

 Constellium	MATERIAL SAFETY DATA SHEET Al Ni Li	13/01/2020
Aluminium Metal Alloy with Nickel > 1% and Lithium >1%		Revised edition n° 4 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

Product code

Trade name

Solid.

Reference to materials standards (Aluminium metal alloy containing > 1% Ni and >% Li)

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

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)

With more than 1% Nickel

HEALTH EFFECTS

STOT rep. exp. Cat 2: Causes damage to organs by inhalation (particles under 0.1 mm diameter)

Skin Sens. Cat 1 : May cause an allergic skin reaction

Carc. Cat 2: Suspected of causing cancer by inhalation (inhalable size particles only)

ENVIRONMENTAL EFFECTS

Nickel metal massive do not carry an environmental classification

With more than 1% Lithium

PHYSICAL – CHEMICAL EFFECTS: no classification based on use information

HEALTH EFFECTS

Skin Irritation. Cat 2 - Causes skin irritation. NB! With > 5% Li: Cat 1B

Eye Irritation. Cat 2 - Causes serious eyes damage/eye irritation

ENVIRONMENTAL EFFECTS

Aluminium Lithium alloys do not need an environmental classification

2.2. Label elements



• Hazard pictograms

• Hazard pictograms code

GHS08 – GHS07

SDS Constellium – Aluminium Metal Alloy with Nickel > 1% and Lithium > 1%

- **Signal words** Warning
- **Hazard statements**
 - H351 - Suspected of causing cancer by inhalation.
 - H373 – May cause damage to organs through prolonged or repeated exposure
 - H317 - May cause an allergic skin reaction.
 - H315 - Causes skin irritation. NB ! With > 5% Li: H314 Cause severe skin burn and eye damage
 - H319: Causes serious eyes damage/eye irritation

- **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**
 - P260 - Do not breathe dust, fume
 - P262 – Do not get in eyes, on skin, or on clothing
 - P264 - Wash thoroughly after handling.
 - P270 - Do not eat, drink or smoke when using this product.
 - P272 – Contaminated work clothing should not be allowed out of the workplace
 - P280 - Wear protective gloves;
 - P284 – Wear respiratory protection
 - 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.
 - P308 + P313 – IF exposed or concerned: Get medical advice/attention.
 - P333 + P313 – If skin irritation or rash 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, or create an explosive atmosphere 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 thermal 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.

When Al-Li alloys are heated to elevated temperatures (>260°C), surface oxidation occurs and irritating lithium hydroxide is formed.

SECTION 3 Composition/information on ingredients

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

Aluminium with Al content of > 75 weight by weight %

Substance name	Contents	CAS No	EC No	Annex No	Classification
Aluminium	>= 75 %	7429-90-5	231-072-3	----	Not classified
<i>Reach Registration Number:</i>					
<i>Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119529243-45-xxxx</i>					
<i>Constellium Neuf Brisach: 01-2119529243-45-xxxx</i>					
<i>Constellium Singen: 01-2119529243-45-xxxx</i>					
Silicon	<= 15 %	7440-21-3	231-130-8	----	Not classified
Zinc	<= 10 %	7440-66-6	231-175-3	----	Not classified
<i>Reach Registration Number:</i>					
<i>Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119467174-37-xxxx</i>					
<i>Constellium Neuf Brisach: 01-2119467174-37-xxxx</i>					
Copper	<= 10 %	7440-50-8	231-159-6	----	Not classified

SDS Constellium – Aluminium Metal Alloy with Nickel > 1% and Lithium > 1%

Reach Registration Number:
Constellium Isoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119480154-42-xxxx

Magnesium	:	<= 5 %	7439-95-4	231-104-6	----	----	Not classified
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Reach Registration Number:
Constellium Isoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119537203-49-xxxx
Constellium Neuf Brisach: 01-2119537203-49-xxxx
Constellium Singen: 01-2119537203-49-xxxx

Lithium	:	< 3 %	7439-93-2	231-102-5	003-001-00-4	----	H260, H314
Iron	:	<= 3 %	7439-89-6	231-096-4	----	----	Not classified
Manganese	:	<= 2 %	7439-96-5	231-105-1	----	----	Not classified

Reach Registration Number:
Constellium Isoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119449803-34-xxxx

Nickel	:	<1.5 %	7440-02-0	231-111-4	028-002-00-7	----	H351, H317, H372
Chromium	:	<= 1 %	7440-47-3	231-157-5	----	----	Not classified
Silver	:	<= 1 %	7440-22-4	231-131-3	----	----	Not classified
Zirconium	:	<= 0.5 %	7440-67-7	231-176-9	----	----	Not classified

Reach Registration Number:
Constellium Isoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119490102-49-xxxx

Vanadium	:	<= 0.5 %	7440-62-2	231-171-1	----	----	Non classé
Titanium	:	<= 0.5 %	7440-32-6	231-142-3	----	----	Not classified

Reach Registration Number:
Constellium Isoire (Only Representative Constellium Rolled Products Ravenswood, LLC): 01-2119484878-14-xxxx

Lead	:	< 0.1%	7439-92-1	231-100-4	----	----	H360, H362, H372
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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

- **Inhalation** May cause respiratory irritation
- **Skin contact** May cause skin irritation
- **Eye contact** May cause eye irritation
- **Ingestion** Not applicable here

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

Treat symptomatically – No specific treatment

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

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

CAS#	EC#	Component	Total part mg/m3	Respirable part mg/m3	Comments
7429-90-5	231-072-3	Aluminium	10	4	Nuisance dust
7440-02-0	231-111-4	Nickel	0.05		Norway, Denmark
			0,5		Austria, UK
			1		Finland, France, Belgium, Italy
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

8.2. Exposure controls

8.2.1. Appropriate engineering controls

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

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 if exposure limits are exceeded.
- Hand protection	Wear suitable gloves.
- 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 silvery 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 640°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/cm ³
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

When Al-Li alloys are heated to elevated temperatures (>260°C), surface oxidation occurs and lithium hydroxide is formed.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Aluminium - main constituent

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

Other information

Toxicokinetics, metabolism and distribution:

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

Lithium

No information on Lithium toxicity data

Nickel

Toxicity endpoints	Description of effects
Absorption	ORAL = 0.3% or 0.5 % with food (Ishimatsue et al., 1995) DERMAL = 0.2% (Hostýnek et al. 2001) INHALATION = 6.1% (WIL Research Laboratories 2003)
Acute toxicity	ORAL: LD ₅₀ >9000 mg/kg bw (FDRL, 1983). DERMAL: No studies have been found on acute toxicity by the dermal route, absorption via this route is thought to be negligible INHALATION: NOEC = 10.2 mg/L in air (FDRL, 1985)
Irritation corrosion	SKIN: Non irritant (SLI, 1999a) EYE: Non irritant (SLI, 1999b)
Sensitisation	Nickel metal is classified as a dermal sensitizer (FDRL, 1986; Lammintausta et al., 1985; Nielsen et al., 1992; Fisher et al., 2005)
Repeated dose toxicity	ORAL: NOAEL= 2.2 mg/kg bw ; LOAEL= 6.7 mg/kg bw (Heim et al., 2007) INHALATION: LOAEC = 0.1 mg/m ³ air (Oller et al. 2008). DERMAL: No studies have been found on acute toxicity by the dermal route, absorption via this route is thought to be negligible
Mutagenicity	Nickel metal is not classified for mutagenicity (Oller et al. 2008)
Carcinogenicity	INHALATION Nickel metal has been consistently negative for respiratory carcinogenicity in human studies and was also negative in an animal inhalation study (Oller et al. 2008). Data based on latest knowledge. ORAL Not carcinogenic (Heim et al., 2007).
Reproductive toxicity	Nickel metal is not classified as a reproductive toxicant. (SLI, 2000; Ishimatsu et al., 1995). Data based on latest knowledge.

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.

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 Lithium and Aluminium Nickel 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
Aluminum - lithium scrap must be segregated and labeled. Advise recipient that metal scrap contains lithium.
Dross and skimming from aluminum-lithium alloys cannot be recycled via conventional means and should be segregated for proper disposal.

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

No knowledge about classification or special regulations. Follow general rules for handling, transport and waste management.

Chemical Safety Assessment carried out for Aluminium

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

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