) 25322-68-3 (EC-No.) 500-038-2	≤ 5	Not classified
Zirconium carbide (ZrC)	(CAS-No.) 12070-14-3 (EC-No.) 235-125-1	≤ 5	Not classified
Chromium ion (3+)	(CAS-No.) 16065-83-1 (EC-No.) 605-220-6	≤ 4,5	Not classified
Carbon	(CAS-No.) 7440-44-0 (EC-No.) 231-153-3; 931-328-0	≤ 2	Not classified
Manganese	(CAS-No.) 7439-96-5 (EC-No.) 231-105-1	≤ 2	Flam. Sol. 2, H228 Aquatic Chronic 2, H411 STOT RE 1, H372
1H-Benzotriazole	(CAS-No.) 95-14-7 (EC-No.) 202-394-1	< 2	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 Aquatic Chronic 2, H411
Vanadium	(CAS-No.) 7440-62-2 (EC-No.) 231-171-1; 232-261-3	≤ 1,95	Not classified
Vanadium oxide (V2O5)	(CAS-No.) 1314-62-1 (EC-No.) 215-239-8 (EC Index-No.) 023-001-00-8	< 1	Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Eye Dam. 1, H318 Muta. 2, H341 Carc. 2, H351 Repr. 2, H361 STOT SE 3, H335 STOT RE 1, H372 Aquatic Chronic 1, H410
Zinc	(CAS-No.) 7440-66-6 (EC-No.) 231-175-3 (EC Index-No.) 030-001-01-9	< 1	Pyr. Sol. 1, H250 Water-react. 1, H260 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Copper	(CAS-No.) 7440-50-8 (EC-No.) 231-159-6 (EC Index-No.) 029-024-00-X	< 1	Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Silicon nitride (Si3N4)	(CAS-No.) 12033-89-5 (EC-No.) 234-796-8	< 1	Not classified
Titanium boride (TiB2)	(CAS-No.) 12045-63-5 (EC-No.) 234-961-4	< 1	STOT RE 2, H373
Aluminum nitride (AlN)	(CAS-No.) 24304-00-5 (EC-No.) 246-140-8	< 1	STOT RE 2, H373 Aquatic Chronic 1, H410
Aluminum magnesium boride	(CAS-No.) Not applicable	< 1	Acute Tox. 4 (Oral), H302
Silver	(CAS-No.) 7440-22-4 (EC-No.) 231-131-3	< 1	Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410
Boron	(CAS-No.) 7440-42-8 (EC-No.) 231-151-2	< 0,9	Not classified
Molybdenum carbide (Mo2C)	(CAS-No.) 12069-89-5 (EC-No.) 235-115-7	≤ 0,5	Not classified
Titanium dioxide	(CAS-No.) 13463-67-7 (EC-No.) 236-675-5 (EC Index-No.) 022-006-00-2	< 0,5	Not classified
Silicon	(CAS-No.) 7440-21-3 (EC-No.) 231-130-8; 240-968-3	≤ 0,35	Not classified
Sulfur	(CAS-No.) 7704-34-9 (EC-No.) 231-722-6; 231-984-1 (EC Index-No.) 016-094-00-1	< 0,35	Skin Irrit. 2, H315
Phosphorus elemental	(CAS-No.) 7723-14-0 (EC-No.) 231-768-7; 918-594-3 (EC Index-No.) 015-002-00-7	< 0,25	Pyr. Sol. 1, H250 Acute Tox. 1 (Oral), H300 Acute Tox. 2 (Dermal), H310 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=1000)
Tin	(CAS-No.) 7440-31-5	< 0,25	Not classified

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Name	Product Identifier	%	Classification According to Regulation (EC) No. 1272/2008
	(EC-No.) 231-141-8		
Tantalum	(CAS-No.) 7440-25-7 (EC-No.) 231-135-5	< 0,25	Flam. Sol. 1, H228
Aluminum	(CAS-No.) 7429-90-5 (EC-No.) 231-072-3 (EC Index-No.) 013-002-00-1	≤ 0,2	Flam. Sol. 1, H228 Water-react. 2, H261

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

: The health effects listed below are not likely to occur unless dust or fumes are generated by processing.

#### First-Aid Measures After Inhalation

: Using proper respiratory protection, move the exposed person to fresh air at once. Encourage exposed person to cough, spit out, and blow nose to remove dust. Immediately call a poison center, physician, or emergency medical service. Immediately call a poison center or doctor/physician.

#### First-Aid Measures After Skin Contact

: Remove contaminated clothing. Brush off loose particles from skin. Wash affected area with soap and water for at least 15 minutes. Obtain medical attention if irritation/rash develops or persists. If exposed or concerned: Get medical advice/attention.

#### First-Aid Measures After Eye Contact

: Immediately rinse with water for at least 15 minutes. Obtain medical attention.

#### First-Aid Measures After Ingestion

: Rinse mouth. Immediately call a POISON CENTER or doctor.

### 4.2. Most Important Symptoms and Effects Both Acute and Delayed

#### Symptoms/Effects

: Welding, cutting, or processing this material may release dust or fumes that are hazardous.

#### Symptoms/Effects After Inhalation

: Not expected to present a significant inhalation hazard under anticipated conditions of normal use. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitisation reaction. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

#### Symptoms/Effects After Skin Contact

: None expected under normal conditions of use. Skin contact with large amounts of dust may cause mechanical irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction.

#### Symptoms/Effects After Eye Contact

: None expected under normal conditions of use. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

#### Symptoms/Effects After Ingestion

: Ingestion is likely to be harmful or have adverse effects.

#### Chronic Symptoms

: In massive form, no chronic hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Cobalt: Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis). Cobalt may damage the male reproductive system (including a decrease in sperm count) and affect male fertility in animals. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation. Product may cause an allergic reaction in persons previously sensitised to nickel and/or its salts. Silver: Chronic skin contact or ingestion of silver dust, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes. Tantalum: Repeated exposure to tantalum alloys may cause fibrosis, chronic rhinitis and "hard metal pneumoconiosis". Titanium dioxide: Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. Vanadium: May cause

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gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing Media

- Suitable Extinguishing Media** : Dust, fines, or molten metal: Use Class D extinguishing agents. As shipped: Use extinguishing media appropriate for surrounding fire.
- Unsuitable Extinguishing Media** : Do not use water when molten material is involved, may react violently or explosively on contact with water. Do not use halogenated extinguishing agents on small chips or fines.

### 5.2. Special Hazards Arising From the Substance or Mixture

- Fire Hazard** : Not flammable. The following applies to the product if it is cut, sanded or altered in such a way that excessive and/or significant particulates and/or dusts may be generated: Metallic dusts may ignite or explode.
- Explosion Hazard** : Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.
- Reactivity** : Product is stable. Contact with concentrated acid or alkali can result in evolution of hydrogen gas.
- Hazardous Combustion Products** : Metal oxides.

### 5.3. Advice for Firefighters

- Precautionary Measures Fire** : Exercise caution when fighting any fire.
- Firefighting Instructions** : Use water spray or fog for cooling exposed containers.
- Protection During Firefighting** : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

- General Measures** : Avoid generating dust. Do not breathe dust or fumes. For particulates and dust: Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Remove ignition sources.

#### 6.1.1. For Non-Emergency Personnel

- Protective Equipment** : Use appropriate personal protective equipment (PPE).
- Emergency Procedures** : Do not touch or walk through spilled material. Evacuate unnecessary personnel.

#### 6.1.2. For Emergency Responders

- Protective Equipment** : Equip cleanup crew with proper protection.
- Emergency Procedures** : Upon arrival at the scene, a first responder is expected to recognise the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Eliminate ignition sources.

### 6.2. Environmental Precautions

Avoid release to the environment. Collect spillage.

### 6.3. Methods and Materials for Containment and Cleaning Up

- For Containment** : Ventilate area. As an immediate precautionary measure, isolate spill or leak area in all directions. Avoid generation of dust during clean-up of spills. Contain and collect as any solid. Where possible allow molten material to solidify naturally.
- Methods for Cleaning Up** : Clean up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Use only non-sparking tools. Use explosion proof vacuum during clean-up, with appropriate filter. Do not mix with other materials. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant.

### 6.4. Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

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### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed** : Avoid dust production. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations.

**Precautions for Safe Handling** : Do not handle until all safety precautions have been read and understood. Do not breathe dust. Avoid creating or spreading dust.

**Hygiene Measures** : Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

#### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures** : Avoid creating or spreading dust.

**Storage Conditions** : Store in accordance with applicable national storage class systems. Store in a dry, cool and well-ventilated place.

**Incompatible Materials** : Strong acids. Strong bases. Strong oxidizers.

#### 7.3. Specific End Use

Industrial drilling and milling

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control Parameters

Please see section 16 for the legal basis of limit value information in section 8.1, including the national legislation or provision which gives rise to a given limit.

Tungsten carbide (12070-12-1)		
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	5 mg/m <sup>3</sup>
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	6 mg/m <sup>3</sup>
Titanium carbide (TiC) (12070-08-5)		
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	5 mg/m <sup>3</sup> (inhalable dust)
Niobium carbide (NbC) (12069-94-2)		
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	5 mg/m <sup>3</sup> (inhalable dust)
Cobalt (7440-48-4)		
Austria	TRK OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,5 mg/m <sup>3</sup> (hardened metal-inhalable fraction) 0,1 mg/m <sup>3</sup> (all others-inhalable fraction)
Austria	OEL Chemical Category (Legal Basis:BGBl. II Nr. 254/2018)	Skin notation, Group A2 Carcinogen, Respiratory sensitiser, Skin sensitiser
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,02 mg/m <sup>3</sup> (dust and fume)
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	0,1 mg/m <sup>3</sup>
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	0,1 mg/m <sup>3</sup>
Czech Republic	OEL TWA (Legal Basis:Reg. 41/2020)	0,05 mg/m <sup>3</sup> (inhalable fraction of aerosol)
Czech Republic	OEL Chemical Category (Legal Basis:Decree No. 107/2013)	Sensitiser
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,01 mg/m <sup>3</sup> (dust, fume and powder)
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	0,05 mg/m <sup>3</sup>
Estonia	OEL Chemical Category (Legal Basis:Regulation No. 105)	Sensitiser
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,02 mg/m <sup>3</sup>
Finland	OEL BLV (Legal Basis:HTP-ARVOT 2020)	130 nmol/L Parameter: Cobalt - Medium: urine - Sampling time: after the work phase or shift after a working week or exposure period
France	OEL BLV (Legal Basis:Decree 2009-1570)	0,001 mg/l Parameter: Cobalt - Medium: blood - Sampling time: end of shift at end of workweek (Background noise on non-exposed subjects) 0,015 mg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift at end of workweek (Background noise on non-exposed subjects)
Greece	OEL TWA (Legal Basis:PWHSE)	0,1 mg/m <sup>3</sup> (dust and fume)
Hungary	OEL TWA (Legal Basis:Decree No. 05/2020)	0,02 mg/m <sup>3</sup>
Hungary	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
Ireland	OEL TWA (Legal Basis:2020 COP)	0,02 mg/m <sup>3</sup>
Ireland	OEL STEL (Legal Basis:2020 COP)	0,3 mg/m <sup>3</sup> (calculated)
Ireland	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	0,02 mg/m <sup>3</sup> (inhalable particulate matter)

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<b>Cobalt (7440-48-4)</b>		
<b>USA ACGIH</b>	BEI Value (Legal Basis:IMDFN1)	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	0,5 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	0,05 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL Chemical Category (Legal Basis:HN 23:2011)	Sensitiser, Mutagen, Carcinogen
<b>Netherlands</b>	OEL TWA (Legal Basis:OWCRLV)	0,02 mg/m <sup>3</sup> (dust and smoke)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,02 mg/m <sup>3</sup> (fume)
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,06 mg/m <sup>3</sup> (value calculated-fume)
<b>Norway</b>	OEL Chemical Category (Legal Basis:FOR-2020-04-06-695)	Carcinogen, Potential reproductive hazard fume, Allergenic substance fume
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,02 mg/m <sup>3</sup>
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,02 mg/m <sup>3</sup>
<b>Portugal</b>	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,05 mg/m <sup>3</sup>
<b>Romania</b>	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	0,1 mg/m <sup>3</sup>
<b>Romania</b>	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of work week 1 µg/l Parameter: Cobalt - Medium: blood - Sampling time: end of work week
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,05 mg/m <sup>3</sup> (metal)
<b>Slovakia</b>	OEL Chemical Category (Legal Basis:Gov. Decree 33/2018)	Sensitiser metal
<b>Slovakia</b>	OEL BLV (Legal Basis:Gov. Decree 33/2018)	30 µg/l Parameter: Cobalt - Medium: urine - Sampling time: not critical
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	0,02 mg/m <sup>3</sup>
<b>Spain</b>	OEL Chemical Category (Legal Basis:OELCAIS)	C1B, TR1B, Sensitiser
<b>Spain</b>	OEL BLV (Legal Basis:OELCAIS)	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of workweek 1 µg/l Parameter: Cobalt - Medium: blood - Sampling time: end of workweek
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,02 mg/m <sup>3</sup> (inhalable fraction)
<b>Sweden</b>	OEL Chemical Category (Legal Basis:AFS 2018:1)	Skin notation, Sensitiser, Carcinogen
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,05 mg/m <sup>3</sup> (inhalable dust)
<b>Switzerland</b>	OEL Chemical Category (Legal Basis:OLVSNAIF)	Sensitiser, Skin notation, Category C1B carcinogen, Category 1B reproductive toxin, Category 2 mutagen
<b>Switzerland</b>	OEL BLV (Legal Basis:OLVSNAIF)	30 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift
<b>Nickel (7440-02-0)</b>		
<b>Austria</b>	TRK OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,5 mg/m <sup>3</sup> (dust, inhalable fraction)
<b>Austria</b>	OEL Chemical Category (Legal Basis:BGBl. II Nr. 254/2018)	Group A1 Carcinogen dust, Respiratory sensitiser dust, Skin sensitiser
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	1 mg/m <sup>3</sup>
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	0,05 mg/m <sup>3</sup>
<b>Bulgaria</b>	OEL BLV (Legal Basis:Reg. No. 13/10)	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: after several work shifts
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	0,5 mg/m <sup>3</sup>
<b>Croatia</b>	OEL BLV (Legal Basis:OG No. 91/2018)	10 µg/l Parameter: Nickel - Medium: plasma - Sampling time: at the end of the work shift 8 µg/g creatinine Parameter: Nickel - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	0,5 mg/m <sup>3</sup> (respirable fraction of aerosol)
<b>Czech Republic</b>	OEL Chemical Category (Legal Basis:Decree No. 107/2013)	Sensitiser
<b>Czech Republic</b>	OEL BLV (Legal Basis:Reg. 41/2020)	0,077 µmol/mmol Creatinine Parameter: Nickel - Medium: urine - Sampling time: discretionary 0,04 mg/g creatinine Parameter: Nickel - Medium: urine - Sampling time: discretionary
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,05 mg/m <sup>3</sup> (dust and powder)
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	0,5 mg/m <sup>3</sup>
<b>Estonia</b>	OEL Chemical Category (Legal Basis:Regulation No. 105)	Sensitiser
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,01 mg/m <sup>3</sup> (respirable dust)

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<b>Nickel (7440-02-0)</b>		
<b>Finland</b>	OEL BLV (Legal Basis:HTP-ARVOT 2020)	0,1 µmol/l Parameter: Nickel - Medium: urine - Sampling time: after the shift after a working week or exposure period
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	1 mg/m <sup>3</sup> 1 mg/m <sup>3</sup> (metal gratings)
<b>France</b>	OEL Chemical Category (Legal Basis:INRS ED 984)	Carcinogen category 2
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	0,006 mg/m <sup>3</sup>
<b>Germany</b>	OEL Chemical Category (Legal Basis:TRGS 900)	Skin sensitisation
<b>Greece</b>	OEL TWA (Legal Basis:PWHE)	1 mg/m <sup>3</sup>
<b>Hungary</b>	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	0,5 mg/m <sup>3</sup>
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	1,5 mg/m <sup>3</sup> (calculated)
<b>Ireland</b>	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	1,5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>USA ACGIH</b>	BEI Value (Legal Basis:IMDFN1)	5 µg/l Parameter: Nickel - Medium: urine - Sampling time: post-shift at end of workweek (background)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	0,05 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	0,5 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL Chemical Category (Legal Basis:HN 23:2011)	Sensitiser, Carcinogen
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,05 mg/m <sup>3</sup>
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,15 mg/m <sup>3</sup> (value calculated)
<b>Norway</b>	OEL Chemical Category (Legal Basis:FOR-2020-04-06-695)	Carcinogen, Potential reproductive hazard, Sensitising substance
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,25 mg/m <sup>3</sup>
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	1,5 mg/m <sup>3</sup> (inhalable fraction)
<b>Portugal</b>	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A5 - Not Suspected as a Human Carcinogen
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,1 mg/m <sup>3</sup>
<b>Romania</b>	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	0,5 mg/m <sup>3</sup>
<b>Romania</b>	OEL Chemical Category (Legal Basis:Gov. Dec. No 1.218)	C2
<b>Romania</b>	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	3 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift (SCOEL)
<b>Slovakia</b>	OEL BLV (Legal Basis:Gov. Decree 33/2018)	0,03 mg/l Parameter: Nickel - Medium: blood - Sampling time: end of exposure or work shift
<b>Slovenia</b>	OEL TWA (Legal Basis:No. 79/19)	0,006 mg/m <sup>3</sup> (respirable fraction)
<b>Slovenia</b>	OEL STEL (Legal Basis:No. 79/19)	0,048 mg/m <sup>3</sup> (respirable fraction)
<b>Slovenia</b>	OEL Chemical Category (Legal Basis:No. 79/19)	Category 2
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	1 mg/m <sup>3</sup> (manufacturing, commercialization and use restrictions according to REACH)
<b>Spain</b>	OEL Chemical Category (Legal Basis:OELCAIS)	Sensitiser
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,5 mg/m <sup>3</sup> (total dust)
<b>Sweden</b>	OEL Chemical Category (Legal Basis:AFS 2018:1)	Sensitiser
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,5 mg/m <sup>3</sup> (inhalable dust)
<b>Switzerland</b>	OEL Chemical Category (Legal Basis:OLVSNAIF)	Sensitiser, Category C2 carcinogen
<b>Switzerland</b>	OEL BLV (Legal Basis:OLVSNAIF)	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
<b>Vanadium carbide (VC) (12070-10-9)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,5 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	1 mg/m <sup>3</sup> (inhalable fraction)
<b>Chromium (7440-47-3)</b>		
<b>EU</b>	IOELV TWA (Legal Basis:2019/1831 EU in accor. with 98/24/EC)	2 mg/m <sup>3</sup>
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	2 mg/m <sup>3</sup>
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,5 mg/m <sup>3</sup>
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	2 mg/m <sup>3</sup>
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	2 mg/m <sup>3</sup>
<b>Croatia</b>	OEL BLV (Legal Basis:OG No. 91/2018)	5 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: single sample at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
<b>Cyprus</b>	OEL TWA (Legal Basis:KDP 16/2019)	2 mg/m <sup>3</sup>
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	0,5 mg/m <sup>3</sup> (dust)



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<b>Chromium (7440-47-3)</b>		
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,5 mg/m <sup>3</sup> (powder)
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	2 mg/m <sup>3</sup>
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,5 mg/m <sup>3</sup>
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	2 mg/m <sup>3</sup> (indicative limit)
<b>France</b>	OEL BLV (Legal Basis:Decree 2009-1570)	0,01 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: augmented during shift (Background noise on non-exposed subjects (soluble aerosol)) 0,03 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: end of shift at end of workweek (Background noise on non-exposed subjects (soluble aerosol))
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	2 mg/m <sup>3</sup> (except the one listed by name-inhalable fraction)
<b>Gibraltar</b>	OEL TWA (Legal Basis:LN. 2018/181)	2 mg/m <sup>3</sup>
<b>Greece</b>	OEL TWA (Legal Basis:PWHSE)	1 mg/m <sup>3</sup>
<b>Hungary</b>	OEL TWA (Legal Basis:Decree No. 05/2020)	2 mg/m <sup>3</sup>
<b>Hungary</b>	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	2 mg/m <sup>3</sup>
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	6 mg/m <sup>3</sup> (calculated)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	0,5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>USA ACGIH</b>	BEI Value (Legal Basis:IMDFN1)	0,7 µg/l Parameter: Total chromium - Medium: urine - Sampling time: end of shift at end of workweek (population based)
<b>Italy</b>	OEL TWA (Legal Basis:Decree 81)	0,5 mg/m <sup>3</sup>
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	2 mg/m <sup>3</sup>
<b>Latvia</b>	OEL BLV (Legal Basis:Reg. No. 325)	10 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: change of shift (reference value for total Chromium concentration in blood for occupationally unexposed population <0.5 µg/L, in urine <0.5 µg/L)
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	2 mg/m <sup>3</sup>
<b>Luxembourg</b>	OEL TWA (Legal Basis:A-N 684)	2 mg/m <sup>3</sup>
<b>Malta</b>	OEL TWA (Legal Basis:MOHSAA Ch. 424)	2 mg/m <sup>3</sup>
<b>Netherlands</b>	OEL TWA (Legal Basis:OWCRLV)	0,5 mg/m <sup>3</sup> (metallic)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,5 mg/m <sup>3</sup>
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	1,5 mg/m <sup>3</sup> (value calculated)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,5 mg/m <sup>3</sup>
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,5 mg/m <sup>3</sup> (indicative limit value (Metal))
<b>Portugal</b>	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A4 - Not Classifiable as a Human Carcinogen
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	2 mg/m <sup>3</sup> (metallic)
<b>Romania</b>	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	10 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: during working hours 30 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: end of work week
<b>Slovenia</b>	OEL TWA (Legal Basis:No. 79/19)	2 mg/m <sup>3</sup> (inhalable fraction)
<b>Slovenia</b>	OEL STEL (Legal Basis:No. 79/19)	2 mg/m <sup>3</sup> (inhalable fraction)
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	2 mg/m <sup>3</sup> (indicative limit value)
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,5 mg/m <sup>3</sup> (total dust)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,5 mg/m <sup>3</sup> (inhalable dust)
<b>Switzerland</b>	OEL Chemical Category (Legal Basis:OLVSNAIF)	Sensitiser
<b>Titanium nitride (25583-20-4)</b>		
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	4 mg/m <sup>3</sup>
<b>Aluminum (7429-90-5)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	20 mg/m <sup>3</sup> (inhalable fraction)
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	1 mg/m <sup>3</sup>
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	10 mg/m <sup>3</sup> (inhalable fraction) 1,5 mg/m <sup>3</sup> (respirable fraction)
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	10 mg/m <sup>3</sup> (total dust, inhalable particles) 4 mg/m <sup>3</sup> (respirable dust)
<b>Croatia</b>	OEL BLV (Legal Basis:OG No. 91/2018)	200 µg/l Parameter: Aluminum - Medium: urine - Sampling time: at the end of the work shift
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	10 mg/m <sup>3</sup> (dust)

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<b>Aluminum (7429-90-5)</b>		
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	5 mg/m <sup>3</sup> (dust and powder; total) 2 mg/m <sup>3</sup> (dust and powder; respirable)
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	10 mg/m <sup>3</sup> (total dust) 4 mg/m <sup>3</sup> (respirable dust)
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	10 mg/m <sup>3</sup> (metal) 5 mg/m <sup>3</sup> (dust)
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	4 mg/m <sup>3</sup> TWA MAK (dust, inhalable fraction)
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	1,5 mg/m <sup>3</sup> TWA MAK (dust, respirable fraction)
<b>Germany</b>	OEL BLV (Legal Basis:TRGS 903)	50 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: for long-term exposures: at the end of the shift after several shifts
<b>Greece</b>	OEL TWA (Legal Basis:PWHE)	10 mg/m <sup>3</sup> (inhalable fraction) 5 mg/m <sup>3</sup> (respirable fraction)
<b>Hungary</b>	OEL TWA (Legal Basis:Decree No. 05/2020)	1 mg/m <sup>3</sup> (respirable dust)
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	1 mg/m <sup>3</sup> (respirable fraction)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	3 mg/m <sup>3</sup> (calculated-respirable dust)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	1 mg/m <sup>3</sup> (respirable particulate matter)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	2 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	5 mg/m <sup>3</sup> (inhalable fraction) 2 mg/m <sup>3</sup> (respirable fraction) 1 mg/m <sup>3</sup>
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	5 mg/m <sup>3</sup> (pyrotechnical-powder)
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	10 mg/m <sup>3</sup> (pyrotechnical-powder)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	2,5 mg/m <sup>3</sup> (non-stabilized-inhalable fraction) 1,2 mg/m <sup>3</sup> (non-stabilized-respirable fraction)
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	10 mg/m <sup>3</sup> (metal dust)
<b>Portugal</b>	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A4 - Not Classifiable as a Human Carcinogen
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	3 mg/m <sup>3</sup> (dust) 1 mg/m <sup>3</sup> (fume)
<b>Romania</b>	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	10 mg/m <sup>3</sup> (dust) 3 mg/m <sup>3</sup> (fume)
<b>Romania</b>	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	200 µg/l Parameter: Aluminum - Medium: urine - Sampling time: end of shift
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	4 mg/m <sup>3</sup> (inhalable dust) 1,5 mg/m <sup>3</sup> (respirable dust)
<b>Slovakia</b>	OEL BLV (Legal Basis:Gov. Decree 33/2018)	60 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: not critical
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	1 mg/m <sup>3</sup> (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	5 mg/m <sup>3</sup> (total dust) 2 mg/m <sup>3</sup> (respirable fraction)
<b>Switzerland</b> <b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF) OEL BLV (Legal Basis:OLVSNAIF)	3 mg/m <sup>3</sup> (respirable dust) 50 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: after several shifts (for long-term exposures)
<b>Carbon (7440-44-0)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	5 mg/m <sup>3</sup> (alveolar dust with <1% Quartz, respirable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m <sup>3</sup> (alveolar dust with <1% Quartz, respirable fraction)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	6 mg/m <sup>3</sup> (synthetic-inhalable fraction)
<b>Copper (7440-50-8)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	1 mg/m <sup>3</sup> (inhalable fraction) 0,1 mg/m <sup>3</sup> (respirable fraction, smoke)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	4 mg/m <sup>3</sup> (inhalable fraction) 0,4 mg/m <sup>3</sup> (respirable fraction, smoke)
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	0,1 mg/m <sup>3</sup> (metal vapour)
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
<b>Croatia</b>	OEL STEL (Legal Basis:OG No. 91/2018)	2 mg/m <sup>3</sup> (dust)

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<b>Copper (7440-50-8)</b>		
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	1 mg/m <sup>3</sup> (dust) 0,1 mg/m <sup>3</sup> (fume)
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	1 mg/m <sup>3</sup> (dust and powder) 0,1 mg/m <sup>3</sup> (fume)
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	1 mg/m <sup>3</sup> (total dust) 0,2 mg/m <sup>3</sup> (respirable dust)
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,02 mg/m <sup>3</sup> (respirable dust)
<b>France</b>	OEL STEL (Legal Basis:INRS ED 984)	2 mg/m <sup>3</sup> (dust)
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
<b>Greece</b>	OEL TWA (Legal Basis:PWHS)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
<b>Greece</b>	OEL STEL (Legal Basis:PWHS)	2 mg/m <sup>3</sup> (dust)
<b>Hungary</b>	OEL TWA (Legal Basis:Decree No. 05/2020)	0,1 mg/m <sup>3</sup> 0,01 mg/m <sup>3</sup> (fume)
<b>Hungary</b>	OEL STEL (Legal Basis:Decree No. 05/2020)	0,2 mg/m <sup>3</sup>
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dusts and mists)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	2 mg/m <sup>3</sup> (dusts and mists) 0,6 mg/m <sup>3</sup> (calculated-fume)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	0,2 mg/m <sup>3</sup> (fume)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	0,5 mg/m <sup>3</sup>
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	1 mg/m <sup>3</sup> (inhalable fraction) 0,2 mg/m <sup>3</sup> (respirable fraction)
<b>Netherlands</b>	OEL TWA (Legal Basis:OWCRLV)	0,1 mg/m <sup>3</sup> (inhalable dust)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	3 mg/m <sup>3</sup> (value calculated-dust) 0,3 mg/m <sup>3</sup> (value calculated-fume)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,2 mg/m <sup>3</sup>
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,5 mg/m <sup>3</sup> (dust)
<b>Romania</b>	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	0,2 mg/m <sup>3</sup> (fume) 1,5 mg/m <sup>3</sup> (dust)
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	1 mg/m <sup>3</sup> (inhalable fraction) 0,2 mg/m <sup>3</sup> (respirable fraction)
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	0,1 mg/m <sup>3</sup> (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,01 mg/m <sup>3</sup> (respirable fraction)
<b>Switzerland</b>	OEL STEL (Legal Basis:OLVSNAIF)	0,2 mg/m <sup>3</sup> (inhalable dust)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,1 mg/m <sup>3</sup> (inhalable dust)
<b>Iron (7439-89-6)</b>		
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	6 mg/m <sup>3</sup> (containing <2% free Crystalline silicon dioxide in respirable fraction-dust, inhalable fraction)
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	6 mg/m <sup>3</sup> (total aerosol)
<b>Manganese (7439-96-5)</b>		
<b>EU</b>	IOELV TWA (Legal Basis:2019/1831 EU in accor. with 98/24/EC)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	1,6 mg/m <sup>3</sup> (inhalable fraction)
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,2 mg/m <sup>3</sup>
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	0,2 mg/m <sup>3</sup> (total dust, inhalable particles) 0,05 mg/m <sup>3</sup> (respirable dust)
<b>Cyprus</b>	OEL TWA (Legal Basis:KDP 16/2019)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	0,2 mg/m <sup>3</sup> (inhalable fraction of aerosol) 0,05 mg/m <sup>3</sup> (respirable fraction of aerosol)
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,2 mg/m <sup>3</sup> (inhalable; dust and powder) 0,05 mg/m <sup>3</sup> (respirable; dust and powder)

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<b>Manganese (7439-96-5)</b>		
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	0,2 mg/m <sup>3</sup> (total dust) 0,05 mg/m <sup>3</sup> (respirable dust)
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,2 mg/m <sup>3</sup> (inhalable dust) 0,02 mg/m <sup>3</sup> (respirable dust)
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	1 mg/m <sup>3</sup> (fume)
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	0,2 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction) 0,02 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-respirable fraction)
<b>Gibraltar</b>	OEL TWA (Legal Basis:LN. 2018/181)	25 mg/m <sup>3</sup>
<b>Gibraltar</b>	OEL STEL (Legal Basis:LN. 2018/181)	50 mg/m <sup>3</sup>
<b>Greece</b>	OEL TWA (Legal Basis:PWHSE)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Hungary</b>	OEL TWA (Legal Basis:Decree No. 05/2020)	0,2 mg/m <sup>3</sup> 0,05 mg/m <sup>3</sup> (respirable dust)
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	0,2 mg/m <sup>3</sup> (fume; inhalable fraction) 0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction) 0,02 mg/m <sup>3</sup> (fume; respirable fraction)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	0,15 mg/m <sup>3</sup> (calculated-respirable fraction) 0,6 mg/m <sup>3</sup> (calculated-inhalable fraction) 3 mg/m <sup>3</sup> (fume)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	0,02 mg/m <sup>3</sup> (respirable particulate matter) 0,1 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Italy</b>	OEL TWA (Legal Basis:Decree 81)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Malta</b>	OEL TWA (Legal Basis:MOHSAA Ch. 424)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,5 mg/m <sup>3</sup> (respirable fraction)
<b>Netherlands</b>	OEL TWA (Legal Basis:OWCRLV)	0,2 mg/m <sup>3</sup> (inhalable dust) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,2 mg/m <sup>3</sup> (exceptions possible, see footnote 9-inhalable fraction) 0,05 mg/m <sup>3</sup> (exceptions possible, see footnote 9-respirable fraction)
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,6 mg/m <sup>3</sup> (value calculated-inhalable fraction) 0,15 mg/m <sup>3</sup> (value calculated-respirable fraction)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,2 mg/m <sup>3</sup> (for gaseous or vapour phase chemicals, the limit value is expressed at 20°C and 101.3 kPa-inhalable fraction) 0,05 mg/m <sup>3</sup> (for gaseous or vapour phase chemicals, the limit value is expressed at 20°C and 101.3 kPa-respirable fraction)
<b>Romania</b>	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	10 µg/l Parameter: Manganese - Medium: urine - Sampling time: end of shift
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Slovenia</b>	OEL TWA (Legal Basis:No. 79/19)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Slovenia</b>	OEL STEL (Legal Basis:No. 79/19)	1,6 mg/m <sup>3</sup> (inhalable fraction)
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,5 mg/m <sup>3</sup> (inhalable dust)
<b>Switzerland</b>	OEL BLV (Legal Basis:OLVSNAIF)	20 µg/l Parameter: Manganese - Medium: whole blood - Sampling time: end of shift, and after several shifts (for long-term exposures)
<b>Molybdenum (7439-98-7)</b>		
		5 mg/m <sup>3</sup> (Molybdenum (as Mo), Soluble Compounds)
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m <sup>3</sup> (inhalable fraction)

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<b>Molybdenum (7439-98-7)</b>		
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	20 mg/m <sup>3</sup> (inhalable fraction)
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	10 mg/m <sup>3</sup>
<b>Czech Republic</b>	OEL TWA (Legal Basis:Reg. 41/2020)	5 mg/m <sup>3</sup>
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,5 mg/m <sup>3</sup>
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	10 mg/m <sup>3</sup> (inhalable particulate matter) 3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> (inhalable fraction) 5 mg/m <sup>3</sup> (respirable fraction)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	4 mg/m <sup>3</sup>
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	10 mg/m <sup>3</sup>
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	5 mg/m <sup>3</sup> (respirable fraction) 10 mg/m <sup>3</sup> (inhalable fraction)
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	10 mg/m <sup>3</sup> (inhalable dust)
<b>Silicon (7440-21-3)</b>		
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	10 mg/m <sup>3</sup>
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	10 mg/m <sup>3</sup> (total dust, inhalable particles) 4 mg/m <sup>3</sup> (respirable dust)
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	10 mg/m <sup>3</sup>
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	10 mg/m <sup>3</sup> 5 mg/m <sup>3</sup> (respirable dust)
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	10 mg/m <sup>3</sup>
<b>Greece</b>	OEL TWA (Legal Basis:PWHSE)	10 mg/m <sup>3</sup> (inhalable fraction) 5 mg/m <sup>3</sup> (respirable fraction)
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	4 mg/m <sup>3</sup> (respirable dust) 10 mg/m <sup>3</sup> (total inhalable dust)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	30 mg/m <sup>3</sup> (calculated-respirable dust) 12 mg/m <sup>3</sup> (calculated-total inhalable dust)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	10 mg/m <sup>3</sup> (set equal to the limit value for Nuisance dust)
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	20 mg/m <sup>3</sup> (set equal to the limit value for Nuisance dust)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	3 mg/m <sup>3</sup> (respirable dust)
<b>Tungsten (7440-33-7)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	5 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m <sup>3</sup> (inhalable fraction)
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	5 mg/m <sup>3</sup> (applies to its insoluble compounds) 1 mg/m <sup>3</sup> (applies to its soluble compounds)
<b>Bulgaria</b>	OEL STEL (Legal Basis:Reg. No. 13/10)	3 mg/m <sup>3</sup> (Tungsten soluble compounds) 10 mg/m <sup>3</sup> (Tungsten insoluble compounds)
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	5 mg/m <sup>3</sup>
<b>Croatia</b>	OEL STEL (Legal Basis:OG No. 91/2018)	3 mg/m <sup>3</sup>
<b>Denmark</b>	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	5 mg/m <sup>3</sup> (dust and powder)
<b>Estonia</b>	OEL TWA (Legal Basis:Regulation No. 105)	5 mg/m <sup>3</sup>
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	5 mg/m <sup>3</sup>
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	5 mg/m <sup>3</sup> (metal)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	10 mg/m <sup>3</sup> (metal)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Norway</b>	OEL TWA (Legal Basis:FOR-2020-04-06-695)	5 mg/m <sup>3</sup>
<b>Norway</b>	OEL STEL (Legal Basis:FOR-2020-04-06-695)	10 mg/m <sup>3</sup> (value calculated)
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	5 mg/m <sup>3</sup> (inhalable fraction)
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	5 mg/m <sup>3</sup>
<b>Portugal</b>	OEL STEL (Legal Basis:Portuguese Norm NP 1796:2014)	10 mg/m <sup>3</sup>

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<b>Tungsten (7440-33-7)</b>		
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	2 mg/m <sup>3</sup>
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	6 mg/m <sup>3</sup>
Spain	OEL TWA (Legal Basis:OELCAIS)	5 mg/m <sup>3</sup>
Spain	OEL STEL (Legal Basis:OELCAIS)	10 mg/m <sup>3</sup>
Sweden	OEL TLV (Legal Basis:AFS 2018:1)	5 mg/m <sup>3</sup> (total dust)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	1 mg/m <sup>3</sup> (inhalable dust (Tungsten, soluble and insoluble compounds)) 5 mg/m <sup>3</sup> (inhalable dust (Tungsten, soluble and insoluble compounds))
<b>Vanadium (7440-62-2)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,5 mg/m <sup>3</sup> (inhalable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	1 mg/m <sup>3</sup> (inhalable fraction)
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	0,05 mg/m <sup>3</sup>
Czech Republic	OEL TWA (Legal Basis:Reg. 41/2020)	0,05 mg/m <sup>3</sup> (dust)
France	OEL Chemical Category (Legal Basis:INRS ED 984)	Reproductive Toxin categories 1A, 1B, 2 dust and fumes, Mutagen categories 1A, 1B, 2
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	1 mg/m <sup>3</sup>
Norway	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,2 mg/m <sup>3</sup> (dust)
Norway	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,6 mg/m <sup>3</sup> (value calculated-dust)
Norway	OEL Ceiling (Legal Basis:FOR-2020-04-06-695)	0,05 mg/m <sup>3</sup> (fume)
Romania	OEL BLV (Legal Basis:Gov. Dec. No 1.218)	20 µg/l Parameter: Vanadium - Medium: urine - Sampling time: end of shift
<b>Phosphorus elemental (7723-14-0)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,1 mg/m <sup>3</sup> (inhalable fraction (Tetraphosphor))
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	0,2 mg/m <sup>3</sup> (regulated under Tetra-phosphor-inhalable fraction)
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	0,1 mg/m <sup>3</sup>
Croatia	OEL STEL (Legal Basis:OG No. 91/2018)	0,3 ppm
Czech Republic	OEL TWA (Legal Basis:Reg. 41/2020)	0,1 mg/m <sup>3</sup>
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	0,1 mg/m <sup>3</sup>
Greece	OEL TWA (Legal Basis:PWHE)	0,1 mg/m <sup>3</sup>
Greece	OEL STEL (Legal Basis:PWHE)	0,3 mg/m <sup>3</sup>
Hungary	OEL TWA (Legal Basis:Decree No. 05/2020)	0,1 mg/m <sup>3</sup>
Hungary	OEL STEL (Legal Basis:Decree No. 05/2020)	0,1 mg/m <sup>3</sup>
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	0,03 mg/m <sup>3</sup>
Norway	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,1 mg/m <sup>3</sup>
Norway	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,3 mg/m <sup>3</sup> (value calculated)
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,05 mg/m <sup>3</sup>
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	0,15 mg/m <sup>3</sup>
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,05 mg/m <sup>3</sup> (white, yellow-dust)
Slovakia	OEL STEL (Legal Basis:Gov. Decree 33/2018)	0,1 mg/m <sup>3</sup> (white, yellow)
<b>Sulfur (7704-34-9)</b>		
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	6 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	6 mg/m <sup>3</sup>
Lithuania	OEL Chemical Category (Legal Basis:HN 23:2011)	Fibrogenic substance
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	15 mg/m <sup>3</sup> (dust)
<b>Silver (7440-22-4)</b>		
EU	IOELV TWA (Legal Basis:2019/1831 EU in accor. with 98/24/EC)	0,1 mg/m <sup>3</sup>
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,1 mg/m <sup>3</sup> (inhalable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	0,1 mg/m <sup>3</sup> (inhalable fraction)
Austria	OEL Ceiling (Legal Basis:BGBl. II Nr. 254/2018)	0,1 mg/m <sup>3</sup> (inhalable fraction)
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,1 mg/m <sup>3</sup>
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	0,1 mg/m <sup>3</sup>
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	0,1 mg/m <sup>3</sup>
Cyprus	OEL TWA (Legal Basis:KDP 16/2019)	0,1 mg/m <sup>3</sup>
Czech Republic	OEL TWA (Legal Basis:Reg. 41/2020)	0,1 mg/m <sup>3</sup> (respirable fraction of aerosol)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,01 mg/m <sup>3</sup> (dust and powder)
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	0,1 mg/m <sup>3</sup>

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<b>Silver (7440-22-4)</b>		
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,1 mg/m <sup>3</sup>
France	OEL TWA (Legal Basis:INRS ED 984)	0,1 mg/m <sup>3</sup> (indicative limit)
Germany	OEL TWA (Legal Basis:TRGS 900)	0,1 mg/m <sup>3</sup> (inhalable fraction)
Greece	OEL TWA (Legal Basis:PWHE)	0,1 mg/m <sup>3</sup>
Hungary	OEL TWA (Legal Basis:Decree No. 05/2020)	0,1 mg/m <sup>3</sup>
Ireland	OEL TWA (Legal Basis:2020 COP)	0,1 mg/m <sup>3</sup> (metallic)
Ireland	OEL STEL (Legal Basis:2020 COP)	0,3 mg/m <sup>3</sup> (calculated)
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	0,1 mg/m <sup>3</sup> (dust and fume)
Italy	OEL TWA (Legal Basis:Decree 81)	0,1 mg/m <sup>3</sup>
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	0,1 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	0,1 mg/m <sup>3</sup>
Luxembourg	OEL TWA (Legal Basis:A-N 684)	0,1 mg/m <sup>3</sup>
Malta	OEL TWA (Legal Basis:MOHSAA Ch. 424)	0,1 mg/m <sup>3</sup> (metallic)
Netherlands	OEL TWA (Legal Basis:OWCRLV)	0,1 mg/m <sup>3</sup> (metallic)
Norway	OEL TWA (Legal Basis:FOR-2020-04-06-695)	0,1 mg/m <sup>3</sup> (metal dust and fume)
Norway	OEL STEL (Legal Basis:FOR-2020-04-06-695)	0,3 mg/m <sup>3</sup> (value calculated-metal dust and fume)
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,05 mg/m <sup>3</sup> (inhalable fraction)
Portugal	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,01 mg/m <sup>3</sup> (indicative limit value)
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,1 mg/m <sup>3</sup> (metallic)
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,1 mg/m <sup>3</sup>
Slovenia	OEL TWA (Legal Basis:No. 79/19)	0,01 mg/m <sup>3</sup> (inhalable fraction)
Slovenia	OEL STEL (Legal Basis:No. 79/19)	0,02 mg/m <sup>3</sup> (inhalable fraction)
Spain	OEL TWA (Legal Basis:OELCAIS)	0,1 mg/m <sup>3</sup> (indicative limit value)
Sweden	OEL TLV (Legal Basis:AFS 2018:1)	0,1 mg/m <sup>3</sup> (total dust)
Switzerland	OEL STEL (Legal Basis:OLVSNAIF)	0,8 mg/m <sup>3</sup> (inhalable dust)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	0,1 mg/m <sup>3</sup> (inhalable dust)
<b>Zinc (7440-66-6)</b>		
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,1 mg/m <sup>3</sup> (respirable fraction) 2 mg/m <sup>3</sup> (inhalable fraction)
<b>Aluminum nitride (AlN) (24304-00-5)</b>		
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	6 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	6 mg/m <sup>3</sup>
Lithuania	OEL Chemical Category (Legal Basis:HN 23:2011)	Fibrogenic substance
<b>Polyethylene glycol (25322-68-3)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	1000 mg/m <sup>3</sup> (average molecular weight 200-400-inhalable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	4000 mg/m <sup>3</sup> (average molecular weight 200-400-inhalable fraction)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	1000 mg/m <sup>3</sup> (average molecular weight of 200-600)
Germany	OEL TWA (Legal Basis:TRGS 900)	200 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	1000 mg/m <sup>3</sup>
Slovenia	OEL TWA (Legal Basis:No. 79/19)	1000 mg/m <sup>3</sup> (average MW 200-400-inhalable fraction)
Slovenia	OEL STEL (Legal Basis:No. 79/19)	8000 mg/m <sup>3</sup> (average MW 200-400-inhalable fraction)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	500 mg/m <sup>3</sup>
<b>Zirconium carbide (ZrC) (12070-14-3)</b>		
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	6 mg/m <sup>3</sup>
Lithuania	OEL Chemical Category (Legal Basis:HN 23:2011)	Fibrogenic substance
<b>Vanadium oxide (V2O5) (1314-62-1)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,05 mg/m <sup>3</sup> (respirable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	0,25 mg/m <sup>3</sup> (respirable fraction)
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,05 mg/m <sup>3</sup> (fume, alveolar fraction)
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	0,05 mg/m <sup>3</sup> (Vanadium)
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	0,05 mg/m <sup>3</sup>
Czech Republic	OEL TWA (Legal Basis:Reg. 41/2020)	0,05 mg/m <sup>3</sup> (dust and fume)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,03 mg/m <sup>3</sup> (dust, powder and vapour)
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	0,2 mg/m <sup>3</sup> (total dust)
Estonia	OEL STEL (Legal Basis:Regulation No. 105)	0,05 mg/m <sup>3</sup> (respirable dust)

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<b>Vanadium oxide (V2O5) (1314-62-1)</b>		
<b>Finland</b>	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,02 mg/m <sup>3</sup>
<b>France</b>	OEL TWA (Legal Basis:INRS ED 984)	0,05 mg/m <sup>3</sup> (dust and fume)
<b>France</b>	OEL Chemical Category (Legal Basis:INRS ED 984)	Reproductive Toxin categories 1A, 1B, 2, Mutagen categories 1A, 1B, 2
<b>France</b>	OEL BLV (Legal Basis:Decree 2009-1570)	0,05 mg/g creatinine Parameter: Vanadium - Medium: urine - Sampling time: end of shift at end of workweek (Semi-quantitative (ambiguous interpretation))
<b>Germany</b>	OEL TWA (Legal Basis:TRGS 900)	0,005 mg/m <sup>3</sup> (the exposure limit is based on the content of the metal element-respirable fraction) 0,03 mg/m <sup>3</sup> (the exposure limit is based on the content of the metal element-inhalable fraction)
<b>Greece</b>	OEL TWA (Legal Basis:PWHE)	0,5 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Hungary</b>	OEL TWA (Legal Basis:Decree No. 05/2020)	0,05 mg/m <sup>3</sup> (respirable dust)
<b>Hungary</b>	OEL STEL (Legal Basis:Decree No. 05/2020)	0,2 mg/m <sup>3</sup> (respirable dust)
<b>Hungary</b>	OEL Chemical Category (Legal Basis:Decree No. 05/2020)	Sensitiser
<b>Ireland</b>	OEL TWA (Legal Basis:2020 COP)	0,05 mg/m <sup>3</sup> (total inhalable fraction)
<b>Ireland</b>	OEL STEL (Legal Basis:2020 COP)	0,15 mg/m <sup>3</sup> (calculated-total inhalable fraction)
<b>USA ACGIH</b>	OEL TWA (Legal Basis:IMDFN1)	0,05 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Latvia</b>	OEL TWA (Legal Basis:Reg. No. 325)	0,1 mg/m <sup>3</sup> (condensation aerosol and smoke)
<b>Lithuania</b>	OEL TWA (Legal Basis:HN 23:2011)	0,2 mg/m <sup>3</sup> (inhalable fraction)
<b>Lithuania</b>	OEL Ceiling (Legal Basis:HN 23:2011)	0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Lithuania</b>	OEL Chemical Category (Legal Basis:HN 23:2011)	Reproductive toxin inhalable and respirable fraction, Mutagen inhalable and respirable fraction
<b>Netherlands</b>	OEL TWA (Legal Basis:OWCRLV)	0,01 mg/m <sup>3</sup>
<b>Netherlands</b>	OEL STEL (Legal Basis:OWCRLV)	0,03 mg/m <sup>3</sup>
<b>Poland</b>	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	0,05 mg/m <sup>3</sup> (inhalable fraction)
<b>Portugal</b>	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	0,05 mg/m <sup>3</sup> (respirable fraction, dust and fume)
<b>Portugal</b>	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A4 - Not Classifiable as a Human Carcinogen
<b>Romania</b>	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,05 mg/m <sup>3</sup> (fume) 0,1 mg/m <sup>3</sup> (V2O5 dust)
<b>Romania</b>	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	0,1 mg/m <sup>3</sup> (fume)
<b>Slovakia</b>	OEL TWA (Legal Basis:Gov. Decree 33/2018)	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Slovakia</b>	OEL BLV (Legal Basis:Gov. Decree 33/2018)	50 µg/g creatinine Parameter: Vanadium - Medium: urine - Sampling time: after all work shifts (for long-term exposure) 50 µg/g creatinine Parameter: Vanadium - Medium: urine - Sampling time: end of exposure or work shift
<b>Slovenia</b>	OEL TWA (Legal Basis:No. 79/19)	0,005 mg/m <sup>3</sup> (respirable fraction (Vanadium inorganic compounds)) 0,03 mg/m <sup>3</sup> (inhalable fraction (Vanadium inorganic compounds))
<b>Slovenia</b>	OEL STEL (Legal Basis:No. 79/19)	0,005 mg/m <sup>3</sup> (respirable fraction (Vanadium inorganic compounds)) 0,03 mg/m <sup>3</sup> (inhalable fraction (Vanadium inorganic compounds))
<b>Spain</b>	OEL TWA (Legal Basis:OELCAIS)	0,05 mg/m <sup>3</sup> (respirable dust or fume)
<b>Spain</b>	OEL BLV (Legal Basis:OELCAIS)	50 µg/g creatinine Parameter: Vanadium - Medium: urine - Sampling time: end of workweek
<b>Sweden</b>	OEL TLV (Legal Basis:AFS 2018:1)	0,2 mg/m <sup>3</sup> (total dust)
<b>Sweden</b>	OEL STEL (Legal Basis:AFS 2018:1)	0,05 mg/m <sup>3</sup> (respirable fraction)
<b>Switzerland</b>	OEL STEL (Legal Basis:OLVSNAIF)	0,05 mg/m <sup>3</sup> (respirable dust)
<b>Switzerland</b>	OEL TWA (Legal Basis:OLVSNAIF)	0,05 mg/m <sup>3</sup> (respirable dust)
<b>Switzerland</b>	OEL BLV (Legal Basis:OLVSNAIF)	70 µg/g creatinine Parameter: Vanadium - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
<b>Tin (7440-31-5)</b>		
<b>Austria</b>	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	2 mg/m <sup>3</sup> (inhalable fraction)
<b>Austria</b>	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	4 mg/m <sup>3</sup> (inhalable fraction)
<b>Belgium</b>	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	2 mg/m <sup>3</sup>
<b>Belgium</b>	OEL Chemical Category (Legal Basis:Royal Decree 21/01/2020)	Skin
<b>Bulgaria</b>	OEL TWA (Legal Basis:Reg. No. 13/10)	0,1 mg/m <sup>3</sup> (applies to its organic compounds) 2 mg/m <sup>3</sup> (applies to its inorganic compounds)
<b>Croatia</b>	OEL TWA (Legal Basis:OG No. 91/2018)	2 mg/m <sup>3</sup>



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<b>Tin (7440-31-5)</b>		
Cyprus	OEL TWA (Legal Basis:KDP 16/2019)	2 mg/m <sup>3</sup>
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	2 mg/m <sup>3</sup>
Greece	OEL TWA (Legal Basis:PWHE)	2 mg/m <sup>3</sup>
Ireland	OEL TWA (Legal Basis:2020 COP)	2 mg/m <sup>3</sup>
Ireland	OEL STEL (Legal Basis:2020 COP)	6 mg/m <sup>3</sup> (calculated)
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	2 mg/m <sup>3</sup> (inhalable particulate matter)
Malta	OEL TWA (Legal Basis:MOHSAA Ch. 424)	2 mg/m <sup>3</sup>
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	2 mg/m <sup>3</sup> (inhalable fraction)
Portugal	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	2 mg/m <sup>3</sup>
Slovakia	OEL Chemical Category (Legal Basis:Gov. Decree 33/2018)	Potential for cutaneous absorption
Slovenia	OEL TWA (Legal Basis:No. 79/19)	2 mg/m <sup>3</sup> (applies to Tin(IV) inorganic compounds-inhalable fraction) 8 mg/m <sup>3</sup> (applies to Tin(II) inorganic compounds-inhalable fraction)
Spain	OEL TWA (Legal Basis:OELCAIS)	2 mg/m <sup>3</sup>
Sweden	OEL TLV (Legal Basis:AFS 2018:1)	2 mg/m <sup>3</sup> (inhalable fraction)
Switzerland	OEL STEL (Legal Basis:OLVSNAIF)	0,02 mg/m <sup>3</sup> (inhalable dust (Tetra-n-butyltin compounds))
Switzerland	OEL STEL (Legal Basis:OLVSNAIF)	0,004 ppm (Tetra-n-butyltin compounds)
Switzerland	OEL Chemical Category (Legal Basis:OLVSNAIF)	Skin notation
<b>Tantalum (7440-25-7)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	5 mg/m <sup>3</sup> (inhalable fraction)
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	5 mg/m <sup>3</sup>
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	5 mg/m <sup>3</sup>
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	5 mg/m <sup>3</sup>
Croatia	OEL STEL (Legal Basis:OG No. 91/2018)	10 mg/m <sup>3</sup>
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	5 mg/m <sup>3</sup> (powder)
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	5 mg/m <sup>3</sup>
France	OEL TWA (Legal Basis:INRS ED 984)	5 mg/m <sup>3</sup>
Germany	OEL TWA (Legal Basis:TRGS 900)	1,25 mg/m <sup>3</sup> (respirable fraction (dust)) 10 mg/m <sup>3</sup> (inhalable fraction (dust))
Greece	OEL TWA (Legal Basis:PWHE)	5 mg/m <sup>3</sup>
Greece	OEL STEL (Legal Basis:PWHE)	10 mg/m <sup>3</sup>
Ireland	OEL TWA (Legal Basis:2020 COP)	5 mg/m <sup>3</sup>
Ireland	OEL STEL (Legal Basis:2020 COP)	10 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	10 mg/m <sup>3</sup>
Lithuania	OEL Chemical Category (Legal Basis:HN 23:2011)	Fibrogenic substance
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	5 mg/m <sup>3</sup>
Portugal	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	5 mg/m <sup>3</sup> (dust)
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	5 mg/m <sup>3</sup>
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	10 mg/m <sup>3</sup>
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	1,5 mg/m <sup>3</sup> (respirable fraction) 4 mg/m <sup>3</sup> (inhalable fraction)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	3 mg/m <sup>3</sup> (respirable dust)
<b>1H-Benzotriazole (95-14-7)</b>		
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	5 mg/m <sup>3</sup>
<b>Boron (7440-42-8)</b>		
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	5 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	2 mg/m <sup>3</sup> (amorphous and crystalline)
Switzerland	OEL Chemical Category (Legal Basis:OLVSNAIF)	Category 1B developmental toxin, Category 1B reproductive toxin
<b>Chromium ion (3+) (16065-83-1)</b>		
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,5 mg/m <sup>3</sup>
<b>Silicon nitride (Si3N4) (12033-89-5)</b>		
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	6 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	6 mg/m <sup>3</sup>
Lithuania	OEL Chemical Category (Legal Basis:HN 23:2011)	Fibrogenic substance
<b>Titanium dioxide (13463-67-7)</b>		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	5 mg/m <sup>3</sup> (alveolar dust, respirable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m <sup>3</sup> (alveolar dust, respirable fraction)

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Titanium dioxide (13463-67-7)		
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	10 mg/m <sup>3</sup>
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	10 mg/m <sup>3</sup> (respirable dust)
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	10 mg/m <sup>3</sup> (total dust, inhalable particles) 4 mg/m <sup>3</sup> (respirable dust)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	6 mg/m <sup>3</sup>
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	5 mg/m <sup>3</sup>
France	OEL TWA (Legal Basis:INRS ED 984)	10 mg/m <sup>3</sup>
Germany	OEL TWA (Legal Basis:TRGS 900)	1,25 mg/m <sup>3</sup> (respirable fraction (dust)) 10 mg/m <sup>3</sup> (inhalable fraction (dust))
Greece	OEL TWA (Legal Basis:PWHSE)	10 mg/m <sup>3</sup> (inhalable fraction) 5 mg/m <sup>3</sup> (respirable fraction)
Ireland	OEL TWA (Legal Basis:2020 COP)	10 mg/m <sup>3</sup> (total inhalable dust) 4 mg/m <sup>3</sup> (respirable dust)
Ireland	OEL STEL (Legal Basis:2020 COP)	30 mg/m <sup>3</sup> (calculated-respirable dust) 12 mg/m <sup>3</sup> (calculated)
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	10 mg/m <sup>3</sup>
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	10 mg/m <sup>3</sup>
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	5 mg/m <sup>3</sup>
Norway	OEL TWA (Legal Basis:FOR-2020-04-06-695)	5 mg/m <sup>3</sup>
Norway	OEL STEL (Legal Basis:FOR-2020-04-06-695)	10 mg/m <sup>3</sup> (value calculated)
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	10 mg/m <sup>3</sup> (the concentration of the respirable Crystalline silica fraction is determined simultaneously-inhalable fraction)
Portugal	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	10 mg/m <sup>3</sup>
Portugal	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A4 - Not Classifiable as a Human Carcinogen
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	10 mg/m <sup>3</sup>
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	15 mg/m <sup>3</sup>
Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	5 mg/m <sup>3</sup>
Spain	OEL TWA (Legal Basis:OELCAIS)	10 mg/m <sup>3</sup>
Sweden	OEL TLV (Legal Basis:AFS 2018:1)	5 mg/m <sup>3</sup> (total dust)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	3 mg/m <sup>3</sup> (respirable dust)

## 8.2. Exposure Controls

### Appropriate Engineering Controls

: When cutting, grinding, crushing, or drilling, provide general or local ventilation systems, as needed, to maintain airborne dust concentrations below the regulatory limits. Local vacuum collection is preferred since it prevents release of contaminants into the work area by controlling it at the source. Other technologies that may aid in controlling airborne respirable dust include wet suppression, ventilation, process enclosure, and enclosed employee work stations.

### Personal Protective Equipment

: The following applies to the product if it is cut, sanded or altered in such a way that excessive and/or significant particulates and/or dusts may be generated: Protective goggles. Dust/aerosol mask. Gloves. Dustproof clothing. Personal protective equipment should be chosen in accordance with Regulation (EU) 2016/425, CEN standards, and in discussion with the supplier of the protective equipment.



### Materials for Protective Clothing

#### Hand Protection

: Flame retardant antistatic protective clothing.  
: Impermeable protective gloves. If material is hot, wear thermally resistant protective gloves.

#### Eye Protection

: In case of dust production: protective goggles.

#### Skin and Body Protection

: Wear suitable protective clothing.

#### Respiratory Protection

: When effective engineering controls are not feasible, appropriate respiratory protection shall be used. Personal Protective Equipment must be selected by trained personnel, taking into account the type of hazardous materials it should protect from, the nature of the work, the expected exposure, and the facial characteristics of the wearers; proper fit is of paramount importance. Ensure the

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respiratory protection program meets the requirements of Council Directive 89/686/EEC.

**Other Information** : When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Colour, Appearance	: Formed article
Odour	: No data available
Odour Threshold	: No data available
pH	: Not applicable
pH solution	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
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	: Not applicable
Relative Density	: No data available
Solubility	: Insoluble in water
Partition Coefficient n-Octanol/Water	: No data available
Viscosity	: Not applicable
Explosive Properties	: No data available
Oxidising Properties	: Not applicable
Explosive Limits	: No data available
Particle Size	: No data available
Particle Size Distribution	: No data available
Particle Shape	: No data available
Particle Aspect Ratio	: No data available
Particle Aggregation State	: No data available
Particle Agglomeration State	: No data available
Particle Specific Surface Area	: No data available
Particle Dustiness	: No data available

### 9.2. Other Information

No additional information available

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Product is stable. Contact with concentrated acid or alkali can result in evolution of hydrogen gas.

### 10.2. Chemical Stability

Stable under normal conditions.

### 10.3. Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to Avoid

Use good housekeeping practices during storage, transfer, handling, to avoid excessive dust accumulation.

### 10.5. Incompatible Materials

Strong acids. Strong bases. Strong oxidizers.

### 10.6. Hazardous Decomposition Products

None expected under normal conditions of use

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Hazard Classes As Defined In Regulation (Ec) No 1272/2008

Likely Routes of Exposure	: Dermal
Acute Toxicity (Oral)	: Not classified. (Product is an article) Particulates: Harmful if swallowed.

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**Acute Toxicity (Dermal)** : Not classified (Product is an article)  
**Acute Toxicity (Inhalation)** : Not classified. (Product is an article)  
Particulates or fumes: Toxic if inhaled.

<b>Tungsten carbide (12070-12-1)</b>	
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,3 mg/l/4h
<b>Cobalt (7440-48-4)</b>	
LD50 Oral Rat	550 mg/kg (Species: Sprague Dawley)
LC50 Inhalation Rat	< 0,05 mg/l/4h
<b>Nickel (7440-02-0)</b>	
LD50 Oral Rat	> 9000 mg/kg
LC50 Inhalation Rat	> 10,2 mg/l (Exposure time: 1 h)
<b>Vanadium carbide (VC) (12070-10-9)</b>	
LC50 Inhalation Rat	> 5,05 mg/l/4h
<b>Chromium (7440-47-3)</b>	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5,41 mg/l/4h
<b>Carbon (7440-44-0)</b>	
LD50 Oral Rat	> 10000 mg/kg
<b>Copper (7440-50-8)</b>	
LC50 Inhalation Rat	> 5,11 mg/l/4h
<b>Iron (7439-89-6)</b>	
LD50 Oral Rat	98,6 g/kg
<b>Manganese (7439-96-5)</b>	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,14 mg/l/4h
<b>Molybdenum (7439-98-7)</b>	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 3,92 mg/l/4h
<b>Silicon (7440-21-3)</b>	
LD50 Oral Rat	3160 mg/kg
<b>Tungsten (7440-33-7)</b>	
LD50 Dermal Rat	> 2000 mg/kg
<b>Vanadium (7440-62-2)</b>	
LD50 Oral Rat	> 2000 mg/kg
<b>Phosphorus elemental (7723-14-0)</b>	
LD50 Oral Rat	> 15000 mg/kg
LC50 Inhalation Rat	4,3 mg/l (Exposure time: 1 h)
<b>Sulfur (7704-34-9)</b>	
LD50 Oral Rat	> 3000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 9,23 mg/l/4h
<b>Silver (7440-22-4)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,16 mg/l/4h
<b>Titanium boride (TiB2) (12045-63-5)</b>	
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,05 mg/l/4h
<b>Polyethylene glycol (25322-68-3)</b>	
LD50 Oral Rat	47000 mg/kg
LD50 Dermal Rabbit	> 20 g/kg
<b>Vanadium oxide (V2O5) (1314-62-1)</b>	
LD50 Oral Rat	221 mg/kg (Species: Sprague-Dawley)

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<b>Vanadium oxide (V2O5) (1314-62-1)</b>	
LD50 Dermal Rat	> 2500 mg/kg bodyweight
LC50 Inhalation Rat	2,21 mg/l/4h
<b>Tin (7440-31-5)</b>	
LD50 Dermal Rat	> 2000 mg/kg
<b>Tantalum (7440-25-7)</b>	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,18 mg/l/4h
<b>1H-Benzotriazole (95-14-7)</b>	
LD50 Oral Rat	560 mg/kg
LD50 Dermal Rabbit	> 10000 mg/kg
LC50 Inhalation Rat	1910 mg/m <sup>3</sup> (Exposure time: 3 h)
LC50 Inhalation Rat	1,43 mg/l/4h
<b>Boron (7440-42-8)</b>	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5,08 mg/l/4h
<b>Silicon nitride (Si3N4) (12033-89-5)</b>	
LC50 Inhalation Rat	> 5,07 mg/l/4h
<b>Titanium dioxide (13463-67-7)</b>	
LD50 Oral Rat	> 10000 mg/kg
LC50 Inhalation Rat	5,09 mg/l/4h

<b>Skin Corrosion/Irritation</b>	: Not classified (Product is an article) Particulates or fumes: Causes skin irritation.
<b>Eye Damage/Irritation</b>	: Not classified (Product is an article) Particulates or fumes: Causes serious eye irritation.
<b>Respiratory or Skin Sensitisation</b>	: Not classified. (Product is an article) Particulates or fumes: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
<b>Germ Cell Mutagenicity</b>	: Not classified (Product is an article) Particulates or fumes: Suspected of causing genetic defects.
<b>Carcinogenicity</b>	: Not classified. (Product is an article) Particulates or fumes: May cause cancer.

<b>Cobalt (7440-48-4)</b>	
IARC Group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen, Evidence of Carcinogenicity.
<b>Nickel (7440-02-0)</b>	
IARC Group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
<b>Vanadium oxide (V2O5) (1314-62-1)</b>	
IARC Group	2B
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity.
<b>Titanium dioxide (13463-67-7)</b>	
IARC Group	2B

<b>Reproductive Toxicity</b>	: Not classified. (Product is an article) Particulates or fumes: Suspected of damaging fertility or the unborn child.
<b>Specific Target Organ Toxicity (Single Exposure)</b>	: Not classified (Product is an article)
<b>Specific Target Organ Toxicity (Repeated Exposure)</b>	: Not classified. (Product is an article) Particulates or fumes: Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration Hazard</b>	: Not classified (Product is an article)
<b>Symptoms/Injuries After Inhalation</b>	: Not expected to present a significant inhalation hazard under anticipated conditions of normal use. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitisation reaction. Inhalation of dusts and fumes can cause metal fume

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	fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.
<b>Symptoms/Injuries After Skin Contact</b>	: None expected under normal conditions of use. Skin contact with large amounts of dust may cause mechanical irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction.
<b>Symptoms/Injuries After Eye Contact</b>	: None expected under normal conditions of use. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.
<b>Symptoms/Injuries After Ingestion</b>	: Ingestion is likely to be harmful or have adverse effects.
<b>Chronic Symptoms</b>	: In massive form, no chronic hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Cobalt: Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis). Cobalt may damage the male reproductive system (including a decrease in sperm count) and affect male fertility in animals. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Nickel metal powder, when respirable, is a suspected human carcinogen, and is known to cause damage to the lungs through inhalation. Product may cause an allergic reaction in persons previously sensitised to nickel and/or its salts. Silver: Chronic skin contact or ingestion of silver dust, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes. Tantalum: Repeated exposure to tantalum alloys may cause fibrosis, chronic rhinitis and "hard metal pneumoconiosis". Titanium dioxide: Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic.

### 11.2. Information On Other Hazards

Based on available data this substance/the substances in this mixture not listed below do(es) not have endocrine disrupting properties with respect to humans as it does not meet the criteria set out in section A of Regulation (EU) No 2017/2100 and/or the criteria set out in Regulation (EU) 2018/605, or the substance(s) are not required to be disclosed.

Component	
Nickel (7440-02-0)	This chemical is considered to have endocrine-disrupting properties with respect to animals in the respiratory tract, producing changes to morphology, physiology as it meets the criteria set out in section A of Regulation (EU) 2017/2100, and/or the criteria set out in Regulation (EU) 2018/605. This conclusion is based on evidence from studies and data obtained from a literature search conducted on this chemical, and shows a link between the effects above and endocrine activity, which is relevant for humans.
Chromium (7440-47-3)	This chemical is considered to have endocrine-disrupting properties with respect to animals and humans in the reproductive organs, producing changes to reproduction as it meets the criteria set out in section A of Regulation (EU) 2017/2100, and/or the criteria set out in Regulation (EU) 2018/605. This conclusion is based on evidence from studies and data obtained from a literature search conducted on this chemical, and shows a link between the effects above and endocrine activity, which is relevant for humans.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

<b>Hazardous To The Aquatic Environment, Short-Term (Acute)</b>	: Not classified. (Product is an article) For particulates and dust: Very toxic to aquatic life.
<b>Hazardous To The Aquatic Environment, Long-Term (Chronic)</b>	: Not classified. (Product is an article) For particulates and dust: Very toxic to aquatic life with long lasting effects.

<b>Cobalt (7440-48-4)</b>	
LC50 - Fish	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
<b>Nickel (7440-02-0)</b>	
LC50 - Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)

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<b>Nickel (7440-02-0)</b>	
EC50 - Crustacea	121,6 µg/l (Exposure time: 48h - Species: Ceriodaphnia dubia [static])
LC50 - Fish 2	15,3 mg/l
EC50 - Crustacea	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 - Other Aquatic Organisms	0,174 (0,174 – 0,311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
<b>Copper (7440-50-8)</b>	
LC50 - Fish 1	0,0068 – 0,0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea	0,03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 - Other Aquatic Organisms 1	0,0426 (0,0426 – 0,0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 - Fish 2	< 0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Other Aquatic Organisms 2	0,031 (0,031 – 0,054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
<b>Manganese (7439-96-5)</b>	
LC50 - Fish	> 3,6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
NOEC - Chronic Fish	3,6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)
<b>Molybdenum (7439-98-7)</b>	
LC50 - Fish	800 – 1320 mg/l
<b>Phosphorus elemental (7723-14-0)</b>	
LC50 - Fish 1	33,2 mg/l Red Phosphorous (Exposure time: 96 h - Species Danio rerio [static])
EC50 - Crustacea 1	0,03 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish 2	0,001 – 0,004 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 - Crustacea 2	0,025 – 0,037 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
<b>Sulfur (7704-34-9)</b>	
LC50 - Fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 - Crustacea	736 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish 2	14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
<b>Silver (7440-22-4)</b>	
LC50 - Fish 1	0,00155 (0,00155 – 0,00293) mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Crustacea	0,00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish 2	0,0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
<b>Zinc (7440-66-6)</b>	
LC50 - Fish 1	2,16 – 3,05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea	0,139 – 0,908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish 2	0,211 – 0,269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
ErC50 - Algae	0,15 mg/l
<b>Vanadium oxide (V2O5) (1314-62-1)</b>	
LC50 - Fish	4,46 mg/l
NOEC - Chronic Fish	0,073 mg/l
<b>1H-Benzotriazole (95-14-7)</b>	
LC50 - Fish	39 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 - Crustacea	141,6 mg/l (Exposure time: 48 h - Species: water flea)
<b>Silicon nitride (Si3N4) (12033-89-5)</b>	
LC50 - Fish	> 100 mg/l (Exposure time: 96 h - Species: Danio rerio [static])

## 12.2. Persistence and Degradability

<b>All M.A. Ford Cutting Tools</b>	
Persistence and Degradability	Inorganic product which cannot be eliminated from water by biological purification processes.
<b>Copper (7440-50-8)</b>	
Persistence and Degradability	Not readily biodegradable.

## 12.3. Bioaccumulative Potential

<b>Cobalt (7440-48-4)</b>	
BCF Fish	(no bioaccumulation)
<b>Phosphorus elemental (7723-14-0)</b>	
BCF Fish	< 200

## 12.4. Mobility in Soil

No additional information available

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### 12.5. Results of PBT and vPvB Assessment

Does not contain any PBT/vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XVIII

### 12.6. Endocrine Disrupting Properties

Based on available data this substance/the substances in this mixture not listed below do(es) not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100 and/or the criteria set out in Regulation (EU) 2018/605, or the substance(s) are not required to be disclosed.

Component	
Nickel (7440-02-0)	This chemical is considered to have endocrine-disrupting properties as it meets the criteria set out in section B of Regulation (EU) 2017/2100, and/or the criteria set out in Regulation (EU) 2018/605. This conclusion is based on evidence from studies and data obtained from a literature search conducted on this chemical.
Chromium (7440-47-3)	This chemical is considered to have endocrine-disrupting properties as it meets the criteria set out in section B of Regulation (EU) 2017/2100, and/or the criteria set out in Regulation (EU) 2018/605. This conclusion is based on evidence from studies and data obtained from a literature search conducted on this chemical.

### 12.7. Other Adverse Effects

**Other Information** : Avoid unintended release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste Treatment Methods

**Product/Packaging Disposal Recommendations** : Dispose of waste material in accordance with all local, regional, national, and international regulations. Material should be recycled if possible.  
**Ecology - Waste Materials** : Avoid unintended release to the environment.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

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

### 14.1. UN Number or ID Number

Not regulated for transport

### 14.2. UN Proper Shipping Name

Not regulated for transport

### 14.3. Transport Hazard Class(Es)

Not regulated for transport

### 14.4. Packing Group

Not regulated for transport

### 14.5. Environmental Hazards

Not regulated for transport

### 14.6. Special Precautions For User

No additional information available

### 14.7. Maritime Transport in Bulk According to IMO instruments

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

##### 15.1.1.1. REACH Annex XVII Information

No additional information available

##### 15.1.1.2. REACH Candidate List Information

Contains no substance on the REACH candidate list

##### 15.1.1.3. POP (2019/1021) - Persistent Organic Pollutants Information

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

##### 15.1.1.4. PIC Regulation EU (649/2012) - Export and Import of Hazardous Chemicals Information

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.

##### 15.1.1.5. REACH Annex XIV Information

No additional information available

##### 15.1.1.6. Substances Depleting the Ozone layer (1005/2009) Information

No additional information available



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### 15.1.1.7. EC Inventory Information

<b>Tungsten carbide (12070-12-1)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Tantalum carbide (TaC) (12070-06-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Titanium carbide (TiC) (12070-08-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Niobium carbide (NbC) (12069-94-2)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Chromium carbide (Cr3C2) (12012-35-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Cobalt (7440-48-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Nickel (7440-02-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Vanadium carbide (VC) (12070-10-9)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Molybdenum carbide (Mo2C) (12069-89-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Chromium (7440-47-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Titanium nitride (25583-20-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Aluminum (7429-90-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Carbon (7440-44-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Copper (7440-50-8)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Iron (7439-89-6)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Manganese (7439-96-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Molybdenum (7439-98-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Silicon (7440-21-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Tungsten (7440-33-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Vanadium (7440-62-2)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Phosphorus elemental (7723-14-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Sulfur (7704-34-9)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Silver (7440-22-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Zinc (7440-66-6)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Titanium boride (TiB2) (12045-63-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Aluminum nitride (AlN) (24304-00-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Zirconium carbide (ZrC) (12070-14-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Vanadium oxide (V2O5) (1314-62-1)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Tin (7440-31-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Tantalum (7440-25-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>1H-Benzotriazole (95-14-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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### **Boron (7440-42-8)**

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### **Silicon nitride (Si<sub>3</sub>N<sub>4</sub>) (12033-89-5)**

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### **Titanium dioxide (13463-67-7)**

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

## **15.1.1.8. Other Information**

Other information, restriction and prohibition regulations : Exempted from REACH registration.

## **15.1.2. National Regulations**

No additional information available

## **15.1.3. International Inventory Lists**

### **Tungsten carbide (12070-12-1)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Tantalum carbide (TaC) (12070-06-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Titanium carbide (TiC) (12070-08-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Niobium carbide (NbC) (12069-94-2)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Chromium carbide (Cr<sub>3</sub>C<sub>2</sub>) (12012-35-0)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Cobalt (7440-48-4)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)

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Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Nickel (7440-02-0)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Vanadium carbide (VC) (12070-10-9)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian NDSL (Non-Domestic Substances List)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Molybdenum carbide (Mo2C) (12069-89-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian NDSL (Non-Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Chromium (7440-47-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Titanium nitride (25583-20-4)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Aluminum (7429-90-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)

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Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Carbon (7440-44-0)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Copper (7440-50-8)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Iron (7439-89-6)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Manganese (7439-96-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Molybdenum (7439-98-7)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)

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Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Silicon (7440-21-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Tungsten (7440-33-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Vanadium (7440-62-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Phosphorus elemental (7723-14-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed on the United States SARA Section 302  
Subject to reporting requirements of United States SARA Section 313  
Listed on EPA Hazardous Air Pollutant (HAPS)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Sulfur (7704-34-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

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### **Silver (7440-22-4)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Zinc (7440-66-6)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Subject to reporting requirements of United States SARA Section 313  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Titanium boride (TiB2) (12045-63-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Aluminum nitride (AlN) (24304-00-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Polyethylene glycol (25322-68-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the EU NLP (No Longer Polymers) inventory  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### **Zirconium carbide (ZrC) (12070-14-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian NDSL (Non-Domestic Substances List)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)

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Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Vanadium oxide (V2O5) (1314-62-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed on the United States SARA Section 302  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Tin (7440-31-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Tantalum (7440-25-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on the Canadian IDL (Ingredient Disclosure List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Fatty acids, tall-oil, maleated, esters with diethylene glycol, ammonium salts (158706-62-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

### 1H-Benzotriazole (95-14-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Boron (7440-42-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

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Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Chromium ion (3+) (16065-83-1)

Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Silicon nitride (Si3N4) (12033-89-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

### Titanium dioxide (13463-67-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active  
Listed on the Canadian DSL (Domestic Substances List)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemicals Inventory)

## 15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out

## SECTION 16: OTHER INFORMATION

**Date of Preparation or Latest Revision** : 31/03/2022

**Data Sources** : Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

**Other Information** : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

### Full Text of H- and EUH-statements:

Acute Tox. 1 (Inhalation)	Acute toxicity (Inhalation) Category 1
Acute Tox. 1 (Oral)	Acute toxicity (oral), Category 1
Acute Tox. 2 (Dermal)	Acute toxicity (dermal), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (Inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
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. 1B	Carcinogenicity, Category 1B
Carc. 2	Carcinogenicity, Category 2
EUH208	Contains Cobalt(7440-48-4), Nickel(7440-02-0). May produce an allergic reaction.
EUH210	Safety data sheet available on request.
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Sol. 1	Flammable solids, Category 1
Flam. Sol. 2	Flammable solids, Category 2
H228	Flammable solid.
H250	Catches fire spontaneously if exposed to air.
H252	Self-heating in large quantities; may catch fire.



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H260	In contact with water releases flammable gases which may ignite spontaneously.
H261	In contact with water releases flammable gases.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360F	May damage fertility.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.
Muta. 2	Germ cell mutagenicity, Category 2
Pyr. Sol. 1	Pyrophoric Solids, Category 1
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Resp. Sens. 1	Respiratory sensitisation, Category 1
Self-heat. 2	Self-Heating Substances and Mixtures, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
Water-react. 1	Substances and Mixtures which, in contact with water, emit flammable gases, Category 1
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2

### Indication of Changes

Section	Change	Date Changed	Version
1	Language modified	31/03/2022	2.0
2	Language modified	31/03/2022	2.0
3	Data modified	31/03/2022	2.0
4	Language modified	31/03/2022	2.0
5	Language modified	31/03/2022	2.0
6	Language modified	31/03/2022	2.0
7	Language modified	31/03/2022	2.0
8	Data modified	31/03/2022	2.0
9	Language modified	31/03/2022	2.0
10	Language modified	31/03/2022	2.0
11	Data modified; Language modified	31/03/2022	2.0
12	Data modified; Language modified	31/03/2022	2.0
13	Language modified	31/03/2022	2.0
15	Data modified	31/03/2022	2.0
16	Language modified	31/03/2022	2.0

### Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists  
 ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways  
 ADR - European Agreement Concerning the International Carriage of

NDS - Najwyższe Dopuszczalne Steżenie  
 NDSCh - Najwyższe Dopuszczalne Steżenie Chwilowe  
 NDSP - Najwyższe Dopuszczalne Steżenie Pulapowe  
 NOAEL - No-Observed Adverse Effect Level

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Dangerous Goods by Road	NOEC - No-Observed Effect Concentration
ATE - Acute Toxicity Estimate	NRD - Nevirsytinas Ribinis Dydis
BCF - Bioconcentration Factor	NTP - National Toxicology Program
BEI - Biological Exposure Indices (BEI)	OEL - Occupational Exposure Limits
BOD - Biochemical Oxygen Demand	PBT - Persistent, Bioaccumulative and Toxic
CAS No. - Chemical Abstracts Service Number	PEL - Permissible Exposure Limit
CLP - Classification, Labeling and Packaging Regulation (EC) No 1272/2008	pH - Potential Hydrogen
COD - Chemical Oxygen Demand	REACH - Registration, Evaluation, Authorisation, and Restriction of Chemicals
EC - European Community	RID - Regulations Concerning the International Carriage of Dangerous Goods by Rail
EC50 - Median Effective Concentration	SADT - Self Accelerating Decomposition Temperature
EEC - European Economic Community	SDS - Safety Data Sheet
EINECS - European Inventory of Existing Commercial Chemical Substances	STEL - Short Term Exposure Limit
EmS-No. (Fire) - IMDG Emergency Schedule Fire	STOT - Specific Target Organ Toxicity
EmS-No. (Spillage) - IMDG Emergency Schedule Spillage	TA-Luft - Technische Anleitung zur Reinhaltung der Luft
EU - European Union	TEL TRK - Technical Guidance Concentrations
ErC50 - EC50 in Terms of Reduction Growth Rate	ThOD - Theoretical Oxygen Demand
GH5 - Globally Harmonized System of Classification and Labeling of Chemicals	TLM - Median Tolerance Limit
IARC - International Agency for Research on Cancer	TLV - Threshold Limit Value
IATA - International Air Transport Association	TPRD - Trumpalaikio Poveikio Ribinis Dydis
IBC Code - International Bulk Chemical Code	TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
IMDG - International Maritime Dangerous Goods	TRGS 552 - Technische Regeln für Gefahrstoffe - N-Nitrosamine
IPRV - Ilgalaikio Poveikio Ribinis Dydis	TRGS 900 - Technische Regel für Gefahrstoffe 900 - Arbeitsplatzgrenzwerte
IOELV - Indicative Occupational Exposure Limit Value	TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte
LC50 - Median Lethal Concentration	TSCA - Toxic Substances Control Act
LD50 - Median Lethal Dose	TWA - Time Weighted Average
LOAEL - Lowest Observed Adverse Effect Level	VOC - Volatile Organic Compounds
LOEC - Lowest-Observed-Effect Concentration	VLA-EC - Valor Límite Ambiental Exposición de Corta Duración
Log Koc - Soil Organic Carbon-water Partitioning Coefficient	VLA-ED - Valor Límite Ambiental Exposición Diaria
Log Kow - Octanol/water Partition Coefficient	VL - Valeur Limite D'exposition
Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water	VME - Valeur Limite De Moyenne Exposition
MAK - Maximum Workplace Concentration/Maximum Permissible Concentration	vPvB - Very Persistent and Very Bioaccumulative
MARPOL - International Convention for the Prevention of Pollution	WEL - Workplace Exposure Limit
	WGK - Wassergefährdungsklasse

### Limit Value Legal Basis\*

\*Includes the below and any related regulations/provisions, and subsequent amendments

**EU - 2019/1831 EU in accor. with 98/24/EC** - Directive 2019/1831/EU of October 24, 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 2000/39/EC.

**EU - 2019/1243/EU, and 98/24/EC** - Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work and amendment Regulation (EU) 2019/1243.

**Austria - BGBl. II Nr. 254/2018** - Ordinance on Limit Values for Workplace Substances and on Carcinogens from the Federal Ministry of Economics and Labour, Published in 2003, Appendix 1: Substance List, Published through: Ministry of Economics and Labour of the Republic of Austria amended through the Government Gazette II (BGBl. II) No 119/2004) & BGBl. II No. 242/2006, BGBl. II No. 243/2007, lastly changed through BGBl. I Nr. 51/2011), BGBl. II Nr. 186/2015, BGBl. II Nr. 288/2017 amended by BGBl. II Nr. 254/2018.

**Austria - BLV BGBl. II Nr. 254/2018** - Ordinance on health monitoring at the workplace 2008, published through BGBl. II Nr. 224/2007 by Austria Minister for Labour and Social Affairs, Lastly changed through BGBl. II Nr. 254/2018

**Belgium - Royal Decree 21/01/2020** - Royal decree amending title 1 relating to chemical agents in Book VI of the code of well-being at work, with regard to the list of limit values of exposure to chemical agents and title 2 relating to carcinogens, mutagens and reprotoxics of Book VI of the code of well-being at work (1)

**Bulgaria - Reg. No. 13/10** - Regulation No. 13 of December 30, 2003 on the Protection of Workers from Hazards Related to Exposure to Chemical Agents at Work Labor Code, Annex No.1 Limit values of chemical agents in the air of the working environment, and Annex No 2 Biological limit values of chemical agents and their metabolites (bio markers of exposure) or bio markers of effect Amended by: 71/2006, 67/2007, 2/2012, 46/2015, 73/2018, 5/2020), and Regulation No.10 of September 26, 2003 on the Protection of Workers from the Risks Associated with Exposure to Carcinogens and Mutagens at Work Annex No.1 Occupational Exposure Limits, Amended by: 8/2004, 46/2015, 5/2020

**Croatia - OG No. 91/2018** - Regulation on the Protection of Workers from

**Greece - PWHSE** - Occupational Exposure Limits - Protection of workers' health and safety from exposure to certain chemical substances during the workday, (latest amendment 82/2018) and Occupation Exposure Limits - Protection of workers' health and safety from exposure to certain carcinogenic and mutagenic chemical substances (latest amendment 26/2020), and Presidential Decree 212/2006 - Protection of workers that are exposed to asbestos.

**Hungary - Decree 05/2020** - 5/2020. (II. 6.) ITM decree on the protection of the health and safety of workers from the risks related to chemical agents

**Ireland - 2020 COP** - 2020 Code of Practice for the Chemical Agents Regulations, Schedule 1

**Italy - Decree 81** - Title IX, Annex XLIII and XXXVIII, Professional Exposure Limits and Annex XXXIX Mandatory Biological Limit Values and Health Monitoring, Article 1, Law 123 of August 3, 2007, Legislative Decree 81 of April 9, 2008, Last amended: January 2020

**Italy - IMDFN1** - Ministerial Decree of August 20, 1999 Final Note (1)

**Latvia - Reg. No. 325** - Cabinet of Ministers Regulation No. 325 - Labour Protection Requirements when Coming in Contact with Chemical Substances at Workplaces, Amended by Cabinet of Ministers Regulation No. 92, 163, 407 and No. 11.

**Lithuania - HN 23:2011** - Lithuanian Hygiene Standard HN 23:2011 Occupational Exposure Limit Values, Amended by Order V-695/A1-272.

**Luxembourg - A-N 684** - Grand-Ducal Regulation of 20 July 2018 amending the Grand-Ducal Regulation of 14 November 2016 concerning the protection of the safety and health of employees against the risks associated with chemical agents in the workplace. Official journal of the Grand-Duke of Luxembourg, A-N°684 of 2018

**Malta - MOSHAA Ch. 424** - Malta Occupational Health and Safety Authority Act: Chapter 424 as amended by: Legal Notice 353, 53, 198, and 57.

**Netherlands- OWCRLV** - Occupational Working Conditions Regulation, Limit Values for substances harmful to health, Annex XVIII, Updated from August 1, 2020.

**Norway - FOR-2020-04-060695** - Regulations concerning action and limit values for physical and chemical agents in the working environment and

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Exposure to Hazardous Chemicals at Work, the Limit Values of Exposure and the Biological Limit Values. Official Gazette No. 91 of October 12, 2018

**Cyprus - KDP 16/2019** - Government of Cyprus Cabinet of Ministers Regulation 268/2001 - Safety and Health in the Working Environment (Chemical Substances) Article 38, As amended by Regulation 16/2019 and Cabinet of Ministers Regulation 153/2001 - Safety and Health in the Working Environment (Chemical Substances-Carcinogens), as amended by Regulation 493/2004 - Safety and Health in the Working Environment (Chemical Substances - Carcinogens) AND Law 47(I) 2000 - Occupational Health and Safety (Asbestos), as amended by Decree 316/2006.

**Czech Republic - Reg. 41/2020** - Regulation 41/2020 amending Regulation 361/2007 of Coll. establishing Occupation Exposure Limits as amended

**Czech Republic - Decree No. 107/2013** - Decree No. 107/2013 Coll., amending Decree No. 432/2003 Coll., laying down the conditions for the application of the work into categories, limit values for the parameters of biological exposure tests, collection of biological material conditions for the implementation of biological exposure tests and requirements for reporting work with asbestos and biological agents

**Denmark - BEK No. 698 of 28/05/2020** - Order on Limit Values for Substances and Materials, The Statutory Order No. 507 of May 17, 2011, Appendix 1 - Limits for air pollution, etc. and Appendix 3 - Biological Exposure Values, Amended by: No. 986 of October 11, 2012, No. 655 of May 31, 2018, No. 1458 December 13, 2019, No. 698 of May 28, 2020

**Estonia - Regulation No. 105** - Health and Safety Requirements for the Use of Dangerous Chemicals and Materials Containing Them and Occupational Exposure Limits to Chemical Agents Government of the Republic, Regulation No. 105 of 20 March 2001, Amended 17 October 2019, and 17 January, 2020.

**Finland - HTP-ARVOT 2020** - Concentrations Known to be Hazardous, 654/2020 OEL values 2020 Publications of Ministry of Social Affairs and Health 2020:24 Annexes1, 2 and 3.

**France - INRS ED 984** - Occupational Exposure Limit Values to Chemical Agents in France Published 2016 by the INRS National Institute of Research and Safety Health and safety of work, revised, updated by: Decree 2016-344, JORF No 0119, and Decree 2019-1487.

**France - Decree 2009-1570** - Decree 2009-1570 of December 15, 2009, relative to the control of chemical risk on workplaces.

**Germany - TRGS 900** - Occupational Exposure Limits, Technical Rules for Dangerous Substances, latest amendment March, 2020

**Germany - TRGS 903** - Biological Threshold Limits (BGW-Values), Technical Rules for Dangerous Substances, latest amendment March, 2020

**Gibraltar - LN. 2018/131** - Factories (Control of Chemical Agents at Work) Regulations 2003 LN. 2003/035, amended by LN. 2008/035, LN. 2008/050, LN. 2012/021, LN. 2015/143, LN. 2018/181.

classified biological agents, FOR-2011-12-06-1358, Updated by: FOR-2020-04-06-695, FOR-2020-03-23-402, FOR-2018-12-20-2186, FOR-2018-08-21-1255, FOR-2017-12-20-2353.

**Poland - Dz. U. 2020 Nr. 61** - Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the Highest Allowable Concentrations and Intensities of Factors Harmful to Health in the Work Environment Dz.U. 2018 Nr. 1286 of June 12, 2018, Annex 1 - List of values of the highest permissible chemical concentrations and dust factors harmful to health in the work environment, amended by: Dz. U. 2020 Nr. 61.

**Portugal - Portuguese Norm NP 1796:2014** - Occupational exposure limits and biological exposure indices to chemical agents. Table 1 - Occupational exposure limits and biological exposure indices to chemical agents (OELs), Law Decree 35/2020.

**Romania - Gov. Dec. No 1.218** - Governmental Decision No. 1.218 from 06/09/2006 on the minimum health and safety requirements for protection of workers from the risks related to exposure to chemical agents, Annex No. 1 Mandatory National Occupational Exposure Limit Values for Chemical Agents. Amended by Decision no. 157, 584, 359, and 1.

**Slovakia - Gov. Decree 33/2018** - Government Decree of Slovak Republic 33/2018 on January 17, 2018 amending Government Decree of Slovak Republic 355/2006 about protection of health of employees when working with chemical agents

**Slovenia - No. 79/19** - Regulation for protection of workers against risks related to carcinogenic or mutagenic substances exposure. Annex III - Classification and binding levels of carcinogenic or mutagenic substances for occupational exposure. The Official Journal of the Republic of Slovenia, No. 101/2005. Amended by 38/15, 79/19. Regulation for protection of workers against risks related to exposure to chemical substances at the workplace. Republic of Slovenia, No. 100/2001 . Annex I - List of Binding Occupational Exposure Limit Values. Amended by 39/05, 53/07, 102/10, 38/15, 78/18, 78/19

**Spain - AFS 2018:1** - NATIONAL INSTITUTE FOR HEALTH AND SAFETY AT WORK. Occupational exposure limits for chemical agents in Spain. Tables 1 and 3. Latest edition Feb. 2019

**Sweden - AFS 2018:1** - Statute Book of the Swedish Work Environment Authority, AFS 2018:1 The Swedish Work Environment Authority's Ordinance and General Guidance on Hygienic Limit Values

**Switzerland - OLVSNAlF** - Occupational Limit Values 2020 Swiss National Accident Insurance Fund. List of Biological Limit Values (BAT-Werte) and List of MAK Values.

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

EU GHS SDS (2020/878)