

# MATERIAL SAFETY DATA SHEET

## 1. Chemical product and company identification

A. Product name MEG-150 Epoxy

Other means of identification

SDS number F01

### B. Recommended use and Limitations on use

**Recommended use** Manufacture of computer, electronic and optical products, electrical equipment  
Scientific research and development  
Other: Manufacture of medical and defense equipment

**Limitations on use** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

### C. Supplier information

**Company name** Materion Advanced Materials

**Address** 6070 Parkland Boulevard  
Mayfield Heights OH 44124  
United States

**Telephone** EH&S 1.216.383.4019

**Email** ehs@materion.com

**Contact person** Theodore Knudson

**Emergency telephone number** See Section 16.

**Importer**

**Company name** See above.

**MSDS number** F01

## 2. Hazards identification

### A. Hazard category/Classification

**Physical hazards** Not classified.

<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 2
	Specific target organ toxicity, repeated exposure	Category 2

**Environmental hazards** Not classified.

### B. Warning label items including precautionary statement

• Pictogram



• Signal word Danger

• Hazard statement

H312	Harmful in contact with skin.
H315	Causes skin irritation.

H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H370	Causes damage to organs.

• **Precautionary statement**

**Prevention**

	Observe good industrial hygiene practices.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P272	Contaminated work clothing should not be allowed out of the workplace.

**Response**

P332 + P313	If skin irritation occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P308 + P313	If exposed or concerned: Get medical advice/attention.

**Storage**

P405	Store locked up.
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**Disposal**

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

**Supplemental information** For further information, please contact the Product Stewardship Department at +1.216.383.4019.

**3. Composition/information on ingredients**

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Polyamide		63428-84-2		45 - 75
Diglycidyl Resorcinol Ether		101-90-6	2011-1-619	20 - 22
PROPRIETARY INGREDIENTS		N/A		7 - 13
Methanol		67-56-1	KE-23193, 97-1-80	0 - 2
Titanium Oxide (TiO <sub>2</sub> )		13463-67-7	KE-33900	0 - 1.5

**4. First aid measures**

- A. In case of eye contact** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
- B. In case of skin contact** If skin irritation occurs: Get medical advice/attention. Wash off with soap and water. Wash contaminated clothing before reuse. Get medical attention if irritation develops and persists.
- C. In case of inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
- D. In case of swallowing** No adverse effects due to ingestion are expected.
- E. Note to physician** Keep victim warm. Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. Treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

**Most important symptoms/effects, acute and delayed** May cause an allergic skin reaction. Prolonged exposure may cause chronic effects.

**General advice** If you feel unwell, seek medical advice (show the label where possible). Wash contaminated clothing before reuse.

## 5. Fire-fighting measures

### A. Suitable (and unsuitable) extinguishing media

<b>Suitable extinguishing media</b>	Water fog. Water spray. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use a solid water stream as it may scatter and spread fire.

**B. Specific hazards arising from the chemical (example: hazardous combustion products)** None known.

### C. Specific methods of fire-fighting

<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Special fire fighting procedures</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

**General fire hazards** None known.

## 6. Accidental release measures

**A. Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up.

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

**C. Methods and materials for containment and cleaning up** Sweep up or vacuum up spillage and collect in suitable container for disposal. Flush area with water.

## 7. Handling and storage

**A. Precautions for safe handling** Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Obtain special instructions before use. Wear appropriate personal protective equipment. Do not eat, drink or smoke when using the product. Observe good industrial hygiene practices.

**B. Conditions for safe storage (including any incompatibilities)** Store in accordance with local/regional/national/international regulation.

## 8. Exposure controls/personal protection

### A. Exposure limit values, biological limit values, etc

#### Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Components	Type	Value
Methanol (CAS 67-56-1)	STEL	310 mg/m <sup>3</sup>
		250 ppm
	TWA	260 mg/m <sup>3</sup>
		200 ppm
Titanium Oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>

#### US. ACGIH Threshold Limit Values

Components	Type	Value
Methanol (CAS 67-56-1)	STEL	250 ppm
	TWA	200 ppm
Titanium Oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>

### Biological limit values

#### ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Methanol (CAS 67-56-1)	15 mg/l	Methanol	Urine	*

\* - For sampling details, please see the source document.

## Exposure guidelines

### Korea OELs: Skin designation

Methanol (CAS 67-56-1)

Substance can be absorbed through membrane, eye and skin and can cause whole body effects (It does not mean skin irritant).

### US ACGIH Threshold Limit Values: Skin designation

Methanol (CAS 67-56-1)

Danger of cutaneous absorption

### B. Appropriate engineering controls

Good general ventilation 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. Provide eyewash station and safety shower.

### C. Personal protective equipment

#### • Respiratory protection

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

#### • Eye protection

Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.

#### • Hand protection

Wear appropriate chemical resistant gloves.

#### • Body protection

Wear suitable protective clothing.

### 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.

## 9. Physical and chemical properties

### A. Appearance

Physical state Solid.

Form Film.

Color White.

### B. Odor

None.

### C. Odor threshold

Not applicable.

### D. pH

Not applicable.

### E. Melting point/freezing point

Melting point -144.04 °F (-97.8 °C) estimated

Freezing point Not applicable.

### F. Boiling point, initial boiling point, and boiling range

Not applicable.

### G. Flash point

Not applicable.

### H. Evaporation rate

Not applicable.

### I. Flammability (solid, gas)

None known.

### J. Upper/lower limit on flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - lower (%) temperature Not applicable.

Flammability limit - upper (%) Not applicable.

Flammability limit - upper (%) temperature Not applicable.

Explosive limit - lower (%) Not applicable.

Explosive limit - lower (%) temperature Not applicable.

Explosive limit - upper (%) Not applicable.

Explosive limit - upper (%) temperature Not applicable.

### K. Vapor pressure

Not applicable.

<b>L. Solubility</b>	
Solubility (water)	Negligible.
<b>M. Vapor density</b>	Not applicable.
<b>N. Specific gravity</b>	Not applicable.
<b>O. n-octanol/water partition coefficient</b>	Not applicable.
<b>P. Auto-ignition temperature</b>	Not applicable.
<b>Q. Decomposition temperature</b>	Not applicable.
<b>R. Viscosity</b>	Not applicable.
<b>S. Molecular weight</b>	Not applicable.

**Other data**

Density	1.36 g/cm <sup>3</sup> estimated
Explosive properties	Not explosive.
Kinematic viscosity	Not applicable.
Oxidizing properties	Not oxidizing.
Particle size	Not applicable.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

### A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	None.

**B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)** Contact with incompatible materials.

**C. Incompatible materials** Strong oxidizing agents.

**D. Hazardous decomposition products** At thermal decomposition temperatures, carbon monoxide and carbon dioxide. Ammonia. Nitrogen oxides (NO<sub>x</sub>).

## 11. Toxicological information

### A. Information on likely routes of exposure

- **Respiratory organs** May cause irritation to the respiratory system.
- **Skin** Toxic in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
- **Eyes** Causes serious eye irritation. Direct contact with eyes may cause temporary irritation.
- **Mouth** Harmful if swallowed.

### B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Harmful in contact with skin.
- **Corrosivity or irritation to the skin** Causes skin irritation.
- **Serious eye damage/eye irritation** Causes serious eye irritation. Direct contact with eyes may cause temporary irritation.
- **Respiratory sensitization** Not a respiratory sensitizer.
- **Skin sensitization** May cause an allergic skin reaction.
- **Carcinogenic properties /Carcinogenicity** Suspected of causing cancer.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Diglycidyl Resorcinol Ether (CAS 101-90-6)	2B Possibly carcinogenic to humans.
Titanium Oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

- **Mutagenic properties /Mutagenicity** Suspected of causing genetic defects.

- **Reproductive toxicity** Not classified.
- **Specific target organ toxicity - single exposure** Causes damage to organs.
- **Specific target organ toxicity - repeated exposure** Not classified.
- **Aspiration hazard** Not an aspiration hazard.

## 12. Ecological information

### A. Ecotoxicity

Product	Species	Test Results
MEG-150 Epoxy		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Daphnia
Fish	LC50	Fish
		61866.1875 mg/l, 48 hours estimated
		62590.7539 mg/l, 96 hours estimated

Components	Species	Test Results
Methanol (CAS 67-56-1)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna)
Fish	LC50	Fathead minnow (Pimephales promelas)
		> 10000 mg/l, 48 hours
		> 100 mg/l, 96 hours
Titanium Oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna)
Fish	LC50	Mummichog (Fundulus heteroclitus)
		> 1000 mg/l, 48 hours
		> 1000 mg/l, 96 hours

**B. Persistence/degradability** Not available.

### C. Bioaccumulative potential

Octanol/water partition coefficient log Kow	
Methanol	-0.77

**D. Mobility in soil** Not available.

**E. Other adverse effects** Not available.

## 13. Disposal considerations

**A. Method of disposal** Dispose of contents/container in accordance with local/regional/national/international regulations. Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

**B. Disposal considerations (including disposal of contaminated containers or packaging)** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

**Waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

## 14. Transport information

### IATA

- A. UN number** Not applicable.
- B. UN proper shipping name** Not applicable.
- C. Transport hazard class(es)**
  - Class** Not applicable.
  - Subsidiary risk** -
- D. Packing group** Not applicable.
- E. Environmental hazards** No.
- F. Special precautions for user** Not applicable.

## IMDG

- A. UN number Not applicable.  
B. UN proper shipping name Not applicable.  
C. Transport hazard class(es)  
    Class Not applicable.  
    Subsidiary risk -  
D. Packing group Not applicable.  
E. Environmental hazards  
    Marine pollutant No.  
EmS Not applicable.  
F. Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

## 15. Regulatory information

### A. Restrictions under the Industrial Safety and Health Law

#### Harmful Substances Prohibited from Manufacturing

Not regulated.

#### Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

#### Controlled Hazardous Substances

Methanol (CAS 67-56-1)

Titanium Oxide (TiO<sub>2</sub>) (CAS 13463-67-7)

#### Harmful Substances Requiring Special Medical Examination

Methanol (CAS 67-56-1)

MINERAL DUST (CAS 13463-67-7) Dust

#### Workplace Environmental Monitoring Harmful Materials

Methanol (CAS 67-56-1)

OTHER MINERAL DUST (CAS 13463-67-7) Dust

#### Occupational Exposure Limit

Methanol (CAS 67-56-1)

Titanium Oxide (TiO<sub>2</sub>) (CAS 13463-67-7)

### B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

#### Accidental Release Prevention Substances

Not regulated.

#### Act on the Registration and Evaluation of Chemicals

##### Banned Toxic Chemicals

Not regulated.

##### Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Methanol (CAS 67-56-1)

##### Restricted Chemical Substances

Not regulated.

##### Toxic Chemicals

Diglycidyl Resorcinol Ether (CAS 101-90-6) 2011-1-619

### C. Restrictions under the Dangerous Substance Safety Management Act

### D. Restrictions under the Wastes Control Act

#### Halogenated Materials in Waste Organic Solvents

Not regulated.

#### Hazardous Substances

Not regulated.

## E. Restrictions under other foreign or domestic laws

### Clean Air Conservation Act

#### Air Pollutants

Titanium Oxide (TiO<sub>2</sub>) (CAS 13463-67-7)

**Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended**

Not listed.

#### Specific Air Pollutants

Not regulated.

### Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	No

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

### A. Source of information

NLM: Hazardous Substances Data Base  
EPA: ACQUIRE database  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
ACGIH  
Korea. Banned Chemicals (AREC "K-REACH" Article 27; Designation of Restricted or Banned Chemicals, Appendices 4 and 5)  
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)  
Korea. Existing Chemicals Inventory (KECI, January 27, 2015)  
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)  
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)  
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)  
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)  
Korea. Restricted Chemicals (AREC "K-REACH" Article 27; Designation of Restricted or Banned Chemicals, Appendices 2 and 3)  
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List  
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic Chemicals, Appendix)  
Korea. Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002)  
Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOEL Notice 2013-38, August 14, 2013)  
Korea. Prohibited Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 4 and 5)  
Korea. Restricted Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 2 and 3)  
KECI, January 27, 2015, amended through MoE 2016-138, July 13, 2016  
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic, Restricted or Banned Chemicals Appendix 1)

### B. Issue date

05-28-2021

### C. Number of revisions and date of most recent revision

Not applicable.

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