Constellium	MATERIAL SAFETY DATA SHEET Al Pb	**13/01/2020**
Aluminium Metal Alloy with Lead > 0,1%		***Revised edition n° 2*** ***Previous version: 12/07/2018***

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

1.1. Product identifier

Aluminium metal alloy

Identification of the product Solid
Product code **Reference to materials standards (Aluminium metal alloy containing > 0.1% Pb)**
Trade name Aluminium ingots, aluminium billets, aluminium slabs, coils, extruded products...

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

Industrial use. Uses of substances as such or in preparations at industrial sites
Metal processing and fabrication.

1.3. Details of the supplier of the safety data sheet

Company identification
Constellium International
Washington Plaza,
40-44 rue Washington,
75008 Paris
https://www.constellium.com/contact

1.4. Emergency telephone number

Emergency phone nr Call national emergency number or 112 for Europe or 911 for North America

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

With more than 0,1 % Lead (massive with > 1mm particle diameter)

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)
HEALTH EFFECTS
STOT rep. exp. Cat 1: Causes damage to organs through prolonged or repeated exposure.
Reproductive toxicity: Cat. 1A: May damage fertility. May damage unborn child
Lact.: May cause harm to breast-fed children.

ENVIRONMENTAL EFFECTS
None

2.2. Label elements

Labelling according to Regulation EC 1272/2008 (CLP)

• Hazard pictograms

• Hazard pictograms code GHS08
• Signal words Warning
• Hazard statements H360 FD May damage fertility. May damage unborn child
Lact.: H362 May cause harm to breast-fed children

H372: Causes damage to organs through prolonged or repeated exposure.

• Precautionary statements

- General

N.B.: In the CLP Regulation,
1.3.4.1. **Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex (see CLP), if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market**, although classified as hazardous in accordance with the criteria of this Annex (see CLP).

1.3.4.2. Instead, the supplier shall provide the information to downstream users or distributors by means of the SDS.

- Prevention

P261 Avoid breathing dust/fume.
P262 Do not get in eyes, on skin, or on clothing
P264 Wash hands thoroughly after handling
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/eye protection
P284 Wear respiratory protection in case of trouble
P302 + P352 If on skin: Wash with plenty of soap and water
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/attention
P362 Take off contaminated clothing and wash before reuse

- Response

See sections 4 and 5.

2.3. Other hazards

The substance does not meet the criteria for a PBT or vPvB substance.

Does not pose any health hazard under normal conditions of use and as delivered.
Fines particles from processing (grinding, cutting, polishing and welding) may be readily ignitable, and needs to be controlled
Fine particles in contact with water or humidity in air may release flammable gases in hazardous quantities, and may in some cases set off termite reactions in contact with iron oxide and certain other metal oxides.
For liquid aluminium there is a risk of explosions if in contact with water, and reacts violently in contact with rust, oxides of some other metals or nitrate
Melting or operations generating fume or vapours can result in sufficient lead entering the body to be hazardous to health.

SECTION 3 Composition/information on ingredients

Substance / Preparation Preparation.
Composition This product is not hazardous but contains hazardous components.

Aluminium with Al content of > 85 weight-by-weight %

Substance name	Contents	CAS No	EC No	Annex No		Classification
Aluminium :	>= 85 %	7429-90-5	231-072-3	-----	-----	Not classified
Reach Registration Number:						
Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119529243-45-xxxx						
Constellium Neuf Brisach: 01-2119529243-45-xxxx						
Constellium Singen: 01-2119529243-45-xxxx						
Copper :	<= 10 %	7440-50-8	231-159-6	-----	-----	Not classified
Reach Registration Number:						
Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119480154-42-xxxx						
Zinc :	<= 10 %	7440-66-6	231-175-3	-----	-----	Not classified
Reach Registration Number:						
Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119467174-37-xxxx						
Constellium Neuf Brisach: 01-2119467174-37-xxxx						
Magnesium :	<= 5 %	7439-95-4	231-104-6	-----	-----	Not classified
Reach Registration Number:						
Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119537203-49-xxxx						
Constellium Neuf Brisach: 01-2119537203-49-xxxx						
Constellium Singen: 01-2119537203-49-xxxx						
Manganese :	<= 2 %	7439-96-5	231-105-1	-----	-----	Not classified
Reach Registration Number:						
Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119449803-34-xxxx						

Lead	:	< 2 %	7439-92-1	231-100-4	-----	-----	H360, H362, H372
Silicon	:	<= 1 %	7440-21-3	231-130-8	-----	-----	Not classified
Iron	:	<= 1 %	7439-89-6	231-096-4	-----	-----	Not classified
Chromium	:	<= 1 %	7440-47-3	231-157-5	-----	-----	Not classified
Silver	:	<= 1 %	7440-22-4	231-131-3	-----	-----	Not classified
Nickel	:	< 1 %	7440-02-0	231-111-4	028-002-00-7	-----	H351, H317, H372
Lithium	:	< 1 %	7439-93-2	231-102-5	003-001-00-4	-----	H260, H314

SECTION 4 First aid measures

4.1. Description of first aid measures

First aid personnel: pay attention to self- protection!

- Inhalation In case of dust generation during some work operations and inhalation remove to ventilated area and keep calm. In case of ongoing discomfort, consult a physician

- Skin contact In case of burns from hot/liquid metal, rinse with plenty of water and contact physician. In case of liquid metal splashes, remove affected clothing. After skin contact wash with water and seek medical attention in case of skin rashes. In case of persisting irritation, consult a physician.

- Eye contact If particles comes into contact with eyes, treatment for mechanical irritation or injury may be required, rinse with plenty of water; in case of ongoing discomfort consult a physician

- Ingestion Rinse mouth. Contact physician if feeling unwell

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

Clinical manifestations of lead poisoning include weakness, irritability, asthenia, nausea, abdominal pain with constipation, and anaemia.

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

Symptoms of poisoning may occur after several hours.

SECTION 5 Firefighting measures

5.1. Extinguishing media

This product does not present fire or explosion hazards as shipped. Small chips, dust and fines may be ignitable. Avoid sparks and prevent electrostatic charges from accumulating.
Inflammation of dusts could happen at temperature > 250°C

- Suitable extinguishing media Use class D extinguishing agents on dust, fines or molten metal

- Unsuitable extinguishing media Water, foam, halogenated extinguishing agents. Do not use water with liquid aluminium.

5.2. Special hazards arising from the substance or mixture

Specific hazards None known.

Reaction with water Fine particles in contact with water may generate flammable gases, dust explosions may also occur.

5.3. Advice for firefighters

Special protective equipment for fire fighters Fire fighters should wear approved, positive pressure, self-contained breathing apparatus and full heat protective clothing when appropriate

Specific methods The product as such is not flammable. Use firefighting extinguishing methods suitable to surrounding conditions
Fine dispersed aluminium (dust, powder) may form explosive mixtures in contact with air. In case of fine particles in contact with water, flammable gases in hazardous quantities may be released.
Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See protection measures listed in section 8.

6.2. Environmental precautions
Collect scrap for recycling

6.3. Methods and material for containment and cleaning up
Clean-up methods Pick up mechanically. In liquid form let solidify and cool down to ambient air temperature.

6.4. Reference to other sections
See section 13

SECTION 7 Handling and storage

7.1. Precautions for safe handling
General Ensure good ventilation / local exhaust at the workplace in the case of operations generating dust, like cutting, grinding, polishing
Fine dispersed aluminium (dust, powder) may form explosive mixtures in contact with air and in contact with water may release highly flammable gases in hazardous quantities. Remelt ingots needs to be kept dry and preheated before charging into liquid metal
Wear gloves and suitable clothing to avoid skin contact

7.2. Conditions for safe storage, including any incompatibilities
Storage Product should be kept dry. Pay attention to stack stability

SECTION 8 Exposure controls/personal protection

8.1. Exposure limits
8.1.1 Occupational exposure limits

CAS#	EC#	Component	Total part mg/m3	Respirable part mg/m3	Comments
7429-90-5	231-072-3	Aluminium	10	4	Nuisance dust
7439-92-1	XXXXXX	Lead	0,15		EU
			0,1		Austria, Finland, France, Germany, Sweden, Switzerland
			0,05		Denmark, Poland, Norway
7440-21-3	231-130-8	Silicon	10	3	Nuisance dust
7439-89-6	213-096-4	Iron	10	4	Nuisance dust
7439-95-4	231-104-6	Magnesium	10	4	Nuisance dust
7440-50-8	231-159-6	Copper	1.0	0.1	Several EU MS
7440-66-6	231-158-0	Zinc	5		Zinc oxide fume
7439-96-5	231-105-1	Manganese	0,2	0,02	Inhalable Germany
7440-47-3	231-157-5	Chromium	2		EU
7439-93-2	231-102-5	Lithium			None
7440-22-4	231-131-3	Silver	0.1		EU
7440-02-0	231-111-4	Nickel	0.05		Norway, Denmark
			0,5		Austria, UK
			1		Finland, France, Belgium, Italy

Biological action levels, inorganic lead

EU	70 µg/dl (Binding limit value)
Italy, Poland, UK	60 µg/dl
Germany, France	40 µg/dl
Italy, Poland –women of reproductive capacity	40 µg/dl
France, UK – women of reproductive capacity	30 µg/dl

Lead DN(M)ELs for workers

Exposure pattern	Route	Descriptors	DNEL/DMEL	Most sensitive endpoint
Acute - systemic effects	Dermal/Inhalation	NA	NA	NA
Acute – local effects	Dermal/Inhalation	NA	NA	NA
Long term – systemic effects	Systemic (µg lead/dl blood	NOAEL NOAEL	40 µg/dl 10 µg/dl	Adult neurological function Developmental effect on foetus of pregnant women
Long term – local effects	Dermal/Inhalation	NA	NA	NA

8.1.2 Ecological toxicity values.

Derived PNEC values for Lead.

Compartment	PNEC value
Freshwater	3,1 µg Pb/l (dissolved)
Marine water	3,5 µg Pb/l (dissolved)
Freshwater sediment (with/without bioavailability correction	41,0/174 mg Pb/kg dw
Marine sediment	164,2 mg Pb/kg dw
Terrestrial	212,0 mg Pb/kg dw
STP micro-organisms	0,1 mg Pb/l

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Adequate ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards.

Personal Hygiene for lead exposure: Ensure workers follow simple hygiene rules (e.g. do not bite nails and keep them cut short, avoid touching or scratching face with dirty hands or gloves); Ensure workers do not wipe away sweat with hands or arms; Ensure workers use disposable tissues rather than a handkerchief; Prohibit drinking, eating and smoking in production areas, or access to eating and non-production areas in working clothes; Ensure workers wash hands, arms, faces and mouths (but preferably shower) and change into clean clothing before entering eating areas; For high exposure workplaces, separate rooms for cleaning hands, removal of clothes, showers and clean clothes may be necessary; Ensure workers handle dirty working clothes with care; Allow no personal belongings to be taken into production areas, or items that have been used in production areas to be taken home. Ensure general shop cleanliness is maintained by frequent washing/vacuuming. Clean every workplace at the end of every shift.

Blood lead monitoring: Set in place a certified monitoring regime which covers all site activities; Define a policy for submitting workers to regular blood lead monitoring, including increased frequency for workers undertaking high-risk jobs and workers with elevated blood lead levels; Ensure all workers have a blood test prior to working on site. Set an “action level” that is typically 5 µg/dL below the exposure limit deemed to be safe. If the action level is exceeded, appropriate measures are to be taken, to prevent further increases in blood lead. If the safe threshold is exceeded, continue or begin ban on overtime, ensure strict hygiene procedures are followed, undertake detailed inspections to ensure correct use of personal protective equipment, undertake detailed inspections to ensure recommended workplace procedures are followed, move employee to workplace where exposure is expected to be lower or remove from lead environment altogether, further increase blood lead sampling frequency, and continue frequent sampling until results are below the first action level.

8.2.2. Individual protection measures, such as personal protective equipment

Personal protection Use appropriate PPE when handling ingots and hot metal (CEN standards) and flame retardant and molten metal splash resistant clothing when handling liquid metal.

- Respiratory protection Respiratory equipment: not required under recommended conditions of use. In case dust or fumes are released personal protective equipment required to prevent any irritation or if exposure limits are exceeded.

- Hand protection Wear suitable gloves to prevent skin irritation.

- Eye protection Wear suitable protective equipment to prevent eye irritation

- Ingestion Ingestion unlikely.

8.2.3. Environmental exposure controls

No special exposure controls necessary.

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

9.1.a. Appearance	Physical state : Solid at 1013 mbar / 20°C Colour : Silvery or silver grey
9.1.b. Odour	None.
9.1.d. Ph	pH value : Not applicable on massive form.
9.1.e. Melting point / Freezing point	Approx 660°C
9.1.f. Initial boiling point - boiling range	Approx 2467°C
9.1.g. Flash point	Not applicable on massive form.
9.1.i. Flammability	Not applicable on massive form.
9.1.m. Relative density	2.7 g/cm3
9.1.n. Solubility	Material nearly insoluble in water.
9.1.s. Explosive Properties	Not applicable on massive form.

SECTION 10 Stability and reactivity

10.1. Reactivity

Stability and reactivity Stable under normal conditions of storage, handling and use.

10.2. Chemical stability

Stability Stable under normal conditions of storage, handling and use.

10.3. Possibility of hazardous reactions

Hazardous reactions Massive metal is stable and none reactive under normal conditions of use, storage and transport.
Molten aluminium may react violently in contact with certain metal oxides and nitrates (rust etc.).

10.4. Conditions to avoid

Avoid melting wet or cold materials as molten metal may cause explosions in contact with water or wet surfaces.
In areas with very high dust concentrations, aluminium dust may form an explosive atmosphere.

10.5. Incompatible materials

None.

10.6. Hazardous decomposition products

None.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Aluminium:
Oral uptake < 0.1%, nearly insoluble in lung fluids. Most absorbed aluminium is rapidly excreted through urine. Main deposit in body for aluminium is in bone structure.

Acute toxicity	None
Rat oral LD50	> 5000 mg/kg bwt
Rabbit dermal LD50	No effects
Rat inhalation LC50	> 2.350 mg/l/4h

Irritation

Dermal irritation (rabbit)	No effects
Eyes irritation (rabbit)	No effects. Aluminium particles may produce irritation due to mechanical abrasion or alloying element effect.
Sensitization	None.
Repeated dose toxicity	Sub acute oral Toxicity: None - Calculated DNEL 3,95 mg/kg bwt/day

	Sub-acute inhalative Toxicity: None - see occupational exposure limits. Calculated DNEL 3,7 mg/m3 respirable
Carcinogenicity	Not classified.
Mutagenicity	Not classified.
Toxicity for reproduction	Not classified.

Symptoms related to the physical, chemical and toxicological characteristics
Specific symptoms in animal tests: none after swallowing, skin contact or inhalation

Lead:
Toxicokinetic assessment Lead is slowly absorbed by ingestion and inhalation and poorly absorbed through the skin. If absorbed, it will accumulate in the body with low rates of excretion, leading to long-term build up. Part of risk management is to take worker blood samples for analysis to ensure that exposure levels are acceptable.
(a) acute toxicity Lead in massive form is not considered to be acutely toxic. It is not easily inhaled or ingested, and if it is accidentally ingested normally passes through the gastrointestinal system without significant absorption into the body. Lead is not easily absorbed through the skin.
(b) skin corrosion/irritation Studies have shown that sparingly soluble inorganic lead compounds are not corrosive or irritating to skin, and this lack of effect is expected also for metallic lead. This conclusion is supported by the lack of reports of irritant effects from occupational settings.
(c) serious eye damage/irritation Studies have shown that sparingly soluble inorganic lead compounds are not corrosive or irritating to eyes, and this lack of effect is expected also for metallic lead. This conclusion is supported by the lack of reports of irritant effects from occupational settings.
(d) respiratory or skin sensitisation There is no evidence that lead causes respiratory or skin sensitisation.
(e) germ cell mutagenicity The evidence for genotoxic effects of highly soluble inorganic lead compounds is contradictory, with numerous studies reporting both positive and negative effects. Responses appear to be induced by indirect mechanisms, mostly at very high concentrations that lack physiological relevance.
(f) carcinogenicity There is some evidence that inorganic lead compounds may have a carcinogenic effect, and they have been classified by IARC as probably carcinogenic to humans (Group 2A). However, it is considered that this classification does not apply to lead in massive form, given the very low bioavailability of metallic lead. Carcinogenicity studies of lead metal powder have been negative. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. IARC has concluded that lead metal is possibly carcinogenic to humans (Group 2B).
(g) reproductive toxicity Exposure to high levels of lead and inorganic lead compounds may cause adverse effects on male and female fertility, including adverse effects on sperm quality. Prenatal exposure to inorganic lead compounds is also associated with adverse effects on the development of the unborn child.
(h) STOT-single exposure Inorganic lead compounds have generally been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation, with no evidence of any local or systemic toxicity from such exposures. The bioavailability of lead metal is low and acute lead exposure is not expected to result in acute toxicity effects.
(i) STOT-repeated exposure Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation; its toxicity is generally considered to be mediated through the lead cation. Although inhalation and ingestion of lead in massive form are unlikely, poor hygiene practices may result in hand to mouth transfer which may be significant over a prolonged period of time. Lead metal may also be used in such a way that inhalable particles may form, resulting in systemic uptake. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haemotopoetic (blood) system, kidney function, reproductive function and the central nervous system. There is evidence that postnatal exposure to lead is associated with effects on neurobehavioral development in children.
(j) aspiration hazard Lead metal is a solid and aspiration hazards are not expected to occur.

SECTION 12 Ecological information

12.1. Toxicity

All data are given for aluminium as the main constituent

Product/ingredient name	Test	Result	Species	Exposure
Al metal shavings	Fish OECD TG 203	> 100mg/l	Salmo trutta	pH 8
Al metal shavings	Daphnia OECD TG 202	> 100 mg/l	Daphnia Magna	pH 8
Al metal shavings	Algae OECD TG 201	> 100 mg/l	Selenastrum Capricor	pH 8

Not classify for ecotoxicity
No acute or chronic classification is appropriate for Al alloys (massive) based on non-toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminium metal and alloying elements.

Ecotoxicity data for Lead: See section 8.1.2.

12.2. Persistence and degradability
Not relevant for metals

12.3. Bioaccumulative potential
Not bio-accumulative

12.4. Mobility in soil
Not mobile under normal environmental conditions; may be leached from the ground at low pH (< 5.5) or high pH (> 8.5).

12.5. Results of PBT and vPvB assessment
Not relevant for metals

12.6. Other adverse effects
None

12.7. Final Assessment
No acute or chronic classification is appropriate for Aluminium Lead alloys massive based on non-toxic results below the Ecotoxicity Reference Value (ERV). Relevant properties are similar to non-alloyed aluminium

SECTION 13 Disposal considerations

13.1. Waste treatment methods

General	Metallic residues are secondary raw materials and subject of recycling
Special precautions	Recycle aluminium alloys packing. Any disposal according to national regulation

SECTION 14 Transport information

General information	Not regulated.

SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Restrictions on use: This substance is subject to
REACH Annex XVII, Entry No. 30 (substances and mixtures for supply to the general public)
REACH Annex XVII, Entry No. 63 (Lead in consumer articles)
Chemical Safety Assessment carried out

SECTION 16 Other information

Further information	In dealing with products the national laws and regulation must be observed and applied. This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship

The contents and format of this SDS are in accordance with REGULATION (EC) No 453/2010 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

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