



# PRODUCT INFORMATION SHEET

**MATERION**

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

### 1.1. Product identifier

**Trade name or designation of the mixture** Zirconium, Aluminum Products  
**Synonyms** None.  
**Document number** 316  
**Issue date** 28-October-2015  
**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 product information 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

##### Environmental hazards

Hazardous to the aquatic environment, Category 2 H411 - Toxic to aquatic life with long-term aquatic hazard long lasting effects.

**Hazard summary** Not available.

### 2.2. Label elements

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

**Contains:** Aluminium, Zirconium  
**Hazard pictograms** None.  
**Signal word** None.  
**Hazard statements**  
H411 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** 82,5 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

**2.3. Other hazards** None known.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Zirconium	75 - < 90	7440-67-7 231-176-9	-	-	
<b>Classification:</b>	Flam. Sol. 2;H228, Pyr. Sol. 1;H250, Self-heat. 1;H251, Water-React. 2;H261, Skin Irrit. 2;H315, Skin Sens. 1;H317, Eye Irrit. 2;H319, STOT SE 3;H335, STOT RE 1;H372				
Aluminium	10 - < 25	7429-90-5 231-072-3	-	-	
<b>Classification:</b>	Aquatic Acute 1;H400, Aquatic Chronic 1;H410				

## 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** Use class D extinguishing agents, dry sand or sodium chloride on fire.

**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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAK	5 mg/m <sup>3</sup>	Respirable fraction.
		10 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	20 mg/m <sup>3</sup>	Inhalable fraction.
Zirconium (CAS 7440-67-7)		10 mg/m <sup>3</sup>	Respirable fraction.
	MAK	5 mg/m <sup>3</sup>	Inhalable fraction.

##### Belgium. Exposure Limit Values.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Zirconium (CAS 7440-67-7)	STEL	10 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2 mg/m <sup>3</sup>	
		10 mg/m <sup>3</sup>	Dust.
		1,5 mg/m <sup>3</sup>	Respirable fraction.

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAC	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.
Zirconium (CAS 7440-67-7)	MAC	5 mg/m <sup>3</sup>	
	STEL	10 mg/m <sup>3</sup>	

##### Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value	Form
Zirconium (CAS 7440-67-7)	TWA	5 mg/m <sup>3</sup>	

##### Czech Republic. OELs. Government Decree 361

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m <sup>3</sup>	Dust.

##### Denmark. Exposure Limit Values

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m <sup>3</sup>	Dust and fume.
		5 mg/m <sup>3</sup>	Fume.
		2 mg/m <sup>3</sup>	Respirable dust and/or fume.

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.

##### Finland. Workplace Exposure Limits

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1,5 mg/m <sup>3</sup>	Welding fume.
Zirconium (CAS 7440-67-7)	TWA	1 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	VME	5 mg/m <sup>3</sup>	Dust.

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

Components	Type	Value	Form
		5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Welding fume.

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Inhalable dust.
Zirconium (CAS 7440-67-7)	TWA	1,5 mg/m <sup>3</sup> 1 mg/m <sup>3</sup>	Respirable dust. Inhalable fraction.

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	AGW	10 mg/m <sup>3</sup> 1,25 mg/m <sup>3</sup>	Inhalable fraction. Respirable fraction.
Zirconium (CAS 7440-67-7)	AGW	1 mg/m <sup>3</sup>	Inhalable fraction.

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Inhalable Pyrophoric powder. Welding fume. Respirable.
Zirconium (CAS 7440-67-7)	STEL TWA	10 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	6 mg/m <sup>3</sup>	Respirable.
Zirconium (CAS 7440-67-7)	STEL TWA	20 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Fume. Dust.
Zirconium (CAS 7440-67-7)	TWA	5 mg/m <sup>3</sup>	

**Ireland. Occupational Exposure Limits**

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

**Italy. Occupational Exposure Limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Zirconium (CAS 7440-67-7)	STEL TWA	10 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup> 2 mg/m <sup>3</sup>	Inhalable fraction. Respirable fraction.
Zirconium (CAS 7440-67-7)	TWA	6 mg/m <sup>3</sup>	

**Norway. Administrative Norms for Contaminants in the Workplace**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	Welding fume. Pyrophoric powder.

**Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2,5 mg/m <sup>3</sup>	Inhalable fraction.
		1,2 mg/m <sup>3</sup>	Respirable fraction.
Zirconium (CAS 7440-67-7)	STEL	10 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m <sup>3</sup>	Dust.
Zirconium (CAS 7440-67-7)	STEL	10 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	STEL	3 mg/m <sup>3</sup>	Fume.
		10 mg/m <sup>3</sup>	Dust.
	TWA	3 mg/m <sup>3</sup>	Dust.
Zirconium (CAS 7440-67-7)	STEL	1 mg/m <sup>3</sup>	Fume.
		10 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Inhalable fraction.
		1,5 mg/m <sup>3</sup>	Respirable fraction.
Zirconium (CAS 7440-67-7)	TWA	1 mg/m <sup>3</sup>	

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Components	Type	Value	Form
Zirconium (CAS 7440-67-7)	TWA	1 mg/m <sup>3</sup>	Inhalable dust.

**Spain. Occupational Exposure Limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup>	Welding fume.
		10 mg/m <sup>3</sup>	Dust.
Zirconium (CAS 7440-67-7)	STEL	10 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

**Sweden. Occupational Exposure Limit Values**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup>	Total dust.
		2 mg/m <sup>3</sup>	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	3 mg/m <sup>3</sup>	Respirable dust.

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.

**Biological limit values**

**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)**

Components	Value	Determinant	Specimen	Sampling time
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Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*
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\* - For sampling details, please see the source document.

**Recommended monitoring procedures** Not available.

**Derived no-effect level (DNEL)** 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**

**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 applicable.

**Odour threshold** Not available.

**pH** Not available.

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

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

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

**Upper/lower flammability or explosive limits**

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Vapour pressure** 0,00001 hPa estimated

**Vapour density** Not available.

**Relative density** Not available.

**Solubility(ies)**

**Solubility (water)** Not available.

**Solubility (other)** Not available.

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** 200 °C (392 °F) estimated

**Decomposition temperature** Not available.

**Viscosity** Not available.

<b>Explosive properties</b>	Not available.
<b>Oxidising properties</b>	Not available.
<b>9.2. Other information</b>	
<b>Density</b>	2,70 g/cm <sup>3</sup> estimated
<b>Specific gravity</b>	2,7 estimated

## SECTION 10: Stability and reactivity

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

## SECTION 11: Toxicological information

**General information** Not available.

### Information on likely routes of exposure

<b>Inhalation</b>	Not available.
<b>Skin contact</b>	Not available.
<b>Eye contact</b>	Not available.
<b>Ingestion</b>	Not available.

**Symptoms** Not available.

### 11.1. Information on toxicological effects

<b>Acute toxicity</b>	No data available.
<b>Skin corrosion/irritation</b>	Not available.
<b>Serious eye damage/eye irritation</b>	Not available.
<b>Respiratory sensitisation</b>	Not available.
<b>Skin sensitisation</b>	Not available.
<b>Germ cell mutagenicity</b>	Not available.
<b>Carcinogenicity</b>	Not available.
<b>Reproductive toxicity</b>	Not available.
<b>Specific target organ toxicity - single exposure</b>	Not available.
<b>Specific target organ toxicity - repeated exposure</b>	Not available.
<b>Aspiration hazard</b>	Not available.
<b>Mixture versus substance information</b>	Not available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

### 12.1. Toxicity

Components	Species	Test results
Aluminium (CAS 7429-90-5)		
<b>Aquatic</b>		
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.

<b>12.4. Mobility in soil</b>	Not available.
<b>12.5. Results of PBT and vPvB assessment</b>	Not a PBT or vPvB substance or mixture.
<b>12.6. Other adverse effects</b>	Not available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Not available.
<b>Contaminated packaging</b>	Not available.
<b>EU waste code</b>	Not available.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN3178
<b>14.2. UN proper shipping name</b>	Flammable solid, inorganic, n.o.s. (Zirconium)
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.1
<b>Hazard No. (ADR)</b>	40
<b>Tunnel restriction code</b>	E
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### RID

<b>14.1. UN number</b>	UN3178
<b>14.2. UN proper shipping name</b>	Flammable solid, inorganic, n.o.s. (Zirconium)
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.1
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### ADN

<b>14.1. UN number</b>	UN3178
<b>14.2. UN proper shipping name</b>	Flammable Solid, N.o.s. (Zirconium)
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.1
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### IATA

Not regulated as dangerous goods.

### IMDG

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**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V**  
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

**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.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended**  
Not listed.

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**  
Aluminium (CAS 7429-90-5)  
Zirconium (CAS 7440-67-7)

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**  
Not listed.

#### Other EU regulations

**Directive 2012/18/EU on major accident hazards involving dangerous substances**  
Aluminium (CAS 7429-90-5)  
Zirconium (CAS 7440-67-7)

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended**  
Not listed.

**Directive 94/33/EC on the protection of young people at work, as amended**  
Not listed.

**National regulations** Not available.

**15.2. Chemical safety assessment** Not available.

## SECTION 16: Other information

Further information

Not available.