



# 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>	Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> )
<b>Identification number</b>	236-862-1 (EC number)
<b>Registration number</b>	-
<b>Document number</b>	2IJ
<b>Synonyms</b>	None.
<b>Materion Code</b>	2IJ
<b>Issue date</b>	16-July-2018
<b>Revision date</b>	29-April-2019

### 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

<b>Supersedes date</b>	16-July-2018
<b>Version number</b>	02

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

<b>Identified uses</b>	The chemical(s) listed herein is not found on the Toxic Substance Control Act chemical substance inventory. This chemical may not be used for commercial purposes. This chemical may be used for research and development purposes only as defined at 40 CFR 710,2(y).
<b>Uses advised against</b>	None known.

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

<b>Hazard summary</b>	Causes skin irritation. Causes serious eye irritation. May cause irritation to the respiratory system.
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### 2.2. Label elements

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

<b>Contains:</b>	Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> )
<b>Hazard pictograms</b>	

<b>Signal word</b>	Warning
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<b>Hazard statements</b>	
H335	May cause respiratory irritation.
H319	Causes serious eye irritation.
H315	Causes skin irritation.

#### Precautionary statements

<b>Prevention</b>	
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/eye protection/face protection.

#### Response

If skin irritation occurs, seek medical advice/attention.  
IF ON SKIN: Wash with plenty of soap and water.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
Call a POISON CENTRE or doctor/physician if you feel unwell.  
If eye irritation persists: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.

#### Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

#### Disposal

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

#### 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
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> )	100	13520-76-8 236-862-1	-	-	
<b>Classification:</b>	Skin Irrit. 2;H315, STOT SE 3;H335				

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

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### SECTION 4: First aid measures

#### General information

Show this safety data sheet to the doctor in attendance. If you feel unwell, seek medical advice (show the label where possible).

#### 4.1. Description of first aid measures

##### Inhalation

Move into fresh air and keep at rest. If breathing stops, provide artificial respiration. Call a physician if symptoms develop or persist.

##### Skin contact

Wash off with soap and water. Take off contaminated clothing and wash before reuse. Get medical attention if irritation develops and persists.

##### Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention or advice.

##### Ingestion

Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. Call a POISON CENTRE or doctor/physician.

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

Causes eye irritation. Skin irritation. May cause respiratory irritation.

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

Treat symptomatically.

### SECTION 5: Firefighting measures

#### General fire hazards

No unusual fire or explosion hazards noted.

#### 5.1. Extinguishing media

##### Suitable extinguishing media

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

##### Unsuitable extinguishing media

Not available.

<b>5.2. Special hazards arising from the substance or mixture</b>	Not available.
<b>5.3. Advice for firefighters</b>	
<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Specific methods</b>	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

<b>For non-emergency personnel</b>	Wear necessary protective equipment. Avoid contact with skin or inhalation of spillage, dust or vapour. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.
<b>For emergency responders</b>	Wear appropriate protective equipment and clothing during clean-up.

**6.2. Environmental precautions** Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up** Pick up and arrange disposal without creating dust. Avoid dust formation. Sweep or scoop up and remove. Put material in suitable, covered, labeled containers.

**6.4. Reference to other sections** Not available.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Avoid contact with eyes. Avoid contact with skin. Keep formation of airborne dusts to a minimum. Avoid breathing dust/fume/gas/mist/vapours/spray. Use only with adequate ventilation.

**7.2. Conditions for safe storage, including any incompatibilities** Store in original tightly closed container. Store in a well-ventilated place. Avoid dust formation.

**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
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	MAK	1 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	2 mg/m <sup>3</sup>	Inhalable fraction.

##### Belgium. Exposure Limit Values.

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	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
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	MAC	1 mg/m <sup>3</sup>
	STEL	5 mg/m <sup>3</sup>

##### Denmark. Exposure Limit Values

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TLV	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>

**Finland. Workplace Exposure Limits**

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>

**Ireland. Occupational Exposure Limits**

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

**Italy. Occupational Exposure Limits**

Material	Type	Value	Form
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	3 mg/m <sup>3</sup>	Respirable fraction.

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TLV	1 mg/m <sup>3</sup>

**Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	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
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.

**Spain. Occupational Exposure Limits**

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Material	Type	Value	Form
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>	Total dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.

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

Material	Type	Value
Tungsten Dichloride Dioxide (WO <sub>2</sub> Cl <sub>2</sub> ) (CAS 13520-76-8)	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** Ensure adequate ventilation, especially in confined areas.

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

**General information** Avoid contact with skin. Avoid contact with eyes.

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

**Skin protection**

- **Hand protection** Wear protective gloves.

- **Other** Wear suitable protective clothing.

**Respiratory protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**Thermal hazards** Not available.

**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.

**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.

<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>	Not available.
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<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.

## 9.2. Other information

**Molecular formula**           Cl2O2W

## 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>	Not available.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

## 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>	Diarrhoea.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Not known.
<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.
<b>Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)</b>	
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>	Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.
<b>12.2. Persistence and degradability</b>	
<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 a PBT or vPvB substance or mixture.
<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

14.1. - 14.6.: Not regulated as dangerous goods.

### RID

14.1. - 14.6.: Not regulated as dangerous goods.

### ADN

14.1. - 14.6.: Not regulated as dangerous goods.

### IATA

14.1. - 14.6.: Not regulated as dangerous goods.

### IMDG

14.1. - 14.6.: 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 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**

Tungsten Dichloride Dioxide (WO<sub>2</sub>Cl<sub>2</sub>) (CAS 13520-76-8)

**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 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.

#### **15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out.

### **SECTION 16: Other information**

#### **List of abbreviations**

Not available.

#### **References**

Not available.

#### **Training information**

Follow training instructions when handling this material.

#### **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.