



# SAFETY DATA 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** Palladium Alloys  
**Synonyms** None.  
**Document number** W18  
**Issue date** 28-April-2015  
**Version number** 02  
**Revision date** 07-July-2015  
**Supersedes date** 28-April-2015

### 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 Technologies and Services Inc.  
**Address** 2978 Main Street  
Buffalo, NY 14214  
United States  
**Division** Buffalo  
**Telephone** 716-837-1000  
**e-mail** Not available.  
**Contact person** Not available.

**1.4. Emergency telephone number** 800-424-9300 Chemtrec

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Directive 67/548/EEC or 1999/45/EC as amended

**Classification** N;R51/53

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

##### Environmental hazards

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

#### Hazard summary

**Physical hazards** Not classified for physical hazards.  
**Health hazards** Not classified for health hazards.  
**Environmental hazards** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
**Specific hazards** Not available.

### 2.2. Label elements

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

**Contains:** Aluminium, Palladium  
**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.
<b>Storage</b>	Not available.
<b>Disposal</b>	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Supplemental label information</b>	93,6 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.
<b>2.3. Other hazards</b>	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
Palladium	90 - 95	7440-05-3 231-115-6	-	-	
<b>Classification:</b>					<b>DSD:</b> - <b>CLP:</b> -
Aluminium	3 - < 10	7429-90-5 231-072-3	-	-	
<b>Classification:</b>					<b>DSD:</b> N;R50/53 <b>CLP:</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** 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.

<b>For emergency responders</b>	Not available.
<b>6.2. Environmental precautions</b>	Not available.
<b>6.3. Methods and material for containment and cleaning up</b>	Not available.
<b>6.4. Reference to other sections</b>	Not available.

## SECTION 7: Handling and storage

<b>7.1. Precautions for safe handling</b>	Not available.
<b>7.2. Conditions for safe storage, including any incompatibilities</b>	Not available.
<b>7.3. Specific end use(s)</b>	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.
		10 mg/m <sup>3</sup>	Respirable fraction.

##### Belgium. Exposure Limit Values.

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

##### 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.

##### 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.
Palladium (CAS 7440-05-3)	TWA	0,5 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.
		5 mg/m <sup>3</sup>	Welding fume.
		10 mg/m <sup>3</sup>	

**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.
		1,5 mg/m <sup>3</sup>	Respirable dust.

**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>	Inhalable fraction.
		1,25 mg/m <sup>3</sup>	Respirable 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>	Inhalable
		10 mg/m <sup>3</sup>	Welding fume.
		10 mg/m <sup>3</sup>	Respirable.
		10 mg/m <sup>3</sup>	Pyrophoric powder.

**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.

**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>	Fume.
		10 mg/m <sup>3</sup>	Dust.

**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.

**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>	Inhalable fraction.
		2 mg/m <sup>3</sup>	Respirable fraction.

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

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

**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.

**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.

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

Components	Type	Value	Form
	TWA	10 mg/m <sup>3</sup> 3 mg/m <sup>3</sup> 1 mg/m <sup>3</sup>	Dust. Dust. Fume.

**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> 1,5 mg/m <sup>3</sup>	Inhalable fraction. Respirable fraction.

**Spain. 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>	Welding fume. Dust.

**Sweden. Occupational Exposure Limit Values**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup> 2 mg/m <sup>3</sup>	Total dust. 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> 10 mg/m <sup>3</sup>	Respirable dust. 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
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 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** 0,0002 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** 580 °C (1076 °F) estimated

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Explosive properties** Not available.

**Oxidizing properties** Not available.

### 9.2. Other information

**Density** 11,19 g/cm<sup>3</sup> estimated

**Specific gravity** 11,19 estimated

## 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

<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.

**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. UN number** UN3077

**14.2. UN proper shipping name** Environmentally hazardous substance, solid, n.o.s.

### 14.3. Transport hazard class(es)

**Class** 9

**Subsidiary risk** -

**Label(s)** 9

**Hazard No. (ADR)** 90

**Tunnel restriction code** E

**14.4. Packing group** III

**14.5. Environmental hazards** Yes  
**14.6. Special precautions for user** Not available.

#### RID

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substance, solid, n.o.s.  
**14.3. Transport hazard class(es)**  
    **Class** 9  
    **Subsidiary risk** -  
    **Label(s)** 9  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes  
**14.6. Special precautions for user** Not available.

#### ADN

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally Hazardous Solid, N.o.s.  
**14.3. Transport hazard class(es)**  
    **Class** 9  
    **Subsidiary risk** -  
    **Label(s)** 9  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes  
**14.6. Special precautions for user** Not available.

#### IATA

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substance, solid, n.o.s.  
**14.3. Transport hazard class(es)**  
    **Class** 9  
    **Subsidiary risk** -  
**14.4. Packing group** III  
**14.5. Environmental hazards** Yes  
**ERG Code** 9L  
**14.6. Special precautions for user** Not available.  
**Other information**  
    **Passenger and cargo aircraft** Allowed.  
    **Cargo aircraft only** Allowed.

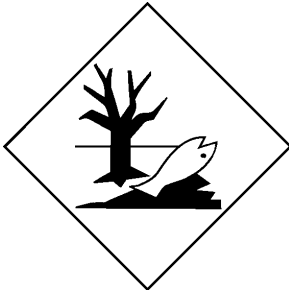
#### IMDG

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
**14.3. Transport hazard class(es)**  
    **Class** 9  
    **Subsidiary risk** -  
**14.4. Packing group** III  
**14.5. Environmental hazards**  
    **Marine pollutant** Yes  
**EmS** F-A, S-F  
**14.6. Special precautions for user** Not available.





Marine pollutant



## 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, as amended**  
Not listed.

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex 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.

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

#### Restrictions on use

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**  
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.

**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.

#### Other EU regulations

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

**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**

**List of abbreviations** Not available.

**References** Not available.

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

**Full text of any statements or R-phrases and H-statements under Sections 2 to 15**

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

**Revision information** None.

**Training information** Not available.