



SAFETY DATA SHEET

Aluminium powder alloys for selective laser melting

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Aluminium powder alloys for selective laser melting
Product code : Not available.
Product type : Solid.
Other means of identification : Constellium Alu. AM Powder - Ahead® CP1 {20-63 µm ; 20-105 µm ; 63-105 µm ; >20 µm ; >63 µm}

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

Product use : Aluminium Alloy Powder
Area of application : Industrial applications.

Uses advised against

None identified.

1.3 Details of the supplier of the safety data sheet

Constellium International
Washington Plaza
40-44, rue Washington
75008 Paris
France

Telephone no.: +33 (0)1 73 01 46 00

<https://www.constellium.com/contact>

e-mail address of person responsible for this SDS : stephanie.massambi@constellium.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : Lyon: +33 (0) 4 72 11 69 11

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Not classified.

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Signal word : No signal word.

SECTION 2: Hazards identification

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Aluminium powder (pyrophoric)	REACH #: 01-2119529243-45 EC: 231-072-3 CAS: 7429-90-5 Index: 013-001-00-6	85 - 98.5	Pyr. Sol. 1, H250 Water-react. 1, H260	[2]
Zirconium powder (pyrophoric)	REACH #: 01-2119490102-49 EC: 231-176-9 CAS: 7440-67-7 Index: 040-001-00-3	0 - 5	Pyr. Sol. 1, H250 Water-react. 1, H260	[6]
iron	EC: 231-096-4 CAS: 7439-89-6	0 - 10	Flam. Sol. 1, H228 Self-heat. 1, H251	[6]
manganese	EC: 231-105-1 CAS: 7439-96-5	0 - 10	Eye Irrit. 2, H319 Aquatic Chronic 3, H412	[1] [2]
chromium	REACH #: 01-2119485652-31 EC: 231-157-5	0 - 10	Not classified.	[2]

Aluminium powder alloys for selective laser melting

SECTION 3: Composition/information on ingredients

vanadium	CAS: 7440-47-3 REACH #: 01-2119537418-34 EC: 231-171-1	0 - 10	Not classified.	[2]
silicon	CAS: 7440-62-2 REACH #: 01-2119535442-45 EC: 231-130-8	0 - 10	Not classified.	[2]
copper	CAS: 7440-21-3 EC: 231-159-6 CAS: 7440-50-8	0 - 10	Aquatic Chronic 2, H411 See Section 16 for the full text of the H statements declared above.	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 4: First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : In case of fire, use special metal fire powder. Dry sand or other suitable absorbent.
- Unsuitable extinguishing media** : Do not use water or foam. Multi-purpose dry chemical (ABC). Carbon dioxide (CO₂).

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

SECTION 6: Accidental release measures

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

- Recommendations** : Not available.
Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Aluminium powder (pyrophoric)	Ministry of Labor (France, 3/2020). Notes: Indicative limit values (circular) TWA: 10 mg/m ³ 8 hours. TWA: 5 mg/m ³ 8 hours. Form: Fume TWA: 5 mg/m ³ 8 hours. Form: powder
manganese	Ministry of Labor (France, 3/2020). Notes: Indicative regulatory limit values (decree of 30-06-2004 modified) TWA: 0.2 mg/m ³ , (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.05 mg/m ³ , (as Mn) 8 hours. Form: Respirable fraction EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values TWA: 0.2 mg/m ³ , ((as manganese)) 8 hours. Form: Inhalable fraction TWA: 0.05 mg/m ³ , ((as manganese)) 8 hours. Form: Respirable fraction
chromium	Ministry of Labor (France, 3/2020). Notes: Indicative regulatory limit values (decree of 30-06-2004 modified) TWA: 2 mg/m ³ 8 hours. EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values TWA: 2 mg/m ³ 8 hours.

Aluminium powder alloys for selective laser melting

SECTION 8: Exposure controls/personal protection

vanadium	Ministry of Labor (France, 3/2020). Notes: Indicative limit values (circular) TWA: 0.05 mg/m ³ , (as V ₂ O ₅) 8 hours. Form: Dust
silicon	Ministry of Labor (France, 3/2020). Notes: Indicative limit values (circular) TWA: 10 mg/m ³ 8 hours.
copper	Ministry of Labor (France, 3/2020). Notes: Indicative limit values (circular) TWA: 1 mg/m ³ , (as Cu) 8 hours. Form: Dust STEL: 2 mg/m ³ , (as Cu) 15 minutes. Form: Dust TWA: 0.2 mg/m ³ 8 hours. Form: Fume

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Aluminium powder (pyrophoric)	DNEL	Long term Inhalation	3.72 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	3.72 mg/m ³	Workers	Systemic
Zirconium powder (pyrophoric)	DNEL	Long term Oral	3.95 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m ³	Workers	Systemic
	DNEL	Long term Oral	5.5 mg/kg bw/day	General population	Systemic
iron	DNEL	Long term Dermal	5.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	11 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.71 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Oral	0.71 mg/kg bw/day	General population	Systemic
manganese	DNEL	Long term Inhalation	1.5 mg/m ³	General population	Local
	DNEL	Long term Inhalation	3 mg/m ³	General population	Local
	DNEL	Long term Inhalation	3 mg/m ³	Workers	Local
	DNEL	Long term Dermal	0.0021 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.00414 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.041 mg/m ³	General population	Systemic

SECTION 8: Exposure controls/personal protection

chromium	DNEL	Long term Inhalation	0.2 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	0.027 mg/m ³	General population	Local
copper	DNEL	Long term Inhalation	0.5 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	1 mg/m ³	General population	Local
	DNEL	Long term Inhalation	1 mg/m ³	General population	Local
	DNEL	Short term Inhalation	20 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	20 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	137 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	137 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 1 - 4 hours (breakthrough time): Butyl rubber gloves. Nitrile gloves.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 8: Exposure controls/personal protection

- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Filter type: P3
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid. [Powder]
- Colour** : Silver. Greyish.
- Odour** : Odourless.
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : 2467°C
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Upper/lower flammability or explosive limits** : 300 mJ < EMI < 1000 mJ (average Es = 660 mJ).
dP/dt(max) 97 bar/s
P(max) 6.3 bar
Kst 26 bar.m/s
Dust explosion category (class) 1
- Vapour pressure** : Not available.
- Vapour density** : Not available.
- Relative density** : Not available.
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Explosive properties** : Not available.
- Oxidising properties** : Not available.

9.2 Other information

- Density** : 2.7 g/cm³
- Physical/chemical properties comments** : Particle size : 20-63 µm
Based on available data, the classification criteria are not met. Not Flammable (UN N1 test)/ Pyrophoric (UN N2 test)/ Water-reactive material(UN N5 test).

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerisation will not occur.
- 10.4 Conditions to avoid** : Avoid melting wet or cold materials as molten metal may cause explosions in contact with water or wet surfaces. Suspensions of aluminum dust in air may pose a severe explosion hazard, especially in a confined atmosphere.
Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials: oxidising materials, acids, alkalis and moisture.
halogenated compounds
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Zirconium powder (pyrophoric)	LD50 Oral	Rat - Female	>5000 mg/kg	-
iron	LD50 Oral	Rat	30 g/kg	-
manganese	LC50 Inhalation Dusts and mists	Rat	5.14 mg/l	4 hours
vanadium	LD50 Oral	Rat	9 g/kg	-
silicon	LD50 Oral	Rat - Female	>2000 mg/kg	-
copper	LD50 Oral	Rat	3160 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.11 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
iron	30000	N/A	N/A	N/A	N/A
manganese	9000	N/A	N/A	N/A	5.14
silicon	3160	N/A	N/A	N/A	N/A
copper	500	N/A	N/A	N/A	N/A

SECTION 11: Toxicological information

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
manganese	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
silicon	Eyes - Mild irritant	Rabbit	-	3 mg	-

Conclusion/Summary : Not available.

Sensitisation

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

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

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Aluminium powder alloys for selective laser melting

SECTION 11: Toxicological information

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Aluminium powder (pyrophoric) iron manganese	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 100 mg/l Marine water	Algae - Glenodinium halli	72 hours
	Acute EC50 31000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute LC50 29000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 28 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 1.7 mg/l Fresh water	Daphnia - Water Flea- Ceriodaphnia dubia	8 days
chromium	Acute EC50 0.2 ppm Marine water	Algae - Bacillariophyta	72 hours
	Acute EC50 5 ppm Marine water	Algae - Macrocystis pyrifera - Young	4 days
	Acute EC50 35000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
vanadium	Acute LC50 45 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 22 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 13.9 ppm Fresh water	Fish - Anguilla rostrata	96 hours
	Chronic NOEC 50 mg/l Marine water	Algae - Glenodinium halli	72 hours
	Chronic NOEC 0.19 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks
	Acute LC50 1550 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
copper	Acute LC50 1.8 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 500 mg/l Marine water	Algae - Glenodinium halli	72 hours
	Acute EC50 1100 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Chronic NOEC 7 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
silicon	57 to 77	-	high

12.4 Mobility in soil

Aluminium powder alloys for selective laser melting

SECTION 12: Ecological information

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

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

Aluminium powder alloys for selective laser melting

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Label requirements : Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Industrial emissions : Listed

(integrated pollution prevention and control) -

Air

Industrial emissions : Listed

(integrated pollution prevention and control) -

Water

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

Social Security Code, : iron RG 44
Articles L 461-1 to L 461-7 : vanadium RG 66

Reinforced medical surveillance : Act of July 11, 1977 determining the list of activities which require reinforced medical surveillance: not applicable

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

SECTION 15: Regulatory information

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment

: This product contains substances for which Chemical Safety Assessments are still required.

15.3 Registration status

: Mixture. Information concerning the substance : Contact local supplier or distributor.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data

: Regulation (EC) No. 1272/2008 [CLP]; European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), concluded in Geneva on 30 September 1957 plus amendments (Uniform text: Journal of Laws 27/2009 pos. 162 plus amendments); European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN); Occupational exposure limits; International regulations

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements

H228 H250 H251 H260 H302 H319 H411 H412	Flammable solid. Catches fire spontaneously if exposed to air. Self-heating; may catch fire. In contact with water releases flammable gases which may ignite spontaneously. Harmful if swallowed. Causes serious eye irritation. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.
--	---

Full text of classifications [CLP/GHS]

Aluminium powder alloys for selective laser melting	
SECTION 16: Other information	
Acute Tox. 4 Aquatic Chronic 2 Aquatic Chronic 3 Eye Irrit. 2 Flam. Sol. 1 Pyr. Sol. 1 Self-heat. 1 Water-react. 1	ACUTE TOXICITY - Category 4 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 FLAMMABLE SOLIDS - Category 1 PYROPHORIC SOLIDS - Category 1 SELF-HEATING SUBSTANCES AND MIXTURES - Category 1 SUBSTANCES AND MIXTURES WHICH IN CONTACT WITH WATER EMIT FLAMMABLE GASES - Category 1

Training advice	: Ensure operatives are trained to minimise exposures. Training staff on good practice.
Date of issue/ Date of revision	: 30/03/2023
Date of previous issue	: 15/02/2021
Version	: 2
<u>Notice to reader</u>	

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.