

MATERIAL SAFETY DATA SHEET

1. Chemical product and company identification

A. Product name Aluminum Silicon Alloy

Other means of identification

SDS number L64

Synonym(s) AMC4632, AMC4632E, AMC4631, AMC4630, 4630, 4631, 4632E, 4632

B. Recommended use and Limitations on use

Recommended use Industrial uses: Uses of substances as such or in preparations at industrial sites
Manufacture of basic metals, including alloys
Manufacture of computer, electronic and optical products, electrical equipment
General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
Electricity, steam, gas water supply and sewage treatment
Scientific research and development
Other: Manufacture of medical and defense equipment

Limitations on use Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Consumer uses: Private households (= general public = consumers)

C. Supplier information

Company name Materion Aerospace Metals Composites

Address 1 R A E Road, Farnborough
Hampshire, GU14 6XE
United Kingdom

Email ehs@materion.com

Contact person Theodore Knudson

Emergency telephone number +1.800.862.4118

Importer

Company name See above.

MSDS number L64

2. Hazards identification

A. Hazard category/Classification

Physical hazards Not classified.

Health hazards Sensitization, skin Category 1
Carcinogenicity Category 2
Specific target organ toxicity, repeated exposure Category 1 (Respiratory system)

Environmental hazards Not classified.

B. Warning label items including precautionary statement

• Pictogram



• **Signal word** None.

• Hazard statement

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H372 Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

• Precautionary statement

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
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.
P273	Avoid release to the environment.

Response

P363	Wash contaminated clothing before reuse.
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Storage

P405	Store locked up.
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Disposal

P501	Dispose of contents/container (in accordance with related regulations).
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C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

Supplemental information For further information, please contact the Product Stewardship Department at +1.216.383.4019.

3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Aluminum		7429-90-5	KE-00881	71 - 87
Silicon		7440-21-3	KE-31029	9 - 24
Copper		7440-50-8	KE-08896	1.8 - 2.2
Iron		7439-89-6	KE-21059	1.6 - 2
Nickel		7440-02-0	KE-25818	0.7 - 1.1
Magnesium		7439-95-4	KE-22673	0.5 - 0.7

4. First aid measures

A. In case of eye contact	Rinse with water. Get medical attention if irritation develops and persists.
B. In case of skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
C. In case of inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing	Rinse mouth. Get medical attention if symptoms occur.
E. Note to physician	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

Most important symptoms/effects, acute and delayed Prolonged exposure may cause chronic effects.

General advice If exposed or concerned: get medical attention/advice. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Powder. Dry sand.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire. Carbon dioxide (CO ₂).

B. Specific hazards arising from the chemical (example: hazardous combustion products) During fire, gases hazardous to health may be formed.

C. Specific methods of fire-fighting

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures Move containers from fire area if you can do so without risk.

General fire hazards No unusual fire or explosion hazards noted.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency measures Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

B. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

C. Methods and materials for containment and cleaning up Not available.

7. Handling and storage

A. Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

B. Conditions for safe storage (including any incompatibilities) Store in original tightly closed container.

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc

Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Components	Type	Value	Form	
Aluminum (CAS 7429-90-5)	TWA	5 mg/m ³	Fume.	
		2 mg/m ³		
		10 mg/m ³	Dust.	
Copper (CAS 7440-50-8)	STEL	2 mg/m ³	Dust and mist.	
		TWA	1 mg/m ³	Dust and mist.
			0.1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³		
Silicon (CAS 7440-21-3)	TWA	10 mg/m ³		

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m ³	Respirable fraction.
Copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0.2 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.

Biological limit values No biological exposure limits noted for the ingredient(s).

B. Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

C. Personal protective equipment

- **Respiratory protection** When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.
- **Eye protection** Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.
- **Hand protection** Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.
- **Body protection** Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

9. Physical and chemical properties

A. Appearance

Physical state	Solid.
Form	Solid.
Color	Silver. Grey metallic.

B. Odor None.

C. Odor threshold Not applicable.

D. pH Not applicable.

E. Melting point/freezing point

Melting point	> 1018.4 °F (> 548 °C) estimated
Freezing point	Not applicable.

F. Boiling point, initial boiling point, and boiling range Not applicable.

G. Flash point Not applicable.

H. Evaporation rate Not applicable.

I. Flammability (solid, gas) Not applicable.

J. Upper/lower limit on flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.

K. Vapor pressure Not applicable.

L. Solubility

Solubility (water)	Insoluble
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M. Vapor density Not applicable.

N. Specific gravity Not applicable.

O. n-octanol/water partition coefficient Not applicable.

P. Auto-ignition temperature Not applicable.

Q. Decomposition temperature Not applicable.

R. Viscosity Not applicable.

S. Molecular weight Not available.

Other data

Density	2.70 g/cm ³
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

B. Conditions to avoid (e.g. static discharge, shock or vibration, etc) Contact with incompatible materials.

C. Incompatible materials Strong oxidizing agents.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

- **Respiratory organs** Prolonged inhalation may be harmful.
- **Skin** No adverse effects due to skin contact are expected.
- **Eyes** Direct contact with eyes may cause temporary irritation.
- **Mouth** Expected to be a low ingestion hazard.

B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** No data available.
- **Corrosivity or irritation to the skin** Prolonged skin contact may cause temporary irritation.
- **Serious eye damage/eye irritation** Direct contact with eyes may cause temporary irritation.
- **Respiratory sensitization** Not a respiratory sensitizer.
- **Skin sensitization** This product is not expected to cause skin sensitization.
- **Carcinogenic properties /Carcinogenicity** May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Nickel (CAS 7440-02-0)

2B Possibly carcinogenic to humans.

- **Mutagenic properties /Mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
- **Reproductive toxicity** Not classified.
- **Specific target organ toxicity - single exposure** Not classified.
- **Specific target organ toxicity - repeated exposure** Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.
- **Aspiration hazard** Not an aspiration hazard.

12. Ecological information

A. Ecotoxicity The product is not classified as environmentally hazardous.

Components	Species		Test Results
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Copper (CAS 7440-50-8)

Aquatic

Acute

Crustacea	EC50	Blue crab (<i>Callinectes sapidus</i>)	0.0031 mg/l
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>)	0.0219 - 0.0446 mg/l, 96 hours

Nickel (CAS 7440-02-0)

Aquatic

Acute

Fish	LC50	Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>)	0.06 mg/l, 4 days
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- B. Persistence/degradability Not available.
- C. Bioaccumulative potential Not available.
- D. Mobility in soil Not available.
- E. Other adverse effects Not available.

13. Disposal considerations

- A. Method of disposal Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
- B. Disposal considerations (including disposal of contaminated containers or packaging) Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
- Waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

14. Transport information

IATA

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.
- C. Transport hazard class(es)
 - Class Not applicable.
 - Subsidiary risk -
- D. Packing group Not applicable.
- E. Environmental hazards No.
- F. Special precautions for user Not applicable.

IMDG

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.
- C. Transport hazard class(es)
 - Class Not applicable.
 - Subsidiary risk -
- D. Packing group Not applicable.
- E. Environmental hazards
 - Marine pollutant No.
 - EmS Not applicable.
- F. Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

- A. Restrictions under the Industrial Safety and Health Law
 - Harmful Substances Prohibited from Manufacturing Not regulated.

Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

Controlled Hazardous Substances

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Iron (CAS 7439-89-6)

Nickel (CAS 7440-02-0)

Harmful Substances Requiring Special Medical Examination

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

MINERAL DUST (CAS 7440-21-3) Dust

Workplace Environmental Monitoring Harmful Materials

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

OTHER MINERAL DUST (CAS 7440-21-3) Dust

Occupational Exposure Limit

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

Silicon (CAS 7440-21-3)

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances

Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents

Not regulated.

Hazardous Substances

Not regulated.

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Iron (CAS 7439-89-6)

Nickel (CAS 7440-02-0)

Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended

Not listed.

Specific Air Pollutants

Nickel (CAS 7440-02-0)

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

A. Source of information	Not available.
B. Issue date	08-28-2019
C. Number of revisions and date of most recent revision	05-04-2021 (02 revision)

Disclaimer

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Other information	Revised information in Section 16.
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