SAFETY DATA SHEET

MATERION

Version #: 06
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

Registration number -

Synonyms None.

Materion Code 1AG

1.1. Product identifier

Name of the substance Aluminum powder

Identification number 013-002-00-1 (Index number)

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 Electronic Materials

Address 6070 Parkland Blvd
Mayfield Heights, OH 44124
United States

Division

Telephone 1.216.383.4019

e-mail Materion-PS@materion.com

Contact person Product Stewardship Director

1.4. Emergency telephone number

Document number 1AG

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classificatior applies.

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

Physical hazards

Flammable solids	Category 1	H228 - Flammable solid.
Pyrophoric solids	Category 1	H250 - Catches fire spontaneously if exposed to air.
Substances and mixtures which, in contact with water, emit flammable gases	Category 2	H261 - In contact with water releases flammable gases.

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.

2.2. Label elements

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

Contains: Aluminium powder (stabilised)

Hazard pictograms

Signal word Danger

Hazard statements

	May form combustible dust concentrations in air (under certain conditions).
H228	Flammable solid.
H250	Catches fire spontaneously if exposed to air.
H261	In contact with water releases flammable gases.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P222	Do not allow contact with air.
P223	Do not allow contact with water.
P231 + P232	Handle and store contents under inert gas. Protect from moisture.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response

P302 + P335 + P334	IF ON SKIN: Brush off loose particles from skin and immerse in cool water.
P302 + P335 + P334	IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P314	Get medical advice/attention if you feel unwell.
P370 + P378	In case of fire: Use appropriate media to extinguish.
P391	Collect spillage.

Storage

P402 + P404	Store in a dry place. Store in a closed container.

Disposal

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

Supplemental label information For further information, please contact the Product Stewardship Department at +1.800.862.4118.

2.3. Other hazards This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Aluminium powder (stabilised)	100	7429-90-5 231-072-3	-	013-002-00-1	

Classification: Flam. Sol. 1;H228, Pyr. Sol. 1;H250, Water-React. 2;H261, Aquatic Acute 1;H400, Aquatic Chronic 1;H410

List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.
CLP: Regulation No. 1272/2008.
ATE: Acute toxicity estimate.
M: M-factor
vPvB: very persistent and very bioaccumulative substance.
PBT: persistent, bioaccumulative and toxic substance.
#: This substance has been assigned Community workplace exposure limit(s).
#: This substance has been assigned Union workplace exposure limit(s).
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. *Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments The full text for all H-statements is displayed in section 16. The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. Call a physician if symptoms develop or persist. Get medical attention if any discomfort continues.
Skin contact	Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Rinse with water. Get medical attention if irritation develops and persists.
Eye contact	Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.
Ingestion	Rinse mouth thoroughly. Get medical attention if symptoms occur. Have exposed individual drink sips of water. DO NOT induce vomiting. Get medical attention immediately.
4.2. Most important symptoms and effects, both acute and delayed	Headache. Nausea. Dusts may irritate the respiratory tract, skin and eyes. Shortness of breath.
4.3. Indication of any immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

SECTION 5: Firefighting measures

General fire hazards	Flammable solid. Catches fire spontaneously if exposed to air. In contact with water releases flammable gases. No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media	Foam. Dry chemical powder. Dry sand. Carbon dioxide (CO2). Dry chemical, soda ash, lime or DRY sand.
Unsuitable extinguishing media	Water. Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	In contact with water releases flammable gases. During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special firefighting procedures	In case of fire and/or explosion do not breathe fumes. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Do not get water inside container. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. Water runoff can cause environmental damage.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate personal protective equipment.
For emergency responders	Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Use only non-sparking tools. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.
6.2. Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Do not get water on spilled substance or inside containers. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Neutralize with lime or soda ash. Collect spillage. Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will spread on the water surface. Prevent entry intc waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. The product is insoluble in water.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not allow contact with air. Open container carefully and only in a dry, oxygen-free or inert atmosphere. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Minimise dust generation and accumulation. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Do not empty into drains. Use appropriate container to avoid environmental contamination. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Never allow product to get in contact with water during storage. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Use appropriate container to avoid environmental contamination. Store in tightly closed container. Store in a well-ventilated place. Store in a dry place. Keep in an area equipped with sprinklers. Use care in handling/storage. Store away from incompatible materials (see Section 10 of the SDS).

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

ANNEX 1, PART 1 Categories of dangerous substances
Hazard categories in accordance with Regulation (EC) No 1272/2008
- P8 OXIDIZING LIQUIDS AND SOLIDS (Lower-tier requirements = 50 tonnes; Upper-tier requirements = 200 tonnes)
- E1 Hazardous to the Aquatic Environment Acute (Lower-tier requirements = 100 tonnes; Upper-tier requirements = 200 tonnes)
- E1 Hazardous to the Aquatic Environment Chronic (Lower-tier requirements = 100 tonnes; Upper-tier requirements = 200 tonnes)

7.3. Specific end use(s)

Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

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

Material	Type	Value	Form
Aluminium powder (stabilised) (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. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended

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

Bulgaria. OELs. Ordinance No 13 on protection of workers against risks of exposure to chemical agents at work, as amended

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

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

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

Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)

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

Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	TLV	5 mg/m3	Dust and fume.
		5 mg/m3	Fume.
		2 mg/m3	Respirable dust and/or fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	TWA	4 mg/m3	Fine dust, respiratory fraction
		10 mg/m3	Total dust.

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Material	Type	Value	Form
Aluminium powder (stabilised) (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
Aluminium powder (stabilised) (CAS 7429-90-5)	VME	5 mg/m3	Dust.
Regulatory status: Indicative limit (VL)			
		5 mg/m3	Welding fume.
Regulatory status: Indicative limit (VL)			
		10 mg/m3	
Regulatory status: Indicative limit (VL)			

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

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

Greece. OELs, Presidential Decree No. 307/1986, as amended

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

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	TWA	1 mg/m3	Respirable.

Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	STEL	10 mg/m3	Dust.
	TWA	5 mg/m3	Dust.

Ireland. OELVs, Schedules 1 & 2, Code of Practice for Chemical Agents and Carcinogens Regulations

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

Italy. OELs (Legislative Decree n.81, 9 April 2008), as amended

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

Latvia. OELs. Occupational Exposure Limits of Chemical Substances at Workplace (Reg. No. 325/ 2007, L.V. 80, Annex 1), as amended

Material	Type	Value
Aluminium powder (stabilised) (CAS 7429-90-5)	TWA	2 mg/m3

Lithuania. OELs. Occupational Exposure Limit Values for Chemical Substances (Hygiene Norm HN 23:2011; Order No. V-824/A1-389), as amended

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

Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended

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

Poland. Maximum permissible concentrations and intensities of harmful factors in the work environment (Dz.U.Poz. 1286/2018, Annex 1)

Material	Type	Value	Form
Aluminium powder (stabilised) (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 1796-2014)

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

Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)

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

Slovakia. OELs. Maximum permissible exposure limits for chemical factors in workplace air (Regulation No 355/2006, Annex 1, Table 1, as amended)

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

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Ann. I 100/2001), as amended

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	KTV	20 mg/m3	Inhalable fraction.
		2,5 mg/m3	Respirable fraction.

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Annex I), as amended

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	TWA	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.

Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)

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

Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended

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

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle MAK-Werte

Material	Type	Value	Form
Aluminium powder (stabilised) (CAS 7429-90-5)	TWA	3 mg/m3	Respirable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

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

Biological limit values

Croatia. BELs (BGV). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and BELs, Annex IV (NN 91/2018), as amended

Material	Value	Determinant	Specimen	Sampling Time
Aluminium powder (stabilised) (CAS 7429-90-5)	200 mg/l	Aluminium	Urine	*

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

Germany. TRGS 903, BAT List (Biological Limit Values)

Material	Value	Determinant	Specimen	Sampling Time
Aluminium powder (stabilised) (CAS 7429-90-5)	50 µg/g	Aluminium	Creatinine in urine	*

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

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Material	Value	Determinant	Specimen	Sampling Time
Aluminium powder (stabilised) (CAS 7429-90-5)	0,25 µmol/mmol	Aluminium	Creatinine in urine	*
	0,06 mg/g	Aluminium	Creatinine in 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
Aluminium powder (stabilised) (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*

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

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle BAT-Werte

Material	Value	Determinant	Specimen	Sampling Time
Aluminium powder (stabilised) (CAS 7429-90-5)	50 µg/g	Aluminium	Creatinine in urine	*

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation 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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear suitable protective clothing. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory protection Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Do not get in eyes. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Powder.
Colour	Not available.
Odour	Not available.
Melting point/freezing point	660 °C (1220 °F)
Boiling point or initial boiling point and boiling range	2327 °C (4220,6 °F)
Flammability	Flammable solid.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
pH	Not available.
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	<0,0000001 kPa (25 °C (77 °F))
Density and/or relative density	
Density	2,70 g/cm3 estimated
Vapour density	Not available.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.
9.2.2. Other safety characteristics	
Heat of combustion (NFPA 30B)	0 kJ/g
Molecular formula	Al
Molecular weight	26,98 g/mol
Specific gravity	2,7

SECTION 10: Stability and reactivity

10.1. Reactivity	Avoid contact with acids and oxidising substances. Contact with water may form flammable or combustible mixture.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Keep away from combustible material. Avoid heat, sparks, open flames and other ignition sources. Exposure to moisture. Exposure to air. Contact with incompatible materials. Avoid contact with acids and oxidising substances.
10.5. Incompatible materials	Air. Water. Halogenated materials.
10.6. Hazardous decomposition products	Metal oxides.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system. Prolonged inhalation may be harmful.
Skin contact	Dust or powder may irritate the skin. Due to lack of data the classification is not possible.
Eye contact	Dust may irritate the eyes.
Ingestion	Due to lack of data the classification is not possible.
Symptoms	Dusts may irritate the respiratory tract, skin and eyes. Coughing. Discomfort in the chest. Shortness of breath.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	Due to partial or complete lack of data the classification is not possible.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Causes damage to organs () through prolonged or repeated exposure.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.

11.2. Information on other hazards

Endocrine disrupting properties	This substance does not have endocrine disrupting properties with respect to human health, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
Aluminium powder (stabilised) (CAS 7429-90-5)			
Aquatic			
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,16 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	No data available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.
12.6. Endocrine disrupting properties	This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.
12.7. Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.
Contaminated 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.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. After recovery of solvent dispose of residue as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1396
14.2. UN proper shipping name	Aluminum powder, uncoated
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
Hazard No. (ADR)	Not assigned.
Tunnel restriction code	Not assigned.
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1396
14.2. UN proper shipping name	Aluminum powder, uncoated
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1396
14.2. UN proper shipping name	Aluminum powder, uncoated
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN1396
14.2. UN proper shipping name	Aluminum powder, uncoated

14.3. Transport hazard class(es)

Class	4.3
Subsidiary risk	-
Label(s)	4.3

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number UN1396

14.2. UN proper shipping name Aluminum powder, uncoated

14.3. Transport hazard class(es)

Class	4.3
Subsidiary risk	-
Label(s)	4.3

14.4. Packing group II

14.5. Environmental hazards

Marine pollutant No.

EmS Not assigned.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; IATA; IMDG; RID

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 (EU) 2019/1021 On persistent organic pollutants (recast), 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

Aluminium powder (stabilised) (CAS 7429-90-5)

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 - Conditions of restriction given for the associated entry number should be considered

Not listed.

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.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Aluminium powder (stabilised) (CAS 7429-90-5) ALUMINIUM, POWDERS

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/crisis-and-terrorism/explosives/explosives-precursors/docs/list_of_competent_authorities_and_national_contact_points_en.pdf.

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

ANNEX 1, PART 1 Categories of dangerous substances
Hazard categories in accordance with Regulation (EC) No 1272/2008
- P7 PYROPHORIC LIQUIDS AND SOLIDS
- E1 Hazardous to the Aquatic Environment Acute
- E1 Hazardous to the Aquatic Environment Chronic

Other regulations The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations Follow national regulation for work with chemical agents.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

Contains a substance which is included on the TRGS 905 list of carcinogenic, germ cell mutagenic and reproductive toxic substances

Aluminium powder (stabilised) (CAS 7429-90-5) Anorganische Faserstäube, soweit nicht erwähnt (ausgenommen Gipsfasernund Wollastonitfasern)

France regulations

France INRS Table of Occupational Diseases

Not regulated.

15.2. Chemical safety assessment No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MAC: Maximum Allowed Concentration.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TLV: Threshold Limit Value.
TWA: Time Weighted Average.
VLE: Exposure Limit Value.
VME: Exposure Average Value.
vPvB: Very persistent and very bioaccumulative.

References ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents

Information on evaluation method leading to the classification of mixture	Not applicable.
Full text of any statements, which are not written out in full under sections 2 to 15	H228 Flammable solid. H250 Catches fire spontaneously if exposed to air. H261 In contact with water releases flammable gases. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
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