



# 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>	Zinc nitride (Zn <sub>3</sub> N <sub>2</sub> )
<b>Identification number</b>	215-207-3 (EC number)
<b>Synonyms</b>	Zinc nitride (Zn <sub>3</sub> N <sub>2</sub> ) * Trizinc dinitride
<b>Document number</b>	2EE
<b>Materion Code</b>	2EE
<b>Issue date</b>	04-December-2013
<b>Version number</b>	04
<b>Revision date</b>	15-January-2018
<b>Supersedes date</b>	14-July-2015

### 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

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

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

##### Physical hazards

Substances and mixtures which, in contact with water, emit flammable gases	Category 3	H261 - In contact with water releases flammable gases.
--	------------	--

#### Hazard summary

DANGER  
In contact with water releases flammable gases. Will be easily ignited by heat, spark or flames.

### 2.2. Label elements

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

**Contains:** Zinc nitride

#### Hazard pictograms



**Signal word** Warning

#### Hazard statements

H261 In contact with water releases flammable gases.

#### Precautionary statements

##### Prevention

P231 + P232 Handle under inert gas. Protect from moisture.

P280	Wear protective gloves/eye protection/face protection.
<b>Response</b>	
P370 + P378	In case of fire: Use appropriate media to extinguish.
<b>Storage</b>	
P402 + P404	Store in a dry place. Store in a closed container.
<b>Disposal</b>	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Supplemental label information</b>	None.
<b>2.3. Other hazards</b>	The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Zinc nitride	90 - 100	1313-49-1 215-207-3	-	-	
<b>Classification:</b>	Water-React. 3;H261				

#### List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret. #: This substance has been assigned Community workplace exposure limit(s).

## SECTION 4: First aid measures

#### General information

If you feel unwell, seek medical advice (show the label where possible).

#### 4.1. Description of first aid measures

##### Inhalation

Move to fresh air.

##### Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

##### Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

##### Ingestion

Get medical advice/attention if you feel unwell.

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

Direct contact with eyes may cause temporary irritation.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Treat symptomatically.

## SECTION 5: Firefighting measures

#### General fire hazards

In contact with water releases flammable gases.

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

##### Unsuitable extinguishing media

Water. Do not use a solid water stream as it may scatter and spread fire.

#### 5.2. Special hazards arising from the substance or mixture

In contact with water releases flammable gases.

#### 5.3. Advice for firefighters

##### Special protective equipment for firefighters

Wear suitable protective equipment.

**Special firefighting procedures**

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. Do not get water inside container. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

**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**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**For emergency responders**

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions**

Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up**

Stop the flow of material, if this is without risk. Do not get water on spilled substance or inside containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

**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**

Handle under inert gas. Protect from moisture. All equipment used when handling the product must be grounded. Provide adequate ventilation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities**

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. Store in original tightly closed container. Store in a well-ventilated place. Store in a dry place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

**7.3. Specific end use(s)**

Not available.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational exposure limits****Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Material	Type	Value	Form
Zinc nitride (CAS 1313-49-1)	TWA	2 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Respirable fraction.

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

Material	Type	Value	Form
Zinc nitride (CAS 1313-49-1)	TWA	2 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Respirable fraction.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Zinc nitride (CAS 1313-49-1)	STEL	4 mg/m <sup>3</sup>	Inhalable dust.
		0,4 mg/m <sup>3</sup>	Respirable dust.
	TWA	2 mg/m <sup>3</sup>	Inhalable dust.
		0,1 mg/m <sup>3</sup>	Respirable dust.

**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 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. Wear protective gloves. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

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

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

**Hygiene measures** 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** 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.

**Form** Solid.

**Colour** Not available.

**Odour** Not available.

**Odour threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** Not available.

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Flammable solid.

#### Upper/lower flammability or explosive limits

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

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

**Vapour pressure** Not available.

**Vapour density** Not available.

**Relative density** Not available.

#### Solubility(ies)

**Solubility (water)** Not available.

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

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Explosive properties** Not explosive.

**Oxidising properties** Not oxidising.

## 9.2. Other information

Molecular formula N<sub>2</sub>Zn<sub>3</sub>

## SECTION 10: Stability and reactivity

- 10.1. Reactivity** Not available.
- 10.2. Chemical stability** Risk of ignition.
- 10.3. Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.
- 10.4. Conditions to avoid** Exposure to moisture. Contact with water liberates flammable gas. Moisture. Contact with incompatible materials.
- 10.5. Incompatible materials** None known.
- 10.6. Hazardous decomposition products** No hazardous decomposition products are known.

## SECTION 11: Toxicological information

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

### Information on likely routes of exposure

- Inhalation** Prolonged inhalation may be harmful.
- Skin contact** Due to lack of data the classification is not possible.
- Eye contact** Due to lack of data the classification is not possible.
- Ingestion** Due to lack of data the classification is not possible.

**Symptoms** Exposure may cause temporary irritation, redness, or discomfort.

### 11.1. Information on toxicological effects

- Acute toxicity** No data available.
- 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.

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

Not listed.

- 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** Due to partial or complete lack of data the classification is not possible.
- Aspiration hazard** Due to partial or complete lack of data the classification is not possible.
- Mixture versus substance information** No information available.
- Other information** Not available.

## SECTION 12: Ecological information

- 12.1. Toxicity** Components of this product are hazardous to aquatic life.
- 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 K<sub>ow</sub>)** Not available.
- Bioconcentration factor (BCF)** Not available.
- 12.4. Mobility in soil** No data available.
- 12.5. Results of PBT and vPvB assessment** Not available.

**12.6. 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.

### 12.7. Additional information

#### Estonia Dangerous substances in groundwater Data

Zinc nitride (CAS 1313-49-1)	Zinc (Zn) 50 UG/L
	Zinc (Zn) 5000 UG/L

#### Estonia Dangerous substances in soil Data

Zinc nitride (CAS 1313-49-1)	Zinc (Zn) 1000 mg/kg
	Zinc (Zn) 200 mg/kg
	Zinc (Zn) 500 mg/kg

## 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).

**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 allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	Water-reactive solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.3
<b>Hazard No. (ADR)</b>	Not available.
<b>Tunnel restriction code</b>	Not available.
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### RID

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	Water-reactive solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.3
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### ADN

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	Water-reactive solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3

<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.3
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

#### IATA

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	Water-reactive solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>ERG Code</b>	4W
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed with restrictions.
<b>Cargo aircraft only</b>	Allowed with restrictions.

#### IMDG

<b>14.1. UN number</b>	UN2813
<b>14.2. UN proper shipping name</b>	WATER-REACTIVE SOLID, N.O.S.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-G, S-N
<b>14.6. Special precautions for user</b>	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**

Zinc nitride (CAS 1313-49-1)

**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. The product does not need to be labelled in accordance with EC directives or respective national laws.

**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**

Additional information is given in the Material Safety Data Sheet. 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.