



Issue Date 28-May-2015

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Version 6

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

1.1. Product identifier

Product Code PM010
Product Name Titanium Alloy Compacts

Synonyms Titanium Alloy Compacts, including but not limited to: - CP Ti Compacts, Ti-6Al-4V Compacts, Ti-6Al-2Sn-4Zr-2Mo Compacts, Ti-5Al-5V-5Mo-3Cr Compacts, ATI 425 Compacts, Ti-48Al-2Cr-2Nb Compacts, Ti-6Al-4V-1B Compacts, TNM Compacts, ATI 6-4 ELI™ Compacts, ATI Ti-6Al-4V-ELI Compacts, ATI 10-2-3™ Compacts, ATI Titan 23™ Compacts, ATI 17™ Compacts, ATI Titan 171™ Compacts, ATI 15Mo™ Titanium Alloy Compacts

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

Recommended Use Alloy product manufacture

Uses advised against

1.3. Details of the supplier of the safety data sheet

Manufacturer

ATI, 1000 Six PPG Place, Pittsburgh, PA 15222 USA

1.4. Emergency telephone number

Emergency Telephone Chemtrec: +1-703-741-5970

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Not Hazardous Not a hazardous substance or mixture according to the Globally Harmonised System (GHS)

2.2. Label elements

Emergency Overview

Appearance Various massive product forms	Physical state Solid	Odour Odourless
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2.3 Hazards not otherwise classified (HNOC)

Not applicable

Other Information

When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated:: Titanium dioxide, an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide

may cause lung irritation.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms

Titanium Alloy Compacts, including but not limited to: - CP Ti Compacts, Ti-6Al-4V Compacts, Ti-6Al-2Sn-4Zr-2Mo Compacts, Ti-5Al-5V-5Mo-3Cr Compacts, ATI 425 Compacts, TI-48Al-2Cr-2Nb Compacts, Ti-6Al-4V-1B Compacts, TNM Compacts, ATI 6-4 ELI™ Compacts, ATI Ti-6Al-4V-ELI Compacts, ATI 10-2-3™ Compacts, ATI Titan 23™ Compacts, ATI 17™ Compacts, ATI Titan 171™ Compacts, ATI 15Mo™ Titanium Alloy Compacts.

Chemical Name	EC No	CAS No	Weight-%
Titanium	231-142-3	7440-32-6	50-100
Aluminium	231-072-3	7429-90-5	0 - 50
Niobium	231-113-5	7440-03-1	0 - 27
Molybdenum	231-107-2	7439-98-7	0 - 16
Vanadium	231-171-1	7440-62-2	0-11
Tungsten	231-143-9	7440-33-7	0 - 10
Iron	231-096-4	7439-89-6	0-10
Chromium	231-157-5	7440-47-3	0-10
Zirconium	231-176-9	7440-67-7	0 - 6
Tin	231-141-8	7440-31-5	0 - 6
Yttrium	231-174-8	7440-65-5	0-3
Boron	231-151-2	7440-42-8	0 - 2

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation	If excessive amounts of smoke, fume, or particulate are inhaled during processing, remove to fresh air and consult a qualified health professional.
Skin Contact	None under normal use conditions.
Eye contact	In the case of particles coming in contact with eyes during processing, treat as with any foreign object.
Ingestion	Not an expected route of exposure.

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

Symptoms None anticipated.

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

Note to doctors Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product. Isolate large fires and allow to burn out. Smother small fires with salt (NaCl) or class D dry powder fire extinguisher.

Unsuitable extinguishing media

Do not spray water on burning metal as an explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material

5.2. Special hazards arising from the substance or mixture

Intense heat Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature **WARNING:** Fine particles resulting from grinding, buffing, polishing, or similar processes of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimise combustible dust hazard

Hazardous combustion products Titanium dioxide, an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V₂O₅) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

5.3. Advice for firefighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

Use personal protective equipment as required.

For emergency responders

Use personal protective equipment as required.

6.2. Environmental precautions

Not applicable to massive product.

6.3. Methods and material for containment and cleaning up

Methods for containment Not applicable to massive product.

Methods for cleaning up Not applicable to massive product.

6.4. Reference to other sections

See Section 12: ECOLOGICAL INFORMATION.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling

Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature. **WARNING:** Fine particles resulting from grinding, buffing, polishing, or similar processes of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimise combustible dust hazard.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep chips, turnings, dust, and other small particles away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Incompatible materials

Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

7.3. Specific end use(s)**Risk Management Methods (RMM)**

Not required.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters**

Chemical Name	European Union	United Kingdom	France	Spain	Germany
Titanium 7440-32-6	-	-	-	-	-
Aluminium 7429-90-5	-	STEL: 30 mg/m ³ STEL: 12 mg/m ³ TWA: 10 mg/m ³ TWA: 4 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 4 mg/m ³ TWA: 1.5 mg/m ³
Niobium 7440-03-1	-	-	-	-	-
Molybdenum 7439-98-7	-	-	-	TWA: 10 mg/m ³ TWA: 3 mg/m ³	-
Vanadium 7440-62-2	-	-	-	-	Skin
Tungsten 7440-33-7	-	STEL: 10 mg/m ³ TWA: 5 mg/m ³	-	STEL: 10 mg/m ³ TWA: 5 mg/m ³	-
Iron 7439-89-6	-	-	-	-	-
Chromium 7440-47-3	TWA: 2 mg/m ³	STEL: 1.5 mg/m ³ TWA: 0.5 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³
Zirconium 7440-67-7	-	TWA: 5 mg/m ³	-	STEL: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 1 mg/m ³ Ceiling / Peak: 1 mg/m ³
Tin 7440-31-5	TWA 2 mg/m ³ as Sn	TWA: 2 mg/m ³	-	TWA: 2 mg/m ³	-
Yttrium 7440-65-5	-	STEL: 3 mg/m ³ TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³	-
Boron 7440-42-8	-	-	-	-	-
Chemical Name	Italy	Portugal	Netherlands	Finland	Denmark
Titanium 7440-32-6	-	-	-	-	-
Aluminium 7429-90-5	-	TWA: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 0.05 mg/m ³	TWA: 1.5 mg/m ³	TWA: 5 mg/m ³ TWA: 2 mg/m ³
Niobium 7440-03-1	-	-	-	-	TWA: 5 mg/m ³ TWA: 0.5 mg/m ³
Molybdenum 7439-98-7	-	TWA: 10 mg/m ³ TWA: 3 mg/m ³	-	TWA: 0.5 mg/m ³	-
Vanadium 7440-62-2	-	-	-	-	-
Tungsten 7440-33-7	-	STEL: 10 mg/m ³ TWA: 5 mg/m ³	-	TWA: 5 mg/m ³	TWA: 5 mg/m ³
Iron 7439-89-6	-	-	-	-	-
Chromium 7440-47-3	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Zirconium 7440-67-7	-	STEL: 10 mg/m ³ TWA: 5 mg/m ³	-	TWA: 1 mg/m ³	TWA: 5 mg/m ³
Tin 7440-31-5	-	TWA: 2 mg/m ³	-	TWA: 2 mg/m ³	TWA: 2 mg/m ³
Yttrium 7440-65-5	-	TWA: 1 mg/m ³	-	TWA: 1 mg/m ³	TWA: 1 mg/m ³
Boron 7440-42-8	-	-	-	-	-

Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
Titanium 7440-32-6	-	-	STEL: 30 mg/m ³ TWA: 10 mg/m ³	-	-
Aluminium 7429-90-5	STEL 20 mg/m ³ TWA: 10 mg/m ³	TWA: 3 mg/m ³	TWA: 2.5 mg/m ³ TWA: 1.2 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 1 mg/m ³ TWA: 5 mg/m ³
Niobium 7440-03-1	STEL 10 mg/m ³ STEL 1 mg/m ³ TWA: 5 mg/m ³ TWA: 0.5 mg/m ³	-	-	-	-
Molybdenum 7439-98-7	STEL 20 mg/m ³ TWA: 10 mg/m ³	TWA: 10 mg/m ³	STEL: 10 mg/m ³ TWA: 4 mg/m ³	-	TWA: 0.5 mg/m ³
Vanadium 7440-62-2	STEL 1 mg/m ³ TWA: 0.5 mg/m ³	-	-	TWA: 0.2 mg/m ³ Ceiling: 0.05 mg/m ³ STEL: 0.6 mg/m ³	-
Tungsten 7440-33-7	STEL 10 mg/m ³ TWA: 5 mg/m ³	TWA: 5 mg/m ³	TWA: 5 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³
Iron 7439-89-6	-	-	-	-	-
Chromium 7440-47-3	TWA: 2 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³	TWA: 2 mg/m ³
Zirconium 7440-67-7	TWA: 5 mg/m ³	TWA: 5 mg/m ³	STEL: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³
Tin 7440-31-5	STEL 4 mg/m ³ TWA: 2 mg/m ³	Skin STEL: 4 mg/m ³ TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³ STEL: 4 mg/m ³	TWA: 2 mg/m ³
Yttrium 7440-65-5	STEL 10 mg/m ³ TWA: 1 mg/m ³	-	TWA: 1 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³
Boron 7440-42-8	-	-	-	-	-

Derived No Effect Level (DNEL) No DNELs are available for this product as a whole

Predicted No Effect Concentration (PNEC) No PNECs are available for this product as a whole.

8.2. Exposure controls

Engineering Controls Avoid generation of uncontrolled particles.

Personal protective equipment

Eye/face protection

When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that shield the eyes from particles.

Skin and body protection

Fire/flame resistant/retardant clothing may be appropriate during hot work with the product. Cut-resistant gloves and/or protective clothing may be appropriate when sharp surfaces are present.

Respiratory protection

When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminate concentrations. Respiratory protection must be provided in accordance with current local regulations.

Environmental exposure controls Section 6: ACCIDENTAL RELEASE MEASURES.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Solid	Odour	Odourless
Appearance	Various massive product forms	Odour threshold	Not applicable
Colour	metallic grey or Silver		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	-	Not applicable
Melting point / freezing point	1320-1400 °C / 2560-2800 °F	

Boiling point / boiling range	-	
Flash point	-	
Evaporation rate	-	Not applicable
Flammability (solid, gas)	-	Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product
Flammability Limit in Air		
Upper flammability limit:	-	
Lower flammability limit	-	
Vapour pressure	-	Not applicable
Vapour density	-	Not applicable
Specific Gravity	8.0-8.5	
Water solubility	Insoluble	
Solubility(ies)		
Partition coefficient	-	Not applicable
Autoignition temperature	-	Not applicable
Decomposition temperature	-	Not applicable
Kinematic viscosity	-	Not applicable
Dynamic viscosity	-	Not applicable
Explosive properties	Not applicable	
Oxidising properties	Not applicable	

9.2. Other information

Softening point	-
Molecular weight	-
VOC Content (%)	Not applicable
Density	-
Bulk density	-

Section 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Not applicable

10.2. Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

10.3. Possibility of hazardous reactions**Hazardous polymerisation**

Hazardous polymerisation does not occur.

Possibility of Hazardous Reactions

None under normal processing.

10.4. Conditions to avoid

Dust formation and dust accumulation.

10.5. Incompatible materials

Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

10.6. Hazardous decomposition products

When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated: Titanium dioxide, an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

Inhalation	Not an expected route of exposure for product in massive form.
Eye contact	Not an expected route of exposure for product in massive form.
Skin Contact	Product not classified.
Ingestion	Not an expected route of exposure for product in massive form.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium	> 5000 mg/kg bw	-	-
Aluminium	15,900 mg/kg bw	-	> 1 mg/L
Niobium	> 10,000 mg/kg bw	> 2000 mg/kg bw	-
Molybdenum	> 2000 mg/kg bw	> 2000 mg/kg bw	> 5.10 mg/L
Vanadium	> 2000 mg/kg bw	-	-
Tungsten	> 2000 mg/kg bw	> 2000 mg/kg bw	> 5.4 mg/L
Iron	98,600 mg/kg bw	-	> 0.25 mg/L
Chromium	> 3400 mg/kg bw	-	> 5.41 mg/L
Zirconium	> 5000 mg/kg bw	-	>4.3 mg/L
Tin	> 2000 mg/kg bw	> 2000 mg/kg bw	> 4.75 mg/L
Yttrium	> 5000 mg/kg bw	-	> 5.09 mg/L
Boron	> 2000 mg/kg bw	-	> 5.08 mg/L

Information on toxicological effects

Symptoms None known.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Acute toxicity Product not classified.

Skin corrosion/irritation Product not classified.

Serious eye damage/eye irritation Product not classified.

Sensitisation Product not classified.

Germ cell mutagenicity Product not classified.

Carcinogenicity Product not classified.

Chemical Name	ACGIH	IARC	NTP	OSHA
Chromium 7440-47-3		Group 3		

Reproductive toxicity Product not classified.

STOT - single exposure Product not classified.

STOT - repeated exposure Product not classified.

Aspiration hazard Product not classified.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

This product as shipped is not classified for aquatic toxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Titanium	The 72 h EC50 of titanium dioxide to <i>Pseudokirchnerella subcapitata</i> was 61 mg of TiO ₂ /L.	The 96 h LC50 of titanium dioxide to <i>Cyprinodon variegatus</i> was greater than 10,000 mg of TiO ₂ /L. The 96 h LC50 of titanium dioxide to <i>Pimephales promelas</i> was greater than 1,000 mg of TiO ₂ /L .	The 3 h EC50 of titanium dioxide for activated sludge were greater than 1000 mg/L.	The 48 h EC50 of titanium dioxide to <i>Daphnia Magna</i> was greater than 1000 mg of TiO ₂ /L.
Aluminium	The 96-h EC50 values for reduction of biomass of <i>Pseudokirchnerella subcapitata</i> in AAP-Medium at pH 6, 7, and 8 were estimated as 20.1, 5.4, and 150.6 µg/L, respectively, for dissolved Al.	The 96 h LC50 of aluminum to <i>Oncorhynchus mykiss</i> was 7.4 mg of Al/L at pH 6.5 and 14.6 mg of Al/L at pH 7.5	-	The 48-hr LC50 for <i>Ceriodaphnia dubia</i> exposed to Aluminium chloride increased from 0.72 to greater than 99.6 mg/L with water hardness increasing from 25 to 200 mg/L.
Niobium	-	-	-	-
Molybdenum	The 72 h EC50 of sodium molybdate dihydrate to <i>Pseudokirchnerella subcapitata</i> was 362.9 mg of Mo/L.	The 96 h LC50 of sodium molybdate dihydrate to <i>Pimephales promelas</i> was 644.2 mg/L	The 3 h EC50 of molybdenum trioxide for activated sludge was 820 mg/L.	The 48 h LC50 of sodium molybdate dihydrate to <i>Ceriodaphnia dubia</i> was 1,015 mg/L. The 48 h LC50 of sodium molybdate dihydrate to <i>Daphnia magna</i> was greater than 1,727.8 mg/L.
Vanadium	The 72 h EC50 of vanadium pentoxide to <i>Desmodesmus subspicatus</i> was 2,907 µg of V/L.	The 96 h LC50 of vanadium pentoxide to <i>Pimephales promelas</i> was 1,850 µg of V/L .	The 3 h EC50 of sodium metavanadate for activated sludge was greater than 100 mg/L.	The 48 h EC50 of sodium vanadate to <i>Daphnia magna</i> was 2,661 µg of V/L.
Tungsten	The 72 h EC50 of sodium tungstate to <i>Pseudokirchnerella subcapitata</i> was 31.0 mg of W/L.	The 96 h LC50 of sodium tungstate to <i>Danio rerio</i> was greater than 106 mg of W/L.	The 30 min EC50 of sodium tungstate for activated sludge were greater than 1000 mg/L.	The 48 h EC50 of sodium tungstate to <i>Daphnia magna</i> was greater than 96 mg of W/L.
Iron	-	The 96 h LC50 of 50% iron oxide black in water to <i>Danio rerio</i> was greater than 10,000 mg/L.	The 3 h EC50 of iron oxide for activated sludge was greater than 10,000 mg/L.	The 48 h EC50 of iron oxide to <i>Daphnia magna</i> was greater than 100 mg/L.
Chromium	-	-	-	-
Zirconium	The 14 d NOEC of zirconium dichloride oxide to <i>Chlorella vulgaris</i> was greater than 102.5 mg of Zr/L.	The 96 h LL50 of zirconium to <i>Danio rerio</i> was greater than 74.03 mg/L.	-	The 48 h EC50 of zirconium dioxide to <i>Daphnia magna</i> was greater than 74.03 mg of Zr/L.
Tin	The 72 h EC50 of tin chloride pentahydrate to <i>Pseudokirchnerella subcapitata</i> was 9,846 µg of Sn/L	The 7 d LOEC of tin chloride pentahydrate to <i>Pimephales promelas</i> was 827.9 µg of Sn/L	-	The 7 d LC50 of tin chloride pentahydrate to <i>Ceriodaphnia dubia</i> was greater than 3,200 µg of Sn/L.
Yttrium	-	The 96 h LL50 of Yttrium oxide to <i>Danio rerio</i> was greater than 100 mg/L.	The 3 h NOEC of Yttrium oxide for activated sludge was greater than 1000 mg/L.	The 48 h LL50 of Yttrium oxide to <i>Daphnia magna</i> was greater than 100 mg/L.
Boron	The 72-h EC50 value for reduction of biomass of <i>Pseudokirchnerella subcapitata</i> exposed to Boric acid at pH 7.5 to 8.3 was 40.2 mg/L.	The 96-hr LC50 for <i>Pimephales promelas</i> exposed to Boric acid (82%)/borax (18%) mixture was 79.7 mg/L with water hardness of 91 mg/L and water pH of 8.0.	The 3 h NOEC of boric acid for activated sludge ranged from 17.5 to 20 mg/L.	The 48-hr LC50 for <i>Ceriodaphnia dubia</i> exposed to Boric acid/borax mixture ranged from 91 to 165 mg/L with pH ranging from 6.7 to 8.4.

12.2. Persistence and degradability

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12.3. Bioaccumulative potential

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12.4. Mobility in soil12.5. Results of PBT and vPvB assessment

The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	None anticipated.

Section 14: TRANSPORT INFORMATION

IMDG

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	Not applicable

RID

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ICAO (air)

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not applicable

14.5 Environmental hazard Not applicable
 14.6 Special Provisions None

IATA

14.1 UN/ID no Not regulated
 14.2 Proper shipping name Not regulated
 14.3 Hazard Class Not regulated
 14.4 Packing Group Not regulated
 Description Not applicable
 14.5 Environmental hazard Not applicable
 14.6 Special Provisions None

Section 15: REGULATORY INFORMATION

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

Chemical Name	French RG number	Title
Titanium 7440-32-6	-	-
Aluminium 7429-90-5	RG 32 RG 16, RG 16bis	-
Niobium 7440-03-1	-	-
Molybdenum 7439-98-7	-	-
Vanadium 7440-62-2	RG 66	-
Tungsten 7440-33-7	-	-
Iron 7439-89-6	RG 44, RG 44bis, RG 94	-
Chromium 7440-47-3	RG 10	-
Zirconium 7440-67-7	-	-
Tin 7440-31-5	-	-
Yttrium 7440-65-5	-	-
Boron 7440-42-8	-	-

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

International Inventories

DSL/NDSL Complies
 EINECS/ELINCS Complies
 ENCS Complies
 IECSC Complies
 KECL Complies
 PICCS Not Listed
 AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

No chemical safety assessment has been performed for this product.

Section 16: OTHER INFORMATION

Issue Date	28-May-2015
Revision Date	18-Feb-2020
Revision Note	SDS sections updated: 1, 2, 3, 5, 7, 9, 12, 15.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Note:

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End of Safety Data Sheet

Additional information available from: Safety data sheets and labels available at ATImetals.com