SAFETY DATA SHEET

MATERION

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

1.1. Product identifier

Name of the substance	Aluminum Powder
Identification number	013-002-00-1 (Index number)
Synonyms	None.
Document number	198
Issue date	02-October-2017
Version number	01

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

Identified uses	Not available.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	Materion Advanced Materials Group	
Address	42 Mt. Ebo Road South Brewster, NY 10509 United States	
Division		
Telephone	Supplier Phone	1+845.279.0900
e-mail	Not available.	
Contact person	Not available.	
1.4. Emergency telephone number	Chemtrec	1+703.527.3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Flammable solids	Category 1	
Pyrophoric solids	Category 1	
Substances and mixtures which, in contact with water, emit flammable gases	Category 2	

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard	Category 1	H400 - Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term aquatic hazard	Category 1	H410 - Very toxic to aquatic life with long lasting effects.

Hazard summary Not available.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains:	Aluminium
Hazard pictograms	None.
Signal word	Warning

Hazard statements

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273	Avoid release to the environment.

Response

P391	Collect spillage.

Storage Not available.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Aluminium	99,9 - 100	7429-90-5 231-072-3	-	-	
Classification:	Water-React. 2;H261, STOT RE 1;H372, Aquatic Acute 1;H400, Aquatic Chronic 1;H410, Aquatic Chronic 4;H413				

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

Inhalation Not available.

Skin contact Not available.

Eye contact Not available.

Ingestion Not available.

4.2. Most important symptoms and effects, both acute and delayed Not available.

4.3. Indication of any immediate medical attention and special treatment needed Not available.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Not available.

Unsuitable extinguishing media Not available.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters Not available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Not available.

For emergency responders Not available.

6.2. Environmental precautions Not available.

6.3. Methods and material for containment and cleaning up Not available.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Not available.

7.2. Conditions for safe storage, including any incompatibilities Not available.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Aluminum Powder	MAK	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
	STEL	20 mg/m3	Inhalable fraction.
		10 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAK	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
	STEL	20 mg/m3	Inhalable fraction.
		10 mg/m3	Respirable fraction.

Belgium. Exposure Limit Values.

Material	Type	Value	Form
Aluminum Powder	TWA	1 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value	Form
Aluminum Powder	TWA	2 mg/m3	
		10 mg/m3	Dust.
		1,5 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2 mg/m3	
		10 mg/m3	Dust.
		1,5 mg/m3	Respirable fraction.

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value	Form
Aluminum Powder	MAC	4 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAC	4 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Czech Republic. OELs. Government Decree 361

Material	Type	Value	Form
Aluminum Powder	TWA	10 mg/m3	Dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m3	Dust.

Denmark. Exposure Limit Values

Material	Type	Value	Form
Aluminum Powder	TLV	5 mg/m3	Fume.
		5 mg/m3	Dust and fume.
		2 mg/m3	Respirable dust and/or fume.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m3	Fume.

Denmark. Exposure Limit Values

Components	Type	Value	Form
		5 mg/m3	Dust and fume.
		2 mg/m3	Respirable dust and/or fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Material	Type	Value	Form
Aluminum Powder	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total dust.
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Finland. Workplace Exposure Limits

Material	Type	Value	Form
Aluminum Powder	TWA	1,5 mg/m3	Welding fume.
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	TWA	1,5 mg/m3	Welding fume.

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Material	Type	Value	Form
Aluminum Powder	VME	5 mg/m3	Welding fume.
		5 mg/m3	Dust.
		10 mg/m3	
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	VME	5 mg/m3	Welding fume.
		5 mg/m3	Dust.
		10 mg/m3	

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Material	Type	Value	Form
Aluminum Powder	TWA	4 mg/m3	Inhalable fraction.
		1,5 mg/m3	Respirable fraction.
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Inhalable dust.
		1,5 mg/m3	Respirable dust.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value	Form
Aluminum Powder	AGW	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	AGW	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Material	Type	Value	Form
Aluminum Powder	TWA	5 mg/m3	Inhalable
		10 mg/m3	Welding fume.
		10 mg/m3	Respirable.
		10 mg/m3	Pyrophoric powder.
Components	**Type**	**Value**	**Form**
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable
		10 mg/m3	Welding fume.
		10 mg/m3	Respirable.
		10 mg/m3	Pyrophoric powder.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value	Form
Aluminum Powder	TWA	6 mg/m3	Respirable.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	6 mg/m3	Respirable.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Material	Type	Value	Form
Aluminum Powder	TWA	5 mg/m3	Fume.
		10 mg/m3	Dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Fume.
		10 mg/m3	Dust.

Ireland. Occupational Exposure Limits

Material	Type	Value	Form
Aluminum Powder	TWA	1 ppm	Respirable dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 ppm	Respirable dust.

Italy. Occupational Exposure Limits

Material	Type	Value	Form
Aluminum Powder	TWA	1 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Material	Type	Value
Aluminum Powder	TWA	2 mg/m3

Components	Type	Value
Aluminium (CAS 7429-90-5)	TWA	2 mg/m3

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value	Form
Aluminum Powder	TWA	5 mg/m3	Inhalable fraction.
		2 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable fraction.
		2 mg/m3	Respirable fraction.

Norway. Administrative Norms for Contaminants in the Workplace

Material	Type	Value	Form
Aluminum Powder	TLV	5 mg/m3	Welding fume.
		5 mg/m3	Pyrophoric powder.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m3	Welding fume.
		5 mg/m3	Pyrophoric powder.

Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1

Material	Type	Value	Form
Aluminum Powder	TWA	2,5 mg/m3	Inhalable fraction.
		1,2 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2,5 mg/m3	Inhalable fraction.
		1,2 mg/m3	Respirable fraction.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value	Form
Aluminum Powder	TWA	10 mg/m3	Dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m3	Dust.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value	Form
Aluminum Powder	STEL	3 mg/m3	Fume.
		10 mg/m3	Dust.
	TWA	3 mg/m3	Dust.
		1 mg/m3	Fume.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	STEL	3 mg/m3	Fume.
		10 mg/m3	Dust.
	TWA	3 mg/m3	Dust.
		1 mg/m3	Fume.

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value	Form
Aluminum Powder	TWA	4 mg/m3	Inhalable fraction.
		1,5 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Inhalable fraction.
		1,5 mg/m3	Respirable fraction.

Spain. Occupational Exposure Limits

Material	Type	Value	Form
Aluminum Powder	TWA	5 mg/m3	Welding fume.
		10 mg/m3	Dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Welding fume.
		10 mg/m3	Dust.

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Material	Type	Value	Form
Aluminum Powder	TWA	5 mg/m3	Total dust.
		2 mg/m3	Respirable dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Total dust.
		2 mg/m3	Respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Aluminum Powder	TWA	3 mg/m3	Respirable dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	3 mg/m3	Respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value	Form
Aluminum Powder	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.

Biological limit values

Croatia. BLV. Dangerous Substance Exposure Limit Values at Workplace, Annexes 4 (as amended)

Material	Value	Determinant	Specimen	Sampling time
Aluminum Powder	200 mg/l	Aluminium	Urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Material	Value	Determinant	Specimen	Sampling time
Aluminum Powder	60 µg/g	Aluminium	Creatinine in urine	*

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Material	Value	Determinant	Specimen	Sampling time
Aluminum Powder	60 µg/g	Aluminium	Creatinine in urine	*

Components	Value	Determinant	Specimen	Sampling time
Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Not available.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Not available.

Individual protection measures, such as personal protective equipment

General information Not available.

Eye/face protection Not available.

Skin protection

- Hand protection Not available.

- Other Not available.

Respiratory protection Not available.

Thermal hazards Not available.

Hygiene measures Not available.

Environmental exposure controls Not available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid.

Form Not available.

Colour Not available.

Odour Not available.

Odour threshold Not available.

pH Not available.

Melting point/freezing point 660 °C (1220 °F) estimated
660 °C (1220 °F)

Initial boiling point and boiling range 2327 °C (4220,6 °F) estimated
2327 °C (4220,6 °F)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure	< 0,0000001 kPa at 25 °C 0,67 hPa estimated
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
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	2,70 g/cm3 estimated 2,70 g/cm3 estimated
Heat of combustion (NFPA 30B)	0 kJ/g
Molecular formula	Al
Molecular weight	26,98 g/mol
Specific gravity	2,7 estimated 2,7

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Not available.
10.3. Possibility of hazardous reactions	Not available.
10.4. Conditions to avoid	Not available.
10.5. Incompatible materials	Not available.
10.6. Hazardous decomposition products	Not available.

SECTION 11: Toxicological information

General information	Not available.
Information on likely routes of exposure	
Inhalation	Not available.
Skin contact	Not available.
Eye contact	Not available.
Ingestion	Not available.
Symptoms	Not available.
11.1. Information on toxicological effects	
Acute toxicity	No data available.
Skin corrosion/irritation	Not available.
Serious eye damage/eye irritation	Not available.
Respiratory sensitisation	Not available.
Skin sensitisation	Not available.
Germ cell mutagenicity	Not available.

Carcinogenicity

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity	Not available.
Specific target organ toxicity - single exposure	Not available.

Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.
Mixture versus substance information	Not available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity

Product		Species	Test results
Aluminum Powder			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,16 mg/l, 96 hours

Components		Species	Test results
Aluminium (CAS 7429-90-5)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,16 mg/l, 96 hours

12.2. Persistence and degradability	Not available.
12.3. Bioaccumulative potential	Not available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not available.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects	Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Not available.
Contaminated packaging	Not available.
EU waste code	Not available.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Aluminium (CAS 7429-90-5)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Aluminium (CAS 7429-90-5)

National regulations Not available.

15.2. Chemical safety assessment Not available.

SECTION 16: Other information

List of abbreviations Not available.

References Not available.

Information on evaluation method leading to the classification of mixture Not available.