



# SAFETY DATA SHEET

**MATERION**

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

### 1.1. Product identifier

<b>Name of the substance</b>	Yttrium
<b>Identification number</b>	231-174-8 (EC number)
<b>Synonyms</b>	None.
<b>Document number</b>	2DK
<b>Materion Code</b>	2DK
<b>Issue date</b>	16-December-2015
<b>Version number</b>	04
<b>Revision date</b>	24-April-2018
<b>Supersedes date</b>	15-January-2018

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

<b>Identified uses</b>	Not available.
<b>Uses advised against</b>	None known.

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

<b>Company name</b>	Materion Advanced Chemicals Inc.
<b>Address</b>	407 N. 13th Street 1316 W. St. Paul Avenue Milwaukee, WI 53233 United States
<b>Division</b>	Milwaukee
<b>Telephone</b>	414.212.0257
<b>e-mail</b>	advancedmaterials@materion.com
<b>Contact person</b>	Noreen Atkinson

### 1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

**Hazard summary** Flammable/Combustible Material. Will ignite itself if exposed to air.

### 2.2. Label elements

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

**Contains:** Yttrium

#### Hazard pictograms



**Signal word** Danger

#### Hazard statements

H301 + H311 + H331	Reacts with water to release toxic gas.
H335	Toxic if swallowed, in contact with skin or inhaled.
H228	May cause respiratory irritation.
	Flammable solid.

#### Precautionary statements

##### Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P271	Use only outdoors or in a well ventilated area.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/ equipment.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

#### Response

P301 + P330 + P312 Wash contaminated clothing before re-use.  
IF SWALLOWED: Rinse mouth. Obtain medical assistance if you feel unwell.  
P302 + P352 + P312 IF ON SKIN: Rinse with plenty of water. Get medical attention if you feel unwell.  
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
P304 + P312 IF INHALED: Call a POISON CENTRE or doctor/physician if you feel unwell.  
P335 + P334 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

#### Storage

P422 Store contents under appropriate liquid or inert gas.

#### Disposal

Dispose of waste and residues in accordance with local authority requirements.

#### 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
Yttrium	100	7440-65-5 231-174-8	-	-	
<b>Classification:</b>	Flam. Sol. 2;H228, Acute Tox. 3;H301 + H311 + H331, STOT SE 3;H335				

## SECTION 4: First aid measures

#### General information

Remove affected person from source of contamination. Consult a physician. Show this safety data sheet to the doctor in attendance.

#### 4.1. Description of first aid measures

##### Inhalation

Move into fresh air and keep at rest. If breathing has stopped, perform artificial respiration and obtain medical help. Consult a physician for specific advice.

##### Skin contact

Wash off immediately with soap and plenty of water.

##### Eye contact

Flush eyes with water as a precaution.

##### Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth. Seek medical advice.

#### 4.2. Most important symptoms and effects, both acute and delayed

Dizziness. Nausea, vomiting. May cause disease or serious illness.

#### 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

Water spray, foam, dry powder or carbon dioxide.

##### 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

Firefighters should wear full protective clothing including self contained breathing apparatus.

##### Special firefighting procedures

Wear suitable protective equipment.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** Avoid generation and spreading of dust. Avoid inhalation of dust and vapours.

**For emergency responders** Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions** No special environmental precautions required.

**6.3. Methods and material for containment and cleaning up** Sweep up or vacuum up spillage and collect in suitable container for disposal.

**6.4. Reference to other sections** For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Not available.

**7.2. Conditions for safe storage, including any incompatibilities** Avoid conditions which create dust. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

**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
Yttrium (CAS 7440-65-5)	MAK	1 mg/m <sup>3</sup>	Respirable fraction.
	STEL	10 mg/m <sup>3</sup>	Respirable fraction.

##### Belgium. Exposure Limit Values.

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	MAC	1 mg/m <sup>3</sup>
	STEL	3 mg/m <sup>3</sup>

##### Denmark. Exposure Limit Values

Material	Type	Value	Form
Yttrium (CAS 7440-65-5)	TLV	1 mg/m <sup>3</sup>	Dust.

##### Finland. Workplace Exposure Limits

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	VME	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	5 mg/m <sup>3</sup>

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

Material	Type	Value	Form
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>	Dust.

##### Ireland. Occupational Exposure Limits

Material	Type	Value
Yttrium (CAS 7440-65-5)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

**Italy. Occupational Exposure Limits**

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	TLV	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	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)**

Material	Type	Value	Form
Yttrium (CAS 7440-65-5)	TWA	5 mg/m <sup>3</sup>	Inhalable fraction.

**Spain. Occupational Exposure Limits**

Material	Type	Value
Yttrium (CAS 7440-65-5)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Yttrium (CAS 7440-65-5)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

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

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

**Individual protection measures, such as personal protective equipment**

**General information** 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. Suitable gloves can be recommended by the glove supplier.

**- Other** Wear suitable protective clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** 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** Environmental manager must be informed of all major releases.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance**

**Physical state** Solid.

<b>Form</b>	Solid.
<b>Colour</b>	Not available.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	1522 °C (2771,6 °F)
<b>Initial boiling point and boiling range</b>	3345 °C (6053 °F)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	< 0,0000001 kPa at 25 °C
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Soluble in hot H2O
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Molecular formula</b>	Y
<b>Molecular weight</b>	88,91 g/mol

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
<b>Symptoms</b>	Exposure may cause temporary irritation, redness, or discomfort.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	No data available.
<b>Skin corrosion/irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Serious eye damage/eye irritation</b>	Due to partial or complete lack of data the classification is not possible.

<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Carcinogenicity</b>	Due to partial or complete lack of data the classification is not possible.

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

Not listed.

<b>Reproductive toxicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.
<b>Mixture versus substance information</b>	No information available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

<b>12.1. Toxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>12.2. Persistence and degradability</b>	No data is available on the degradability of this product.
<b>12.3. Bioaccumulative potential</b>	No data available.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	No data available.
<b>12.5. Results of PBT and vPvB assessment</b>	Not available.
<b>12.6. Other adverse effects</b>	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

<b>Residual waste</b>	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).
<b>Contaminated packaging</b>	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.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	Water-reactive solid, n.o.s. (Yttrium metal)
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>Hazard No. (ADR)</b>	Not available.
<b>Tunnel restriction code</b>	Not available.
<b>14.4. Packing group</b>	Not available.

- 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** UN2813  
**14.2. UN proper shipping name** Water-reactive solid, n.o.s. (yttrium metal)  
**14.3. Transport hazard class(es)**  
**Class** 4.3  
**Subsidiary risk** -  
**14.4. Packing group** Not available.  
**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** UN2813  
**14.2. UN proper shipping name** Water-reactive solid, n.o.s. (Yttrium metal)  
**14.3. Transport hazard class(es)**  
**Class** 4.3  
**Subsidiary risk** -  
**14.4. Packing group** Not available.  
**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** UN2813  
**14.2. UN proper shipping name** Water-reactive solid, n.o.s. (Yttrium)  
**14.3. Transport hazard class(es)**  
**Class** 4.3  
**Subsidiary risk** -  
**14.4. Packing group** Not available.  
**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** UN2813  
**14.2. UN proper shipping name** Water-reactive solid, n.o.s. (Yttrium metal)  
**14.3. Transport hazard class(es)**  
**Class** 4.3  
**Subsidiary risk** -  
**14.4. Packing group** Not available.  
**14.5. Environmental hazards**  
**Marine pollutant** No.  
**EmS** Not available.  
**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 (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**

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.

#### Other EU regulations

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

Not listed.

#### Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. 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.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

#### List of abbreviations

Not available.

#### Information on evaluation method leading to the classification of mixture

Not applicable.

#### Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.