

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

## 1 Identification

- **Product identifier**
- **Trade name:** Graphite Conductive Adhesive 154
- **Article number:** 12691-30, 12691-30-sp, 12691
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Danger

- **Hazard-determining components of labeling:**

propan-2-ol

n-Butyl Alcohol

1-methoxy-2-propanol

- **Hazard statements**

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

May cause drowsiness or dizziness.

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 1)

· **Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
 Avoid breathing dust/fume/gas/mist/vapors/spray  
 Wear protective gloves / eye protection / face protection.  
 Ground/bond container and receiving equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Wash thoroughly after handling.  
 Use only outdoors or in a well-ventilated area.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 Call a POISON CENTER/doctor if you feel unwell.  
 If skin irritation occurs: Get medical advice/attention.  
 If eye irritation persists: Get medical advice/attention.  
 In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
 Take off contaminated clothing and wash it before reuse.  
 Store locked up.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store in a well-ventilated place. Keep cool.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

- **Results of PBT and vPvB assessment**  
 · **PBT:** Not applicable.  
 · **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

|           |                          |         |
|-----------|--------------------------|---------|
| 67-63-0   | propan-2-ol              | 50-100% |
| 7782-42-5 | Graphite                 | 10-25%  |
| 71-36-3   | n-Butyl Alcohol          | 2.5-10% |
| 107-41-5  | 2-methylpentane-2,4-diol | 2.5-10% |
| 107-98-2  | 1-methoxy-2-propanol     | 2.5-10% |

US

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 2)

## 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 3)

Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
  - Keep receptacle tightly sealed.
  - Store in cool, dry conditions in well sealed receptacles.
  - Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

### 67-63-0 propan-2-ol

|     |  |
|-----|--|
| PEL | Long-term value: 980 mg/m <sup>3</sup> , 400 ppm   |
| REL | Short-term value: 1225 mg/m <sup>3</sup> , 500 ppm<br>Long-term value: 980 mg/m <sup>3</sup> , 400 ppm |
| TLV | Short-term value: 984 mg/m <sup>3</sup> , 400 ppm<br>Long-term value: 492 mg/m <sup>3</sup> , 200 ppm  |
| BEI |  |

### 71-36-3 n-Butyl Alcohol

|     |   |
|-----|---|
| PEL | Long-term value: 300 mg/m <sup>3</sup> , 100 ppm            |
| REL | Ceiling limit value: 150 mg/m <sup>3</sup> , 50 ppm<br>Skin |
| TLV | Long-term value: 61 mg/m <sup>3</sup> , 20 ppm              |

### 107-41-5 2-methylpentane-2,4-diol

|     |   |
|-----|---|
| REL | Ceiling limit value: 125 mg/m <sup>3</sup> , 25 ppm   |
| TLV | Short-term value: NIC-242* mg/m <sup>3</sup> , NIC-50* NIC-10** ppm<br>Long-term value: NIC-121* mg/m <sup>3</sup> , NIC-25* ppm<br>Ceiling limit value: (121) mg/m <sup>3</sup> , (25) ppm<br>*vapor **inhalable fraction, H |

### 107-98-2 1-methoxy-2-propanol

|     |   |
|-----|---|
| REL | Short-term value: 540 mg/m <sup>3</sup> , 150 ppm<br>Long-term value: 360 mg/m <sup>3</sup> , 100 ppm |
| TLV | Short-term value: 369 mg/m <sup>3</sup> , 100 ppm<br>Long-term value: 184 mg/m <sup>3</sup> , 50 ppm  |

- **Ingredients with biological limit values:**

### 67-63-0 propan-2-ol

|     |   |
|-----|---|
| BEI | 40 mg/L<br>Medium: urine<br>Time: end of shift at end of workweek<br>Parameter: Acetone (background, nonspecific) |
|-----|---|

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 4)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid

Color: Black

· **Odor:** Alcohol-like

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· **Flash point:** 13 °C (55 °F)

· **Flammability (solid, gaseous):** Not flammable.

· **Ignition temperature:** 425 °C (797 °F)

· **Decomposition temperature:** Not determined.

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 5)

|   |  |
|---|--|
| · <b>Auto igniting:</b>                           | Product is not selfigniting.   |
| · <b>Danger of explosion:</b>                     | Product is not explosive. However, formation of explosive air/vapor mixtures are possible. |
| · <b>Explosion limits:</b>                        |  |
| <b>Lower:</b>                                     | 2.0 Vol %  |
| <b>Upper:</b>                                     | 12.0 Vol %   |
| · <b>Vapor pressure at 20 °C (68 °F):</b>         | 43 hPa (32 mm Hg)  |
| · <b>Density:</b>                                 | Not determined.  |
| · <b>Relative density</b>                         | Not determined.  |
| · <b>Vapor density</b>                            | Not determined.  |
| · <b>Evaporation rate</b>                         | Not determined.  |
| · <b>Solubility in / Miscibility with Water:</b>  | Not miscible or difficult to mix.  |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.  |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not determined.  |
| <b>Kinematic:</b>                                 | Not determined.  |
| · <b>Solvent content:</b>                         |  |
| <b>Organic solvents:</b>                          | 76.8 %   |
| <b>VOC content:</b>                               | 76.8 %   |
|   | 767.9 g/l / 6.41 lb/gl   |
| · <b>Other information</b>                        | No further relevant information available.   |

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

### 67-63-0 propan-2-ol

|            |          |                      |
|------------|----------|----------------------|
| Oral       | LD50     | 5045 mg/kg (rat)     |
| Dermal     | LD50     | 12800 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 30 mg/l (rat)        |

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 6)

- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

67-63-0 | propan-2-ol

3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN1993
- **UN proper shipping name**
- **DOT** Flammable liquids, n.o.s. (Isopropanol)
- **ADR** 1993 Flammable liquids, n.o.s. (Isopropanol)
- **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))

(Contd. on page 8)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 7)

· **Transport hazard class(es)**· **DOT**

· **Class** 3 Flammable liquids  
 · **Label** 3

· **ADR, IMDG, IATA**

· **Class** 3 Flammable liquids  
 · **Label** 3

· **Packing group**· **DOT, ADR, IMDG, IATA** II· **Environmental hazards:** Not applicable.· **Special precautions for user** Warning: Flammable liquids· **Danger code (Kemler):** 33· **EMS Number:** F-E,S-E· **Stowage Category** B

· **Transport in bulk according to Annex II of  
 MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 5 L  
 On cargo aircraft only: 60 L

· **ADR**

· **Excepted quantities (EQ)** Code: E2  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 500 ml

· **IMDG**

· **Limited quantities (LQ)** 1L  
 · **Excepted quantities (EQ)** Code: E2  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUIDS, N.O.S. (ISOPROPANOL), 3, II

US  
 (Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 8)

## 15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

67-63-0 propan-2-ol

71-36-3 n-Butyl Alcohol

· TSCA (Toxic Substances Control Act):

67-63-0 propan-2-ol

7782-42-5 Graphite

71-36-3 n-Butyl Alcohol

107-41-5 2-methylpentane-2,4-diol

107-98-2 1-methoxy-2-propanol

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

71-36-3 n-Butyl Alcohol

D

· TLV (Threshold Limit Value established by ACGIH)

67-63-0 propan-2-ol

A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS02 GHS07

· Signal word *Danger*

· Hazard-determining components of labeling:

propan-2-ol

n-Butyl Alcohol

1-methoxy-2-propanol

· Hazard statements

Highly flammable liquid and vapor.

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 9)

*Causes skin irritation.*

*Causes serious eye irritation.*

*May cause drowsiness or dizziness.*

**· Precautionary statements**

*Keep away from heat/sparks/open flames/hot surfaces. No smoking.*

*Avoid breathing dust/fume/gas/mist/vapors/spray*

*Wear protective gloves / eye protection / face protection.*

*Ground/bond container and receiving equipment.*

*Use only non-sparking tools.*

*Take precautionary measures against static discharge.*

*Wash thoroughly after handling.*

*Use only outdoors or in a well-ventilated area.*

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a POISON CENTER/doctor if you feel unwell.*

*If skin irritation occurs: Get medical advice/attention.*

*If eye irritation persists: Get medical advice/attention.*

*In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.*

*Take off contaminated clothing and wash it before reuse.*

*Store locked up.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

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

**· Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**· Date of preparation / last revision** 08/04/2016 / -

**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety **Health**

**TLV: Threshold Limit Value**

**PEL: Permissible Exposure Limit**

**REL: Recommended Exposure Limit**

**BEI: Biological Exposure Limit**

**Flam. Liq. 2: Flammable liquids – Category 2**

**Skin Irrit. 2: Skin corrosion/irritation – Category 2**

**Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A**

**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3**

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

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

- **Product identifier**

- **Trade name:** Graphite Conductive Adhesive 154

- **Article number:** 12691-30, 12691-30-sp, 12691

- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.

- **Application of the substance / the mixture** Laboratory chemicals

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [sgkcck@aol.com](mailto:sgkcck@aol.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

ProSciTech Pty Ltd

11 Carlton Street, Kirwan QLD 4817 Australia

Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)

Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)

Emgrid Australia Pty. Ltd.

P.O. Box 118

The Patch VIC 3792

Australia

Tel: 03 9752 1785

Fax: 03 9752 1784

Website: [www.emgrid.com.au](http://www.emgrid.com.au)

- **Further information obtainable from:** Product safety department

- **Emergency telephone number:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

## 2 Hazards identification

- **Classification of the substance or mixture**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

(Contd. on page 2)

# Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: **Graphite Conductive Adhesive 154**

(Contd. of page 1)

· **Hazard pictograms**

GHS02 GHS07

· **Signal word** *Danger*· **Hazard-determining components of labelling:**

*propan-2-ol*  
*n-Butyl Alcohol*  
*1-methoxy-2-propanol*

· **Hazard statements**

*Highly flammable liquid and vapour.*  
*Causes skin irritation.*  
*Causes serious eye irritation.*  
*May cause drowsiness or dizziness.*

· **Precautionary statements**

*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*  
*Avoid breathing dust/fume/gas/mist/vapours/spray.*  
*Wear protective gloves / eye protection / face protection.*  
*Ground/bond container and receiving equipment.*  
*Use only non-sparking tools.*  
*Take precautionary measures against static discharge.*  
*Wash thoroughly after handling.*  
*Use only outdoors or in a well-ventilated area.*  
*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*  
*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*  
*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*  
*Call a POISON CENTER/doctor if you feel unwell.*  
*If skin irritation occurs: Get medical advice/attention.*  
*If eye irritation persists: Get medical advice/attention.*  
*In case of fire: Use for extinction: CO2, powder or water spray.*  
*Take off contaminated clothing and wash it before reuse.*  
*Store locked up.*  
*Store in a well-ventilated place. Keep container tightly closed.*  
*Store in a well-ventilated place. Keep cool.*  
*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Other hazards**· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterisation:** *Mixtures*· **Description:** *Mixture of substances listed below with nonhazardous additions.*· **Dangerous components:**

|           |             |         |
|-----------|-------------|---------|
| 67-63-0   | propan-2-ol | 50-100% |
| 7782-42-5 | Graphite    | 10-25%  |

(Contd. on page 3)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 2)

|          |                          |         |
|----------|--------------------------|---------|
| 71-36-3  | n-Butyl Alcohol          | 2.5-10% |
| 107-41-5 | 2-methylpentane-2,4-diol | 2.5-10% |
| 107-98-2 | 1-methoxy-2-propanol     | 2.5-10% |

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 4 First aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Generally the product does not irritate the skin.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### 5 Firefighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.

· **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

-AU

(Contd. on page 4)

# Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 3)

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.  
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

### 67-63-0 propan-2-ol

|     |  |
|-----|--|
| WES | Short-term value: 1230 mg/m <sup>3</sup> , 500 ppm |
|     | Long-term value: 983 mg/m <sup>3</sup> , 400 ppm   |

### 71-36-3 n-Butyl Alcohol

|     |   |
|-----|---|
| WES | Peak limitation: 152 mg/m <sup>3</sup> , 50 ppm |
|     | Sk  |

### 107-41-5 2-methylpentane-2,4-diol

|     |   |
|-----|---|
| WES | Peak limitation: 121 mg/m <sup>3</sup> , 25 ppm |
|-----|---|

### 107-98-2 1-methoxy-2-propanol

|     |   |
|-----|---|
| WES | Short-term value: 553 mg/m <sup>3</sup> , 150 ppm |
|     | Long-term value: 369 mg/m <sup>3</sup> , 100 ppm  |

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.
- **Respiratory protection:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

(Contd. on page 5)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 4)

- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

**Form:** Liquid

**Colour:** Black

- **Odour:** Alcohol-like

- **Odour threshold:** Not determined.

- **pH-value:** Not determined.

- **Change in condition**

**Melting point/Melting range:** Undetermined.

**Boiling point/Boiling range:** Undetermined.

- **Flash point:** 13 °C

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 425 °C

- **Decomposition temperature:** Not determined.

- **Self-igniting:** Product is not selfigniting.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

- **Explosion limits:**

**Lower:** 2.0 Vol %

**Upper:** 12.0 Vol %

- **Vapour pressure at 20 °C:** 43 hPa

- **Density:** Not determined.

- **Relative density** Not determined.

- **Vapour density** Not determined.

- **Evaporation rate** Not determined.

(Contd. on page 6)

AU



**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 5)

- |   |  |
|---|--|
| · <b>Solubility in / Miscibility with water:</b>  | Not miscible or difficult to mix.          |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not determined.                            |
| <b>Kinematic:</b>                                 | Not determined.                            |
| · <b>Solvent content:</b>                         |  |
| <b>Organic solvents:</b>                          | 76.8 %                                     |
| <b>VOC (EC)</b>                                   | 76.79 %                                    |
| · <b>Other information</b>                        | No further relevant information available. |

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**

· **LD/LC50 values relevant for classification:**

**67-63-0 propan-2-ol**

|            |          |                      |
|------------|----------|----------------------|
| Oral       | LD50     | 5045 mg/kg (rat)     |
| Dermal     | LD50     | 12800 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 30 mg/l (rat)        |

- **Primary irritant effect:**
- **Skin corrosion/irritation** No irritant effect.
- **Serious eye damage/irritation** Irritating effect.
- **Respiratory or skin sensitisation** No sensitising effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:  
Harmful  
Irritant

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.

(Contd. on page 7)



**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154


(Contd. of page 6)

- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

|  |   |
|--|---|
| · <b>UN-Number</b><br>· <b>ADG, IMDG, IATA</b>   | UNI993  |
| · <b>UN proper shipping name</b><br>· <b>ADG</b><br>· <b>IMDG, IATA</b>  | 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| · <b>Transport hazard class(es)</b><br>· <b>ADG, IMDG, IATA</b>  |   |
|   |   |
| · <b>Class</b><br>· <b>Label</b>   | 3 Flammable liquids.<br>3   |
| · <b>Packing group</b><br>· <b>ADG, IMDG, IATA</b>   | II  |
| · <b>Environmental hazards:</b>  | Not applicable.   |
| · <b>Special precautions for user</b><br>· <b>Danger code (Kemler):</b><br>· <b>EMS Number:</b><br>· <b>Stowage Category</b> | Warning: Flammable liquids.<br>33<br>F-E, S-E<br>B  |
| · <b>Transport in bulk according to Annex II of Marpol and the IBC Code</b>  | Not applicable.   |

(Contd. on page 8)

AU

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 7)

· **Transport/Additional information:**· **ADG**

- Limited quantities (LQ)
- Excepted quantities (EQ)

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

- Transport category
- Tunnel restriction code

2

D/E

· **IMDG**

- Limited quantities (LQ)
- Excepted quantities (EQ)

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":**

UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II

### 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Australian Inventory of Chemical Substances**

|           |                          |
|-----------|--------------------------|
| 67-63-0   | propan-2-ol              |
| 7782-42-5 | Graphite                 |
| 71-36-3   | n-Butyl Alcohol          |
| 107-41-5  | 2-methylpentane-2,4-diol |
| 107-98-2  | 1-methoxy-2-propanol     |

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).· **Hazard pictograms**

GHS02 GHS07

· **Signal word** Danger· **Hazard-determining components of labelling:**

propan-2-ol  
n-Butyl Alcohol  
1-methoxy-2-propanol

· **Hazard statements**

Highly flammable liquid and vapour.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Contd. on page 9)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 8)

Avoid breathing dust/fume/gas/mist/vapours/spray.  
 Wear protective gloves / eye protection / face protection.  
 Ground/bond container and receiving equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Wash thoroughly after handling.  
 Use only outdoors or in a well-ventilated area.  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 Call a POISON CENTER/doctor if you feel unwell.  
 If skin irritation occurs: Get medical advice/attention.  
 If eye irritation persists: Get medical advice/attention.  
 In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
 Take off contaminated clothing and wash it before reuse.  
 Store locked up.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store in a well-ventilated place. Keep cool.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category P5c FLAMMABLE LIQUIDS**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

#### · Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 VOC: Volatile Organic Compounds (USA, EU)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 Flam. Liq. 2: Flammable liquids – Category 2  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2  
 Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

AU

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

## 1 Identification

- **Product identifier**
- **Trade name:** Graphite Conductive Adhesive 154
- **Article number:** 12691-30, 12691-30-sp, 12691
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 Electron Microscopy Sciences  
 1560 Industry Road  
 USA-Hatfield, PA 19440  
 Tel: 215-412-8400 Fax: 215-412-8450  
 email: sgkcck@aol.com  
 www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**  
 ChemTrec 1-800-424-9300 Contract CCN7661  
 1-703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids - Category 2

H225 Highly flammable liquid and vapour.



GHS07

Skin Irritation - Category 2

H315 Causes skin irritation.

Eye Irritation - Category 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure -  
Category 3

H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Danger

- **Hazard-determining components of labeling:**

propan-2-ol

n-Butyl Alcohol

1-methoxy-2-propanol

- **Hazard statements**

Highly flammable liquid and vapour.

Causes skin irritation.

Causes serious eye irritation.

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 1)

May cause drowsiness or dizziness.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Use explosion-proof [electrical/ventilating/lighting] equipment.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

Ground and bond container and receiving equipment.

Use non-sparking tools.

Take actions to prevent static discharges.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

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

· **Hazard description:**

· **WHMIS-symbols:**

B2 - Flammable liquid

D2B - Toxic material causing other toxic effects



· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**

|            |   |                |
|------------|---|----------------|
| HEALTH     | 1 | Health = 1     |
| FIRE       | 3 | Fire = 3       |
| REACTIVITY | 0 | Reactivity = 0 |

## 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

|         |             |             |
|---------|-------------|-------------|
| 67-63-0 | propan-2-ol | 60-100% w/w |
|---------|-------------|-------------|

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

|           |                          | (Contd. of page 2) |
|-----------|--------------------------|--------------------|
| 7782-42-5 | Graphite                 | 10-30% w/w         |
| 71-36-3   | n-Butyl Alcohol          | 1-5% w/w           |
| 107-41-5  | 2-methylpentane-2,4-diol | 1-5% w/w           |
| 107-98-2  | 1-methoxy-2-propanol     | 1-5% w/w           |

## 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

CA  
(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 3)

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.  
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

### 67-63-0 propan-2-ol

EL Short-term value: 400 ppm

Long-term value: 200 ppm

EV Short-term value: 400 ppm

Long-term value: 200 ppm

### 71-36-3 n-Butyl Alcohol

EL Long-term value: 15 ppm

Ceiling limit value: 30 ppm

EV Long-term value: 20 ppm

### 107-41-5 2-methylpentane-2,4-diol

EL Ceiling limit value: 25 ppm

EV Ceiling limit value: 120 mg/m<sup>3</sup>, 25 ppm

### 107-98-2 1-methoxy-2-propanol

EL Short-term value: 75 ppm

Long-term value: 50 ppm

EV Short-term value: 550 mg/m<sup>3</sup>, 150 ppmLong-term value: 365 mg/m<sup>3</sup>, 100 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 4)

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid

Color: Black

· **Odor:** Alcohol-like

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· **Flash point:** 13 °C

· **Flammability (solid, gaseous):** Not flammable.

· **Ignition temperature:** 425 °C

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower: 2.0 Vol %

Upper: 12.0 Vol %

(Contd. on page 6)

CA



# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 5)

|  |  |
|--|--|
| · Vapor pressure at 20 °C:                 | 43 hPa                                     |
| · Density:                                 | Not determined.                            |
| · Relative density                         | Not determined.                            |
| · Vapor density                            | Not determined.                            |
| · Evaporation rate                         | Not determined.                            |
| · Solubility in / Miscibility with Water:  | Not miscible or difficult to mix.          |
| · Partition coefficient (n-octanol/water): | Not determined.                            |
| · Viscosity:                               |  |
| Dynamic:                                   | Not determined.                            |
| Kinematic:                                 | Not determined.                            |
| · Solvent content:                         |  |
| Organic solvents:                          | 76.8 %                                     |
| · Other information                        | No further relevant information available. |

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

### 67-63-0 propan-2-ol

|            |          |                      |
|------------|----------|----------------------|
| Oral       | LD50     | 5045 mg/kg (rat)     |
| Dermal     | LD50     | 12800 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 30 mg/l (rat)        |

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Irritant
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

67-63-0 propan-2-ol

3

(Contd. on page 7)

CA

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 6)

· **NTP (National Toxicology Program)**

None of the ingredients is listed.


## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- |   |  |
|---|--|
| · <b>UN-Number</b>  | UN1993   |
| · <b>DOT, TDG, IMDG, IATA</b>   |  |
| · <b>UN proper shipping name</b>  | Flammable liquids, n.o.s. (Isopropanol)                    |
| · <b>DOT</b>  | 1993 Flammable liquids, n.o.s. (Isopropanol)               |
| · <b>TDG</b>  | FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| · <b>IMDG, IATA</b>   |  |
| · <b>Transport hazard class(es)</b>   |  |
| · <b>DOT</b>  |  |
|  |  |
| · <b>Class</b>  | 3 Flammable liquids  |
| · <b>Label</b>  | 3  |

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 7)

## · TDG, IMDG, IATA



· Class 3 Flammable liquids  
 · Label 3

· Packing group II  
 · DOT, TDG, IMDG, IATA

· Environmental hazards: Not applicable.

· Special precautions for user Warning: Flammable liquids  
 · Danger code (Kemler): 33  
 · EMS Number: F-E,S-E  
 · Stowage Category B

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

## · Transport/Additional information:

· DOT  
 · Quantity limitations On passenger aircraft/rail: 5 L  
 On cargo aircraft only: 60 L

## · TDG

· Excepted quantities (EQ) Code: E2  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 500 ml

## · IMDG

· Limited quantities (LQ) 1L  
 · Excepted quantities (EQ) Code: E2  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation": UN 1993 FLAMMABLE LIQUIDS, N.O.S. (ISOPROPANOL), 3, II

## 15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture  
 · Sara

## · Section 355 (extremely hazardous substances):

None of the ingredients is listed.

## · Section 313 (Specific toxic chemical listings):

67-63-0 propan-2-ol

71-36-3 n-Butyl Alcohol

## · TSCA (Toxic Substances Control Act):

67-63-0 propan-2-ol

7782-42-5 Graphite

71-36-3 n-Butyl Alcohol

(Contd. on page 9)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 8)

|          |                          |
|----------|--------------------------|
| 107-41-5 | 2-methylpentane-2,4-diol |
| 107-98-2 | 1-methoxy-2-propanol     |

· **Canadian substance listings:**

|  |                          |
|--|--------------------------|
| · <b>Canadian Domestic Substances List (DSL)</b> |                          |
| 67-63-0  | propan-2-ol              |
| 7782-42-5  | Graphite                 |
| 71-36-3  | n-Butyl Alcohol          |
| 107-41-5   | 2-methylpentane-2,4-diol |
| 107-98-2   | 1-methoxy-2-propanol     |

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

|          |                          |
|----------|--------------------------|
| 67-63-0  | propan-2-ol              |
| 71-36-3  | n-Butyl Alcohol          |
| 107-41-5 | 2-methylpentane-2,4-diol |
| 107-98-2 | 1-methoxy-2-propanol     |

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02    GHS07

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

propan-2-ol  
n-Butyl Alcohol  
1-methoxy-2-propanol

· **Hazard statements**

Highly flammable liquid and vapour.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Use explosion-proof [electrical/ventilating/lighting] equipment.  
Avoid breathing dust/fume/gas/mist/vapours/spray.  
Wear protective gloves/protective clothing/eye protection/face protection.  
Ground and bond container and receiving equipment.  
Use non-sparking tools.  
Take actions to prevent static discharges.  
Wash thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
**IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Specific treatment (see on this label).  
**IF INHALED:** Remove person to fresh air and keep comfortable for breathing.

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/04/2016

Reviewed on 08/04/2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 9)

*Call a POISON CENTER/doctor if you feel unwell.*

*If eye irritation persists: Get medical advice/attention.*

*In case of fire: Use for extinction: CO2, powder or water spray.*

*Take off contaminated clothing and wash it before reuse.*

*Store locked up.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Date of preparation / last revision** 08/04/2016 / -

· **Abbreviations and acronyms:**

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*WHMIS: Workplace Hazardous Materials Information System (Canada)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

CA

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

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

- **1.1 Product identifier**
- **Trade name:** Graphite Conductive Adhesive 154
- **Article number:** 12691-30, 12691-30-sp, 12691
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2 H319 Causes serious eye irritation.  
STOT SE 3 H336 May cause drowsiness or dizziness.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS02 GHS07

- **Signal word** *Danger*
- **Hazard-determining components of labelling:**  
*propan-2-ol*
- **Hazard statements**  
*H225 Highly flammable liquid and vapour.*  
*H315 Causes skin irritation.*

(Contd. on page 2)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: **Graphite Conductive Adhesive 154**

(Contd. of page 1)

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

- **Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

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

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**

- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | propan-2-ol<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336   | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | Graphite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                            | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | n-Butyl Alcohol<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2.5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-methylpentane-2,4-diol<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319  | 2.5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-methoxy-2-propanol<br>Flam. Liq. 3, H226; STOT SE 3, H336  | 2.5-10% |

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

- **4.1 Description of first aid measures**

- **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Generally the product does not irritate the skin.

- **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:** If symptoms persist consult doctor.

- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

**Trade name: Graphite Conductive Adhesive 154**

(Contd. of page 2)

- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### **SECTION 5: Firefighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### **SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### **SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.  
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

### **SECTION 8: Exposure controls/personal protection**

- **Additional information about design of technical facilities:** No further data; see item 7.

(Contd. on page 4)



**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 3)

## · 8.1 Control parameters

· **Ingredients with limit values that require monitoring at the workplace:****67-63-0 propan-2-ol**

WEL Short-term value: 1250 mg/m<sup>3</sup>, 500 ppm  
Long-term value: 999 mg/m<sup>3</sup>, 400 ppm

**71-36-3 n-Butyl Alcohol**

WEL Short-term value: 154 mg/m<sup>3</sup>, 50 ppm  
Sk

**107-41-5 2-methylpentane-2,4-diol**

WEL Short-term value: 123 mg/m<sup>3</sup>, 25 ppm  
Long-term value: 123 mg/m<sup>3</sup>, 25 ppm

**107-98-2 1-methoxy-2-propanol**

WEL Short-term value: 560 mg/m<sup>3</sup>, 150 ppm  
Long-term value: 375 mg/m<sup>3</sup>, 100 ppm  
Sk

· **Additional information:** The lists valid during the making were used as basis.

## · 8.2 Exposure controls

· **Personal protective equipment:**· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

GB

(Contd. on page 5)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 4)

### SECTION 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

##### · General Information

##### · Appearance:

|                    |                 |
|--------------------|-----------------|
| Form:              | Liquid          |
| Colour:            | Black           |
| · Odour:           | Alcohol-like    |
| · Odour threshold: | Not determined. |

· pH-value: Not determined.

##### · Change in condition

|                              |               |
|------------------------------|---------------|
| Melting point/Melting range: | Undetermined. |
| Boiling point/Boiling range: | Undetermined. |

· Flash point: 13 °C

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 425 °C

· Decomposition temperature: Not determined.

· Self-igniting: Product is not selfigniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

##### · Explosion limits:

|        |            |
|--------|------------|
| Lower: | 2.0 Vol %  |
| Upper: | 12.0 Vol % |

· Vapour pressure at 20 °C: 43 hPa

· Density: Not determined.

· Relative density: Not determined.

· Vapour density: Not determined.

· Evaporation rate: Not determined.

##### · Solubility in / Miscibility with water:

Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not determined.

##### · Viscosity:

|            |                 |
|------------|-----------------|
| Dynamic:   | Not determined. |
| Kinematic: | Not determined. |

##### · Solvent content:

|                   |         |
|-------------------|---------|
| Organic solvents: | 76.8 %  |
| VOC (EC)          | 76.79 % |

· 9.2 Other information: No further relevant information available.

### SECTION 10: Stability and reactivity

· 10.1 Reactivity: No further relevant information available.

· 10.2 Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· 10.3 Possibility of hazardous reactions: No dangerous reactions known.

(Contd. on page 6)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: **Graphite Conductive Adhesive 154**

(Contd. of page 5)

- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

#### · **LD/LC50 values relevant for classification:**

##### **67-63-0 propan-2-ol**

|            |          |                      |
|------------|----------|----------------------|
| Oral       | LD50     | 5045 mg/kg (rat)     |
| Dermal     | LD50     | 12800 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 30 mg/l (rat)        |

- **Primary irritant effect:**
- **Skin corrosion/irritation**  
Causes skin irritation.
- **Serious eye damage/irritation**  
Causes serious eye irritation.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**  
May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 7)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016


Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 6)

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

|   |   |
|---|---|
| · <b>14.1 UN-Number</b><br>· <b>ADR, IMDG, IATA</b>   | UN1993  |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR</b><br><br>· <b>IMDG, IATA</b>  | 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, IMDG, IATA</b>  |   |
|    |   |
| · <b>Class</b><br>· <b>Label</b>  | 3 Flammable liquids.<br>3   |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>   | II  |
| · <b>14.5 Environmental hazards:</b>  | Not applicable.   |
| · <b>14.6 Special precautions for user</b><br>· <b>Danger code (Kemler):</b><br>· <b>EMS Number:</b><br>· <b>Stowage Category</b> | Warning: Flammable liquids.<br>33<br>F-E, S-E<br>B  |
| · <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>  | Not applicable.   |
| · <b>Transport/Additional information:</b>  |   |
| · <b>ADR</b><br>· <b>Limited quantities (LQ)</b><br>· <b>Excepted quantities (EQ)</b>   | 1L<br>Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml         |
| · <b>Transport category</b><br>· <b>Tunnel restriction code</b>   | 2<br>D/E  |
| · <b>IMDG</b><br>· <b>Limited quantities (LQ)</b><br>· <b>Excepted quantities (EQ)</b>  | 1L<br>Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml         |

(Contd. on page 8)

GB

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 04.08.2016

Revision: 04.08.2016

Trade name: Graphite Conductive Adhesive 154

(Contd. of page 7)

|                          |   |
|--------------------------|---|
| · UN "Model Regulation": | UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II |
|--------------------------|---|

### SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Directive 2012/18/EU
- Named dangerous substances - ANNEX I None of the ingredients is listed.
- Seveso category P5c FLAMMABLE LIQUIDS
- Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

# Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

## RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

### · 1.1 Productidentificatie

· **Handelsnaam:** *Graphite Conductive Adhesive 154*

· **Artikelnummer:** 12691-30, 12691-30-sp, 12691

### · 1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

*Geen verdere relevante informatie verkrijgbaar.*

· **Toepassing van de stof / van de bereiding** *Laboratoriumchemicaliën*

### · 1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad

#### · **Fabrikant/leverancier:**

*Electron Microscopy Sciences*

*1560 Industry Road*

*USA-Hatfield, PA 19440*

*Tel: 215-412-8400 Fax: 215-412-8450*

*email: sgkcck@aol.com*

*www.emsdiasum.com*

*Aurion*

*Binnenhaven 5*

*6709 PD Wageningen*

*The Netherlands*

*Tel: 31 317 415094*

*Fax: 31 317 415955*

*email: info@aurion.nl*

· **Inlichtinggevendende sector:** *Product safety department*

### · 1.4 Telefoonnummer voor noodgevallen:

*ChemTrec 1-800-424-9300 Contract CCN7661*

*1-703-527-3887*

## RUBRIEK 2: Identificatie van de gevaren

### · 2.1 Indeling van de stof of het mengsel

· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS02 vlam

*Flam. Liq. 2 H225 Licht ontvlambare vloeistof en damp.*



GHS07

*Skin Irrit. 2 H315 Veroorzaakt huidirritatie.*

*Eye Irrit. 2 H319 Veroorzaakt ernstige oogirritatie.*

*STOT SE 3 H336 Kan slaperigheid of duizeligheid veroorzaken.*

### · 2.2 Etiketteringselementen

· **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**

*Het product is geïdentificeerd en geëtiketteerd volgens de CLP-verordening.*

(Vervolg op blz. 2)

# Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

**Handelsnaam: Graphite Conductive Adhesive 154**

(Vervolg van blz. 1)

· **Gevarenpictogrammen**

GHS02 GHS07

· **Signaalwoord** Gevaar· **Gevaaraanduidende componenten voor de etikettering:**

2-propanol

· **Gevarenaanduidingen**

H225 Licht ontvlambare vloeistof en damp.

H315 Veroorzaakt huidirritatie.

H319 Veroorzaakt ernstige oogirritatie.

H336 Kan slaperigheid of duizeligheid veroorzaken.

· **Veiligheidsaanbevelingen**

P210 Verwijderd houden van warmte, hete oppervlakken, vonken, open vuur en andere ontstekingsbronnen. Niet roken.

P261 Inademing van stof/rook/gas/nevel/damp/spuitnevel vermijden.

P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen/afdouchen.

P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.

P405 Achter slot bewaren.

P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.

· **2.3 Andere gevaren**· **Resultaten van PBT- en zPzB-beoordeling**· **PBT:** Niet bruikbaar.· **zPzB:** Niet bruikbaar.

## RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· **3.2 Chemische karakterisering: Mengsels**· **Beschrijving:** Mengsel van na elkaar aangevoerde stoffen met ongevaarlijke bijmengingen.· **Gevaarlijke inhoudstoffen:**

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | 2-propanol<br>⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336  | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | grafiet<br>⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                             | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butaan-1-ol<br>⚠ Flam. Liq. 3, H226; ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-methyl-2,4-pentaandiol<br>⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319  | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-methoxy-2-propanol<br>⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336  | 2,5-10% |

(Vervolg op blz. 3)



# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

**Handelsnaam: Graphite Conductive Adhesive 154**

(Vervolg van blz. 2)

**· Aanvullende gegevens:**

*De woordelijke inhoud van de opgegeven aanwijzingen inzake de mogelijke gevaren is te vinden in hoofdstuk 16.*

### RUBRIEK 4: Eerstehulpmaatregelen

**· 4.1 Beschrijving van de eerstehulpmaatregelen**

**· Algemene informatie:**

*Het is mogelijk dat vergiftigingssymptomen pas na vele uren optreden. Om deze reden is medische controle gedurende minstens 48 uur na een ongeval noodzakelijk.*

**· Na het inademen:**

*Frisse lucht toedienen, eventueel beademing, warmte. Wanneer de klachten niet ophouden, een arts raadplegen. Bij bewusteloosheid ligging en vervoer in stabiele zijligging.*

**· Na huidcontact:** Over het algemeen is het produkt niet prikkelend voor de huid

**· Na oogcontact:**

*De ogen gedurende verscheidene minuten onder stromend water afspoelen terwijl de oogspleet geopend blijft. Bij aanhoudende klachten een dokter raadplegen.*

**· Na inslikken:** Als de klachten niet minderen, een arts raadplegen

**· 4.2 Belangrijkste acute en uitgestelde symptomen en effecten** Geen verdere relevante informatie verkrijgbaar.

**· 4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**

*Geen verdere relevante informatie verkrijgbaar.*

### RUBRIEK 5: Brandbestrijdingsmaatregelen

**· 5.1 Blusmiddelen**

**· Geschikte blusmiddelen:** CO<sub>2</sub>, zand, bluspoeder. Geen water gebruiken.

**· Blusmiddelen die uit veiligheidsoogpunt niet geschikt zijn:** Krachtige waterstraal

**· 5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**

*Geen verdere relevante informatie verkrijgbaar.*

**· 5.3 Advies voor brandweelieden**

**· Speciale beschermende kleding:** Ademhalingstoestel aantrekken.

### RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

**· 6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures**

*Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.*

**· 6.2 Milieuvorzorgsmaatregelen:** Doordringen tot in afvalwater, riolering, putten of kelders verhinderen.

**· 6.3 Insluitings- en reinigingsmethoden en -materiaal:**

*Met vloeistofbindend materiaal (zand, bergmeel, zuurbinder, universele binder, zaagmeel) opnemen.*

*Besmet materiaal zoals afval volgens punt 13 verwijderen.*

*Voor voldoende ventilatie zorgen.*

*Niet met water of waterachtige reinigingsmiddelen wegspoelen.*

**· 6.4 Verwijzing naar andere rubrieken**

*Informatie inzake veilig gebruik - zie hoofdstuk 7.*

*Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.*

*Informatie inzake berging - zie hoofdstuk 13.*

### RUBRIEK 7: Hantering en opslag

**· 7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**

*Voor goede ventilatie/afzuiging op de werkplaatsen zorgen.*

*Aërosolvorming vermijden.*

(Vervolg op blz. 4)



# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

**Handelsnaam: Graphite Conductive Adhesive 154**

(Vervolg van blz. 3)

- **Informatie m.b.t. brand- en ontploffingsgevaar:**  
*Onststekingsbronnen op afstand houden - niet roken.  
 Beschermen tegen hitte.  
 Maatregelen treffen tegen ontlading van statische elektriciteit.*
- **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
- **Opslag:**
- **Eisen ten opzichte van opslagruimte en tanks:** *Op een koele plaats bewaren.*
- **Informatie m.b.t. gezamenlijke opslag:** *Niet noodzakelijk.*
- **Verdere inlichtingen over eisen m.b.t. de opslag:**  
*Tanks ondoordringbaar gesloten houden.  
 Koel en droog bewaren in goed gesloten vaten.  
 Tegen hitte en directe zonnestrallen beschermen.*
- **7.3 Specifiek eindgebruik** *Geen verdere relevante informatie verkrijgbaar.*

### RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** *Geen aanvullende gegevens. Zie 7.*
- **8.1 Controleparameters**

- **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**

#### 107-98-2 1-methoxy-2-propanol

|     |   |
|-----|---|
| WGW | Korte termijn waarde: 563 mg/m <sup>3</sup> , 150 ppm |
|     | Lange termijn waarde: 375 mg/m <sup>3</sup> , 100 ppm |

- **Aanvullende gegevens:** *Als basis dienden lijsten die bij opstelling geldig waren.*
- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**  
*Verwijderd houden van eet- en drinkwaren.  
 Verontreinigde kleding onmiddellijk uittrekken.  
 Vóór de pauze en aan het einde van werktijd handen wassen.  
 Aanraking met de ogen vermijden.  
 Aanraking met de ogen en de huid vermijden.*
- **Ademhalingsbescherming:**  
*Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingstoestel gebruiken.*
- **Handbescherming:**  
*Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.  
 Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.  
 Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.*
- **Handschoenmateriaal**  
*De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant. Aangezien het product uit meerdere stoffen is samengesteld, is de duurzaamheid van de handschoenmaterialen niet vooraf berekenbaar en moet derhalve vóór het gebruik worden getest.*
- **Doordringingstijd van het handschoenmateriaal**  
*De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.*

(Vervolg op blz. 5)

# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

Handelsnaam: Graphite Conductive Adhesive 154

(Vervolg van blz. 4)

## · Oogbescherming:



Nauw aansluitende veiligheidsbril

### RUBRIEK 9: Fysische en chemische eigenschappen

## · 9.1 Informatie over fysische en chemische basiseigenschappen

## · Algemene gegevens

## · Voorkomen:

|                      |               |
|----------------------|---------------|
| Vorm:                | Vloeistof     |
| Kleur:               | Zwart         |
| · Reuk:              | Alcoholachtig |
| · Geurdrempelwaarde: | Niet bepaald. |

· pH-waarde: Niet bepaald.

## · Toestandsverandering

|                          |               |
|--------------------------|---------------|
| Smeltpunt/smeltbereik:   | Niet bepaald. |
| Kookpunt/kookpuntbereik: | Niet bepaald. |

· Vlampunt: 13 °C

· Ontvlambaarheid (vast, gasvormig): Niet bruikbaar.

· Ontstekingstemperatuur: 425 °C

· Ontbindingstemperatuur: Niet bepaald.

· Zelfonsteking: Het produkt ontbrandt niet uit zichzelf.

· Ontploffingsgevaar: Het produkt is niet ontploffingsgevaarlijk, maar de vorming van ontploffingsgevaarlijke damp-/luchtmengsels is mogelijk.

## · Ontploffingsgrenzen:

|           |            |
|-----------|------------|
| Onderste: | 2,0 Vol %  |
| Bovenste: | 12,0 Vol % |

· Dampspanning bij 20 °C: 43 hPa

· Dichtheid: Niet bepaald.

· Relatieve dichtheid: Niet bepaald.

· Dampdichtheid: Niet bepaald.

· Verdampingsnelheid: Niet bepaald.

## · Oplosbaarheid in/mengbaarheid met

Water: Niet resp. gering mengbaar.

· Verdelingscoëfficiënt (n-octanol/water): Niet bepaald.

## · Viscositeit

Dynamisch: Niet bepaald.

Kinematisch: Niet bepaald.

## · Oplosmiddelgehalte:

|                        |         |
|------------------------|---------|
| Organisch oplosmiddel: | 76,8 %  |
| VOC (EG)               | 76,79 % |

(Vervolg op blz. 6)

# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

Handelsnaam: Graphite Conductive Adhesive 154

(Vervolg van blz. 5)

- **9.2 Overige informatie** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 10: Stabiliteit en reactiviteit

- **10.1 Reactiviteit** Geen verdere relevante informatie verkrijgbaar.
- **10.2 Chemische stabiliteit**
- **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
- **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.
- **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

### RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

- **Indelingsrelevantie LD/LC50-waarden:**

#### 67-63-0 2-propanol

|            |          |                      |
|------------|----------|----------------------|
| Oraal      | LD50     | 5045 mg/kg (rat)     |
| Dermaal    | LD50     | 12800 mg/kg (rabbit) |
| Inhalatief | LC50/4 h | 30 mg/l (rat)        |

- **Primaire aandoening:**
- **Huidcorrosie/-irritatie**  
Veroorzaakt huidirritatie.
- **Ernstig oogletsel/oogirritatie**  
Veroorzaakt ernstige oogirritatie.
- **Sensibilisatie van de luchtwegen/de huid**  
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
- **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Kankerverwekkendheid** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **STOT bij eenmalige blootstelling**  
Kan slaperigheid of duizeligheid veroorzaken.
- **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Gevaar bij inademing** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

### RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Verdere ecologische informatie:**
- **Algemene informatie:**  
Waterbezwaarlijkheid (NL) 10: Kan in het aquatisch milieu op lange termijn schadelijke effecten veroorzaken.  
Geen gevaar voor water bekend.

(Vervolg op blz. 7)

# Veiligheidsinformatieblad

## volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

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**Handelsnaam:** Graphite Conductive Adhesive 154


(Vervolg van blz. 6)

- **12.5 Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.
- **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

### RUBRIEK 14: Informatie met betrekking tot het vervoer

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· <b>14.1 VN-nummer</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | <p style="text-align: right;">UN1993</p>  |
| <ul style="list-style-type: none"> <li>· <b>14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul>                        | <p style="text-align: right;">1993 BRANDBARE VLOEISTOF, N.E.G.<br/>(ISOPROPYLALCOHOL (ISOPROPANOL))<br/>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL<br/>(ISOPROPYL ALCOHOL))</p>                    |
| <ul style="list-style-type: none"> <li>· <b>14.3 Transportgevarenklasse(n)</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | <div style="text-align: center;">  </div> <p style="text-align: right;">3 Brandbare vloeistoffen<br/>3</p> |
| <ul style="list-style-type: none"> <li>· <b>14.4 Verpakkingsgroep:</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | <p style="text-align: right;">II</p>  |
| <ul style="list-style-type: none"> <li>· <b>14.5 Milieugevaren:</b></li> </ul>   | <p style="text-align: right;">Niet bruikbaar.</p>   |
| <ul style="list-style-type: none"> <li>· <b>14.6 Bijzondere voorzorgen voor de gebruiker</b></li> <li>· <b>Kemler-getal:</b></li> <li>· <b>EMS-nummer:</b></li> <li>· <b>Stowage Category</b></li> </ul> | <p style="text-align: right;">Waarschuwing: Brandbare vloeistoffen<br/>33<br/>F-E,S-E<br/>B</p>   |
| <ul style="list-style-type: none"> <li>· <b>14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code</b></li> </ul>  | <p style="text-align: right;">Niet bruikbaar.</p>   |
| <ul style="list-style-type: none"> <li>· <b>Transport/verdere gegevens:</b></li> </ul>   |   |
| <ul style="list-style-type: none"> <li>· <b>ADR</b></li> <li>· <b>Beperkte hoeveelheden (LQ)</b></li> <li>· <b>Uitgezonderde hoeveelheden (EQ)</b></li> <li>· <b>Vervoerscategorie</b></li> </ul>        | <p style="text-align: right;">1L<br/>Code: E2<br/>Grootste netto hoeveelheid per binnenverpakking: 30 ml<br/>Grootste netto hoeveelheid per buitenverpakking: 500 ml<br/>2</p>                |

(Vervolg op blz. 8)

# Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

**Handelsnaam: Graphite Conductive Adhesive 154**

(Vervolg van blz. 7)

|                                   |   |
|-----------------------------------|---|
| · <b>Tunnelbeperkingscode</b>     | D/E   |
| · <b>IMDG</b>                     |   |
| · <b>Limited quantities (LQ)</b>  | 1L  |
| · <b>Excepted quantities (EQ)</b> | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · <b>VN "Model Regulation":</b>   | UN 1993 BRANDBARE VLOEISTOF, N.E.G.<br>(ISOPROPYLALCOHOL (ISOPROPANOL)), 3, II                                  |

## RUBRIEK 15: Regelgeving

· **15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel**

· **SZW-lijst van kankerverwekkende stoffen**

geen der bestanddelen staat op de lijst.

· **SZW-lijst van mutagene stoffen**

geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid**

geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling**

geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding**

geen der bestanddelen staat op de lijst.

· **Richtlijn 2012/18/EU**

· **Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** geen der bestanddelen staat op de lijst.

· **Seveso-categorie P5c ONTVLAMBARE VLOEISTOFFEN**

· **Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen 5.000 t**

· **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen 50.000 t**

· **Verordening (EG) nr. 1907/2006 BIJLAGE XVII Beperkingsvoorwaarden: 3**

· **Nationale voorschriften:**

· **Gevaarklasse v. water: Waterbezwaarlijkheid (NL) 10: Saneringsinspanning A**

· **15.2 Chemischeveiligheidsbeoordeling: Een chemische veiligheidsbeoordeling is niet uitgevoerd.**

## RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van producteigenschappen en vestigen geen contractuele rechtsbetrekking.

· **Relevante zinnen**

H225 Licht ontvlambare vloeistof en damp.

H226 Ontvlambare vloeistof en damp.

H302 Schadelijk bij inslikken.

H312 Schadelijk bij contact met de huid.

H315 Veroorzaakt huidirritatie.

H318 Veroorzaakt ernstig oogletsel.

H319 Veroorzaakt ernstige oogirritatie.

H332 Schadelijk bij inademing.

H335 Kan irritatie van de luchtwegen veroorzaken.

(Vervolg op blz. 9)

datum van de druk: 04.08.2016

Herziening van: 04.08.2016

**Handelsnaam: Graphite Conductive Adhesive 154**

(Vervolg van blz. 8)

*H336 Kan slaperigheid of duizeligheid veroorzaken.***Afkortingen en acroniemen:***ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 2: Ontvlambare vloeistoffen – Categorie 2**Flam. Liq. 3: Ontvlambare vloeistoffen – Categorie 3**Acute Tox. 4: Acute toxiciteit – Categorie 4**Skin Irrit. 2: Huidcorrosie/-irritatie – Categorie 2**Eye Dam. 1: Ernstig oogletsel/oogirritatie – Categorie 1**Eye Irrit. 2: Ernstig oogletsel/oogirritatie – Categorie 2**STOT SE 3: Specifieke doelorgaantoxiciteit bij eenmalige blootstelling – Categorie 3*

NL

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

### KOHTA 1: Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

- **1.1 Tuotetunniste**
- **Kauppanimike:** Graphite Conductive Adhesive 154
- **Artikkelinumero:** 12691-30, 12691-30-sp, 12691
- **1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella**  
Merkittäviä lisätietoja ei ole saatavilla.
- **Aineen / valmisteen käyttö** Laboratoriokemikaalit
- **1.3 Käyttöturvallisuustiedotteen toimittajan tiedot**
- **Valmistaja/toimittaja:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Tietoja antaa:** Product safety department
- **1.4 Häätöpuhelinnumero:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### KOHTA 2: Vaaran yksilöinti

- **2.1 Aineen tai seoksen luokitus**
- **Luokitus asetuksen (EY) N:o 1272/2008 mukaisesti**



GHS02 liekki

Flam. Liq. 2 H225 Helposti syttyvä neste ja höyry.



GHS07

Skin Irrit. 2 H315 Ärsyttää ihoa.

Eye Irrit. 2 H319 Ärsyttää voimakkaasti silmiä.

STOT SE 3 H336 Saattaa aiheuttaa uneliaisuutta ja huimausta.

- **2.2 Merkinnät**
- **Merkinnät asetuksen (EY) N:o 1272/2008 mukaisesti** Tuote on luokiteltu ja merkitty CLP-asetuksen mukaan.
- **Varoitusmerkit**



GHS02



GHS07

- **Huomiosana** Vaara
- **Vaaran määrävät komponentit etiketeissä:**  
propan-2-oli
- **Vaaralausekkeet**  
H225 Helposti syttyvä neste ja höyry.  
H315 Ärsyttää ihoa.  
H319 Ärsyttää voimakkaasti silmiä.

(jatkuu sivulla 2)



# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

### Kauppanimike: Graphite Conductive Adhesive 154

(jatkuu sivulla 1)

H336 Saattaa aiheuttaa uneliaisuutta ja huimausta.

· **Turvausekkeet**

P210 Suojaa lämmöltä, kuumilta pinnoilta, kipinöiltä, avotulelta ja muilta sytytyslähteiltä. Tupakointi kielletty.

P261 Vältä pölyn/savun/kaasun/sumun/höyryn/suihkeen hengittämistä.

P303+P361+P353 JOS KEMIKAALIA JOUTUU IHOLLE (tai hiuksiin): Riisu saastunut vaatetus välittömästi. Huuhdo/suihkuta iho vedellä.

P305+P351+P338 JOS KEMIKAALIA JOUTUU SILMIIN: Huuhdo huolellisesti vedellä usean minuutin ajan. Poista piilolinssit, jos sen voi tehdä helposti. Jatka huuhtomista.

P405 Varastoi lukitussa tilassa.

P501 Säilytä säiliö(t) noudattaen paikallisia/alueellisia/kansallisia/kansainvälisiä määräyksiä.

· **2.3 Muut vaarat**

· **PBT- ja vPvB-arvioinnin tulokset**

· **PBT:** Ei voida käyttää.

· **vPvB:** Ei voida käyttää.

### KOHTA 3: Koostumus ja tiedot aineosista

· **3.2 Kemialliset ominaisuudet: Seokset**

· **Selostus:** Seuraavista aineista koostuva seos, jossa vaarattomia lisäaineita.

· **Sisältää vaarallisia aineita:**

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | propan-2-oli<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336  | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | Graphite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                        | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butan-1-oli<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-Metyyli-2,4-pentaanidioli<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-Metoksi-2-propanoli<br>Flam. Liq. 3, H226; STOT SE 3, H336   | 2,5-10% |

· **Lisätietoja:** Annettujen turvaohjeiden sanamuoto kappaleesta 16.

### KOHTA 4: Ensiaputoimenpiteet

· **4.1 Ensiaputoimenpiteiden kuvaus**

· **Yleisohjeet:**

Myrkytysoireet voivat ilmaantua vasta useiden tuntien kuluttua. Tästä syystä henkilöt on pidettävä lääkärin tarkkailun alaisena ainakin 48 tuntia onnettomuuden jälkeen.

· **Hengitettynä:**

Huolehdyttävä raittiin ilman saannista, tarvittaessa annettava tekohengitystä, pidettävä lämpimänä. Oireiden jatkuessa pyydyttävä lääkärin apua.

Tajuton pidettävä ja kuljetettava kyljellään.

· **Ihokosketuksessa:** Aine ei yleensä ärsytä ihoa.

· **Aineen päästyä silmiin:**

Silmiä huuhdotaan luomet auki juoksevan veden alla useita minuutteja. Oireiden kestäessä käännytään lääkärin puoleen.

· **Nieltyä:** Käännyttävä lääkärin puoleen oireiden jatkuessa.

· **4.2 Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet Merkittäviä lisätietoja ei ole saatavilla.**

(jatkuu sivulla 3)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

**Kauppanimike: Graphite Conductive Adhesive 154**

(jatkuu sivulla 2)

- **4.3 Mahdollisesti tarvittavaa välitöntä lääketieteellistä apua ja erityishoitoa koskevat ohjeet**  
Merkittäviä lisätietoja ei ole saatavilla.

### KOHTA 5: Palontorjuntatoimenpiteet

- **5.1 Sammutusaineet**
- **Sopivat sammutusaineet:** CO<sub>2</sub>, hiekka, kuivakemikaalisammutin. Vettä ei saa käyttää.
- **Turvallisuussyistä sopimattomat sammutusaineet:** Täysi vesisuihku
- **5.2 Aineesta tai seoksesta johtuvat erityiset vaarat** Merkittäviä lisätietoja ei ole saatavilla.
- **5.3 Palontorjuntaa koskevat ohjeet**
- **Erityinen suojavarustus:** Käytettävä hengityssuojainta.

### KOHTA 6: Toimenpiteet onnettomuuspäästöissä

- **6.1 Varotoimenpiteet, henkilösuojaimet ja menettely hätätilanteessa**  
Käytettävä suojavarustusta. Suojautumattomat henkilöt pidettävä loitolla.
- **6.2 Ympäristöön kohdistuvat varotoimet:** Estettävä pääsy viemäreihin, kellareihin ja ojiin.
- **6.3 Suojarakenteita ja puhdistusta koskevat menetelmät ja -välineet:**  
Imettävä nestettä sitovalla aineella (hiekkä, piimaa, hapon sidosaaine, yleisidosaine, sahajauho).  
Saastunut aine on jätteenä hävitettävä kohdan 13 mukaisesti.  
Huolehdittava riittävästä tuuletuksesta.  
Ei saa huuhtoa pois vedellä tai vetisillä puhdistusaineilla.
- **6.4 Viittaukset muihin kohtiin**  
Turvallista käsittelyä koskevia ohjeita kappaleessa 7.  
Henkilökohtaista suojavarustusta koskevia ohjeita kappaleessa 8.  
Aineen hävitystä koskevia ohjeita kappaleessa 13.

### KOHTA 7: Käsittely ja varastointi

- **7.1 Turvallisen käsittelyn edellyttämät toimenpiteet**  
Huolehdittava hyvästä tuuletuksesta/imusta työpaikalla.  
Vältettävä aerosolin muodostusta.
- **Palo- ja räjähdysuojaohjeet:**  
Eristettävä sytytyslähteistä - tupakanpolto kielletty.  
Suoritettava toimenpiteet sähköstaattista latausta vastaan.  
Vältettävä iskuja ja hankautumista.
- **7.2 Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuina yhteensopimattomuudet**
- **Varastointi:**
- **Varastotiloille ja säiliöille asetettavat vaatimukset:** Säilytettävä viileässä paikassa.
- **Yhteisvarastointiohjeet:** Ei tarvita.
- **Lisätietoja varastointiehtoihin:**  
Astiat on pidettävä tiiviisti suljettuina.  
Varastoitava hyvin suljetuissa astioissa viileässä ja kuivassa paikassa.  
Suojattava kuumuudelta ja välittömältä auringonpaisteelta.
- **7.3 Erityinen loppukäyttö** Merkittäviä lisätietoja ei ole saatavilla.

### KOHTA 8: Altistumisen ehkäiseminen ja henkilösuojaimet

- **Lisäohjeita teknisten laitteiden varustukseen:** Ei muita tietoja, ks. kohta 7.

(jatkuu sivulla 4)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

**Kauppanimike: Graphite Conductive Adhesive 154**

(jatkuu sivulla 3)

### · 8.1 Valvontaa koskevat muuttujat

#### · Aineosat työpaikkakohtaisin valvottavin raja-arvoin:

##### 67-63-0 propan-2-oli

HTP Lyhytaikaisarvo: 620 mg/m<sup>3</sup>, 250 ppm  
Pitkäaikaisarvo: 500 mg/m<sup>3</sup>, 200 ppm

##### 71-36-3 butan-1-oli

HTP Lyhytaikaisarvo: 230 mg/m<sup>3</sup>, 75 ppm  
Pitkäaikaisarvo: 150 mg/m<sup>3</sup>, 50 ppm  
iho

##### 107-41-5 2-Metyyli-2,4-pentaanidioli

HTP Lyhytaikaisarvo: 200 mg/m<sup>3</sup>, 40 ppm  
Pitkäaikaisarvo: 120 mg/m<sup>3</sup>, 25 ppm

##### 107-98-2 1-Metoksi-2-propanoli

HTP Lyhytaikaisarvo: 560 mg/m<sup>3</sup>, 150 ppm  
Pitkäaikaisarvo: 370 mg/m<sup>3</sup>, 100 ppm  
iho

· **Lisäohjeet:** Tiedot perustuvat valmistushetkellä voimassaoleviin luetteloihin.

### · 8.2 Altistumisen ehkäiseminen

#### · Henkilökohtainen suojavarustus:

##### · Yleiset suoja- ja hygieniaohjeet:

Pidettävä loitolla elintarvikkeista, juomista ja rehuista.

Likaantuneet, aineen saastuttamat vaatekappaleet on riisuttava välittömästi.

Kädet on pestävä ennen taukoja ja työn päätyttyä.

Vältettävä kosketusta silmiin.

Vältettävä ihokosketusta ja kosketusta silmiin.

##### · Hengityssuoja:

Lyhytaikaisessa tai vähäisessä altistuksessa hengityssuojasuodin; intensiivisessä tai pitempiaikaisessa rasituksessa ulkoilmasta riippumaton hengityssuojain.

##### · Käsisuojus:

Käsin materiaalin tulee olla tuotetta/ainetta/valmistetta kestävä ja läpäisemätöntä.

Puuttuvien testien vuoksi suositusta soveltuvasta suojakäsinmateriaalista tuotteelle/ valmisteelle / kemikaalisekoitteelle ei voida antaa.

Suojakäsinmateriaalin valinnassa on otettava huomioon läpäisyajat, läpäisevyyskerroin ja kuluminen.

##### · Käsinmateriaali

Soveltuvan käsinetyypin valikoima ei riipu yksinomaan materiaalista vaan myös muista laatuominaisuuksista ja vaihtelee eri valmistajilla. Koska tuote on valmiste, joka koostuu eri aineista, ei suojakäsinmateriaalin kestävyys ole ennalta arvioitavissa vaan pitää tarkistaa ennen käyttöä.

##### · Käsinmateriaalin läpäisy aika

Tarkka läpäisy aika on selvítettävä suojakäsinvalmistajalta ja sitä on noudatettava.

##### · Silmäsuojus:



Tiiviit suojalasit

FI

(jatkuu sivulla 5)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

Kauppanimike: Graphite Conductive Adhesive 154

(jatkuu sivulla 4)

### KOHTA 9: Fysikaaliset ja kemialliset ominaisuudet

|  |  |
|--|--|
| · 9.1 Fysikaalisia ja kemiallisia perusominaisuuksia koskevat tiedot |  |
| · Yleiset ohjeet   |  |
| · Olomuoto:  |  |
| Muoto:   | Neste  |
| Väri:  | Musta  |
| · Haju:  | Alkoholimainen   |
| · Hajukynnys:  | Ei määrätty.   |
| · pH-arvo:   | Ei määrätty.   |
| · Tilanmuutos  |  |
| Sulamispiste/sulamisalue:  | Ei määrätty.   |
| Kiehumispiste/kiehumisalue:  | Ei määrätty.   |
| · Leimahduspiste:  | 13 °C  |
| · Syttyvyys (kiinteä, kaasumainen):                                  | Ei voida käyttää.  |
| · Syttymislämpötila:   | 425 °C   |
| · Hajoamislämpötila:   | Ei määrätty.   |
| · Itsesytyvyys:  | Tuote ei ole itsestään syttyvä.  |
| · Räjähdyksvaara:  | Tuote ei ole räjähdysvaarallinen, kuitenkin räjähdysvaarallisten höyry-/ilmaseosten muodostuminen mahdollista. |
| · Räjähdyksrajat:  |  |
| Alempi:  | 2,0 Vol %  |
| Ylempi:  | 12,0 Vol %   |
| · Höyrypaine 20 °C lämpötilassa:                                     | 43 hPa   |
| · Tiheys:  | Ei määrätty.   |
| · Suhteellinen tiheys  | Ei määrätty.   |
| · Höyryn tiheys  | Ei määrätty.   |
| · Höyrystymisnopeus  | Ei määrätty.   |
| · Liukenevuus/sekoittuvuus veteen:                                   | Ei sekoittuva tai vain osittain sekoittuva.  |
| · Jakaantumiskerroin (-oktanoli/vesi):                               | Ei määrätty.   |
| · Viskositeetti:   |  |
| Dynaaminen:  | Ei määrätty.   |
| Kinemaattinen:   | Ei määrätty.   |
| · Liuotainepitoisuus:  |  |
| Orgaaniset liuotaineet:  | 76,8 %   |
| VOC (EY)   | 76,79 %  |
| · 9.2 Muut tiedot  | Merkittäviä lisätietoja ei ole saatavilla.   |

### KOHTA 10: Stabiilisuus ja reaktiivisuus

- 10.1 Reaktiivisuus Merkittäviä lisätietoja ei ole saatavilla.
- 10.2 Kemiallinen stabiilisuus
- Terminen hajoavuus / vältettävät olosuhteet: Ei hajaantumista määräysten mukaisessa käytössä.
- 10.3 Vaarallisten reaktioiden mahdollisuus Ei tiedossa vaarallisia reaktioita.

(jatkuu sivulla 6)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

**Kauppanimike: Graphite Conductive Adhesive 154**

(jatkuu sivulla 5)

- **10.4 Vältettävät olosuhteet** Merkittäviä lisätietoja ei ole saatavilla.
- **10.5 Yhteensopimattomat materiaalit:** Merkittäviä lisätietoja ei ole saatavilla.
- **10.6 Vaaralliset hajoamistuotteet:** Tiedossa ei ole vaarallisia hajoamistuotteita.

### KOHTA 11: Myrkyllisyyteen liittyvät tiedot

- **11.1 Tiedot myrkyllisistä vaikutuksista**
- **Välitön myrkyllisyys** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.

- **Luokittelurelevantti LD/LC50-arvot:**

#### 67-63-0 propan-2-oli

|             |          |                      |
|-------------|----------|----------------------|
| Oraali      | LD50     | 5045 mg/kg (rat)     |
| Dermaali    | LD50     | 12800 mg/kg (rabbit) |
| Inhaloituna | LC50/4 h | 30 mg/l (rat)        |

- **Ensisijainen ärsyttävä vaikutus:**
- **Ihosityövyttävyyksihoärsytys**  
Ärsyttää ihoa.
- **Vakava silmävaurio/silmä-ärsytys**  
Ärsyttää voimakkaasti silmiä.
- **Hengitysteiden tai ihon herkistyminen** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **CMR-vaikutukset eli syöpää aiheuttavat, perimää vaurioittavat ja lisääntymiselle vaaralliset vaikutukset**
- **Sukusolujen perimää vaurioittavat vaikutukset**  
Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Syöpää aiheuttavat vaikutukset** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Lisääntymiselle vaaralliset vaikutukset** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Elinkohtainen myrkyllisyys – kerta-altistuminen**  
Saattaa aiheuttaa uneliaisuutta ja huimausta.
- **Elinkohtainen myrkyllisyys – toistuva altistuminen**  
Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.
- **Aspiraatiovaara** Saatavilla olevien tietojen perusteella luokitus- kriteerit eivät täyty.

### KOHTA 12: Tiedot vaarallisuudesta ympäristölle

- **12.1 Myrkyllisyys**
- **Vesimyrkyllisyys:** Merkittäviä lisätietoja ei ole saatavilla.
- **12.2 Pysyvyys ja hajoavuus** Merkittäviä lisätietoja ei ole saatavilla.
- **12.3 Biokertyvyys** Merkittäviä lisätietoja ei ole saatavilla.
- **12.4 Liikkuvuus maaperässä** Merkittäviä lisätietoja ei ole saatavilla.
- **Ekologisia lisätietoja:**
- **Yleisohjeita:** tiedossa ei ole vesistövaarallisuutta.
- **12.5 PBT- ja vPvB-arvioinnin tulokset**
- **PBT:** Ei voida käyttää.
- **vPvB:** Ei voida käyttää.
- **12.6 Muut haitalliset vaikutukset** Merkittäviä lisätietoja ei ole saatavilla.

### KOHTA 13: Jätteiden käsittelyyn liittyvät näkökohdat

- **13.1 Jätteiden käsittelymenetelmät**
- **Suositus:** Ei voida hävittää yhdessä talousjätteiden kanssa. Ei saa päästää viemäristöön.

(jatkuu sivulla 7)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016


Tarkistus: 04.08.2016

**Kauppanimike: Graphite Conductive Adhesive 154**

(jatkuu sivulla 6)

- Puhdistamattomat pakkaukset:
- Suositus: Hävitettävä virallisten määräysten mukaisesti.

### KOHTA 14: Kuljetustiedot

|  |   |
|--|---|
| · 14.1 YK-numero   |   |
| · ADR, IMDG, IATA  | UN1993  |
| · 14.2 Kuljetuksessa käytettävä virallinen nimi  |   |
| · ADR  | 1993 PALAVA NESTE, N.O.S. (ISOPROPANOLI (ISOPROPYYLIALKOHOLI))  |
| · IMDG, IATA   | FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))  |
| · 14.3 Kuljetuksen vaaraluokka   |   |
| · ADR, IMDG, IATA  |   |
|  |                                |
| · luokka   | 3 Palavat nesteet   |
| · Lipuke   | 3   |
| · 14.4 Pakkausryhmä  |   |
| · ADR, IMDG, IATA  | II  |
| · 14.5 Ympäristövaarat:  | Ei voida käyttää.   |
| · 14.6 Erityiset varotoimet käyttäjälle  | Varoitus: Palavat nesteet   |
| · Kemler-luku:   | 33  |
| · EMS-numero:  | F-E,S-E   |
| · Stowage Category   | B   |
| · 14.7 Kuljetus irtolastina Marpol-sopimuksen II liitteen ja IBC-säännösten mukaisesti | Ei voida käyttää.   |
| · Kuljetus/lisätietoja:  |   |
| · ADR  |   |
| · Rajoitetut määrät (LQ)   | 1L  |
| · Poikkeusmäärät (EQ)  | Koodi: E2<br>Enimmäisnettomäärä sisäpakkausta kohti: 30 ml<br>Enimmäisnettomäärä ulkopakkausta kohti: 500 ml    |
| · Kuljetuskategoria  | 2   |
| · Tunnelirajoituskoodi:  | D/E   |
| · IMDG   |   |
| · Limited quantities (LQ)  | 1L  |
| · Excepted quantities (EQ)   | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |

(jatkuu sivulla 8)

# Käyttöturvallisuustiedote

## 1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 04.08.2016

Tarkistus: 04.08.2016

**Kauppanimike: Graphite Conductive Adhesive 154**

(jatkuu sivulla 7)

· **UN "Model Regulation":** UN 1993 PALAVA NESTE, N.O.S. (ISOPROPANOLI (ISOPROPYYLIALKOHOLI)), 3, II

### KOHTA 15: Lainsäädäntöä koskevat tiedot

- **15.1 Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristösäännökset tai -lainsäädäntö**
- **Direktiivi 2012/18/EU**
- **Nimetyt vaaralliset aineet - LIITE I** sisältäviä aineita ei ole lueteltu
- **Seveso-luokka P5c SYTTYVÄT NESTEET**
- **Soveltamisen vähimmäismäärät (tonneina) alemman tason vaatimukset 5.000 t**
- **Soveltamisen vähimmäismäärät (tonneina) ylemmän tason vaatimukset 50.000 t**
- **NEUVOSTON ASETUS (EY) N:o 1907/2006 LIITE XVII** Rajoitusehdot: 3
- **15.2 Kemikaaliturvallisuusarviointi:** Kemikaaliturvallisuusarviointia ei ole tehty.

### KOHTA 16: Muut tiedot

Annetut tiedot perustuvat tämänhetkisiin tietoihimme. Ne eivät kuitenkaan anna takuuta tuotteen ominaisuuksista eivätkä aikaansaa sopimuksellista oikeussuhdetta.

- **Asiaankuuluvat lausekkeet**

H225 Helposti syttyvä neste ja höyry.  
 H226 Syttyvä neste ja höyry.  
 H302 Haitallista nieltynä.  
 H312 Haitallista joutuessaan iholle.  
 H315 Ärsyttää ihoa.  
 H318 Vaurioittaa vakavasti silmiä.  
 H319 Ärsyttää voimakkaasti silmiä.  
 H332 Haitallista hengitettynä.  
 H335 Saattaa aiheuttaa hengitysteiden ärsytystä.  
 H336 Saattaa aiheuttaa uneliaisuutta ja huimausta.

- **Lyhenteet ja lyhennykset:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 VOC: Volatile Organic Compounds (USA, EU)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 Flam. Liq. 2: Syttyvät nesteet – Katgoria 2  
 Flam. Liq. 3: Syttyvät nesteet – Katgoria 3  
 Acute Tox. 4: Välitön myrkyllisyys – Katgoria 4  
 Skin Irrit. 2: Ihosyövyttävyys/ihoärsytys – Katgoria 2  
 Eye Dam. 1: Vakava silmävaurio/silmä-ärsytys – Katgoria 1  
 Eye Irrit. 2: Vakava silmävaurio/silmä-ärsytys – Katgoria 2  
 STOT SE 3: Elinkohtainen myrkyllisyys (kerta-altistuminen) – Katgoria 3



# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

### RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

- **1.1 Identificateur de produit**
- **Nom du produit:** Graphite Conductive Adhesive 154
- **Code du produit:** 12691-30, 12691-30-sp, 12691
- **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**  
Pas d'autres informations importantes disponibles.
- **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires
- **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
- **Producteur/fournisseur:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Service chargé des renseignements:** Product safety department
- **1.4 Numéro d'appel d'urgence:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### RUBRIQUE 2: Identification des dangers

- **2.1 Classification de la substance ou du mélange**
- **Classification selon le règlement (CE) n° 1272/2008**



GHS02 flamme

Flam. Liq. 2 H225 Liquide et vapeurs très inflammables.



GHS07

Skin Irrit. 2 H315 Provoque une irritation cutanée.  
Eye Irrit. 2 H319 Provoque une sévère irritation des yeux.  
STOT SE 3 H336 Peut provoquer somnolence ou vertiges.

- **2.2 Éléments d'étiquetage**
- **Étiquetage selon le règlement (CE) n° 1272/2008** Le produit est classifié et étiqueté selon le règlement CLP.
- **Pictogrammes de danger**



GHS02



GHS07

- **Mention d'avertissement** Danger
- **Composants dangereux déterminants pour l'étiquetage:**  
propane-2-ol
- **Mentions de danger**  
H225 Liquide et vapeurs très inflammables.  
H315 Provoque une irritation cutanée.  
H319 Provoque une sévère irritation des yeux.

(suite page 2)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

**Nom du produit: Graphite Conductive Adhesive 154**

(suite de la page 1)

H336 Peut provoquer somnolence ou vertiges.

· **Conseils de prudence**

P210 Tenir à l'écart de la chaleur, des surfaces chaudes, des étincelles, des flammes nues et de toute autre source d'inflammation. Ne pas fumer.

P261 Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau/Se doucher.

P305+P351+P338 EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P405 Garder sous clef.

P501 Éliminer le contenu/réceptacle conformément à la réglementation locale/régionale/nationale/internationale.

· **2.3 Autres dangers**

· **Résultats des évaluations PBT et vPvB**

· **PBT:** Non applicable.

· **vPvB:** Non applicable.

### RUBRIQUE 3: Composition/informations sur les composants

· **3.2 Caractérisation chimique: Mélanges**

· **Description:** Mélange des substances mentionnées à la suite avec des additifs non dangereux.

· **Composants dangereux:**

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | propane-2-ol<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336  | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | graphite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                        | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butane-1-ol<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-méthyl-2,4-pentane-2,4-diol<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-méthoxy-2-propanol<br>Flam. Liq. 3, H226; STOT SE 3, H336  | 2,5-10% |

· **Indications complémentaires:** Pour le libellé des phrases de risque citées, se référer au chapitre 16.

### RUBRIQUE 4: Premiers secours

· **4.1 Description des premiers secours**

· **Remarques générales:**

Les symptômes d'intoxication peuvent apparaître après de nombreuses heures seulement; une surveillance médicale est donc nécessaire au moins 48 heures après un accident.

· **Après inhalation:**

Donner de l'air frais. Assistance respiratoire si nécessaire. Tenir le malade au chaud. Si les troubles persistent, consulter un médecin.

En cas d'inconscience, coucher et transporter la personne en position latérale stable.

· **Après contact avec la peau:** En règle générale, le produit n'irrite pas la peau.

· **Après contact avec les yeux:**

Rincer les yeux, pendant plusieurs minutes, sous l'eau courante en écartant bien les paupières. Si les troubles persistent, consulter un médecin.

(suite page 3)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

**Nom du produit: Graphite Conductive Adhesive 154**

(suite de la page 2)

- **Après ingestion:** Si les troubles persistent, consulter un médecin.
- **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.
- **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**  
Pas d'autres informations importantes disponibles.

### RUBRIQUE 5: Mesures de lutte contre l'incendie

- **5.1 Moyens d'extinction**
- **Moyens d'extinction:** CO2, sable, poudre d'extinction. Ne pas utiliser d'eau.
- **Produits extincteurs déconseillés pour des raisons de sécurité:** Jet d'eau à grand débit
- **5.2 Dangers particuliers résultant de la substance ou du mélange**  
Pas d'autres informations importantes disponibles.
- **5.3 Conseils aux pompiers**
- **Équipement spécial de sécurité:** Porter un appareil de protection respiratoire.

### RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence**  
Porter un équipement de sécurité. Eloigner les personnes non protégées.
- **6.2 Précautions pour la protection de l'environnement:** Éviter de rejeter à l'égout, les fosses et les caves.
- **6.3 Méthodes et matériel de confinement et de nettoyage:**  
Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant d'acide, liant universel, sciure).  
Évacuer les matériaux contaminés en tant que déchets conformément au point 13.  
Assurer une aération suffisante.  
Ne pas rincer à l'eau ou aux produits nettoyants aqueux.
- **6.4 Référence à d'autres rubriques**  
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.  
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.  
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

### RUBRIQUE 7: Manipulation et stockage

- **7.1 Précautions à prendre pour une manipulation sans danger**  
Veiller à une bonne ventilation/aspiration du poste de travail.  
Éviter la formation d'aérosols.
- **Préventions des incendies et des explosions:**  
Tenir à l'abri des sources d'inflammation - ne pas fumer.  
Tenir à l'abri de la chaleur.  
Prendre des mesures contre les charges électrostatiques.
- **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
- **Stockage:**
- **Exigences concernant les lieux et conteneurs de stockage:** Stocker dans un endroit frais.
- **Indications concernant le stockage commun:** Pas nécessaire.
- **Autres indications sur les conditions de stockage:**  
Tenir les emballages hermétiquement fermés.  
Stocker au frais et au sec dans des fûts bien fermés.  
Protéger de la forte chaleur et du rayonnement direct du soleil.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

FR

(suite page 4)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

Nom du produit: Graphite Conductive Adhesive 154

(suite de la page 3)

### RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

· **Indications complémentaires pour l'agencement des installations techniques:**

Sans autre indication, voir point 7.

· **8.1 Paramètres de contrôle**

· **Composants présentant des valeurs-seuil à surveiller par poste de travail:**

**67-63-0 propane-2-ol**

VME Valeur momentanée: 980 mg/m<sup>3</sup>, 400 ppm

**71-36-3 butane-1-ol**

VME Valeur momentanée: 150 mg/m<sup>3</sup>, 50 ppm

**107-41-5 2-méthyl-2,4-pentane-2,4-diol**

VME Valeur momentanée: 125 mg/m<sup>3</sup>, 25 ppm

**107-98-2 1-méthoxy-2-propanol**

VME Valeur momentanée: 375 mg/m<sup>3</sup>, 100 ppm  
Valeur à long terme: 188 mg/m<sup>3</sup>, 50 ppm  
risque de pénétration percutanée

· **Remarques supplémentaires:**

Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

· **8.2 Contrôles de l'exposition**

· **Equipement de protection individuel:**

· **Mesures générales de protection et d'hygiène:**

Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.

Retirer immédiatement les vêtements souillés ou humectés.

Se laver les mains avant les pauses et en fin de travail.

Eviter tout contact avec les yeux.

Eviter tout contact avec les yeux et avec la peau.

· **Protection respiratoire:**

En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.

· **Protection des mains:**

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.

À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.

Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.

· **Matériau des gants**

Le choix de gants appropriés dépend non seulement du matériau, mais aussi d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre. Puisque le produit représente une préparation composée de plusieurs substances, la résistance des matériaux des gants ne peut pas être calculée à l'avance et doit, alors, être contrôlée avant l'utilisation.

· **Temps de pénétration du matériau des gants**

Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

· **Protection des yeux:**



Lunettes de protection hermétiques

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

Nom du produit: Graphite Conductive Adhesive 154

(suite de la page 4)

### RUBRIQUE 9: Propriétés physiques et chimiques

#### · 9.1 Informations sur les propriétés physiques et chimiques essentielles

##### · Indications générales

##### · Aspect:

**Forme:** Liquide

**Couleur:** Noir

· **Odeur:** Genre alcool

· **Seuil olfactif:** Non déterminé.

· **valeur du pH:** Non déterminé.

##### · Changement d'état

**Point de fusion:** Non déterminé.

**Point d'ébullition:** Non déterminé.

· **Point d'éclair** 13 °C

· **Inflammabilité (solide, gazeux):** Non applicable.

· **Température d'inflammation:** 425 °C

· **Température de décomposition:** Non déterminé.

· **Auto-inflammation:** Le produit ne s'enflamme pas spontanément.

· **Danger d'explosion:** Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.

##### · Limites d'explosion:

**Inférieure:** 2,0 Vol %

**Supérieure:** 12,0 Vol %

· **Pression de vapeur à 20 °C:** 43 hPa

· **Densité:** Non déterminée.

· **Densité relative** Non déterminé.

· **Densité de vapeur.** Non déterminé.

· **Vitesse d'évaporation** Non déterminé.

##### · Solubilité dans/miscibilité avec

**l'eau:** Pas ou peu miscible

· **Coefficient de partage (n-octanol/eau):** Non déterminé.

##### · Viscosité:

**Dynamique:** Non déterminé.

**Cinématique:** Non déterminé.

##### · Teneur en solvants:

**Solvants organiques:** 76,8 %

**VOC (CE)** 76,79 %

· **9.2 Autres informations** Pas d'autres informations importantes disponibles.

### RUBRIQUE 10: Stabilité et réactivité

· **10.1 Réactivité** Pas d'autres informations importantes disponibles.

· **10.2 Stabilité chimique**

· **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.

· **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.

(suite page 6)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

**Nom du produit: Graphite Conductive Adhesive 154**

(suite de la page 5)

- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

### RUBRIQUE 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

- **Valeurs LD/LC50 déterminantes pour la classification:**

#### 67-63-0 propane-2-ol

|             |          |                     |
|-------------|----------|---------------------|
| Oral        | LD50     | 5045 mg/kg (rat)    |
| Dermique    | LD50     | 12800 mg/kg (lapin) |
| Inhalatoire | LC50/4 h | 30 mg/l (rat)       |

- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée**  
Provoque une irritation cutanée.
- **Lésions oculaires graves/irritation oculaire**  
Provoque une sévère irritation des yeux.
- **Sensibilisation respiratoire ou cutanée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
- **Mutagenicité sur les cellules germinales**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Cancérogénicité** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité pour la reproduction**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition unique**  
Peut provoquer somnolence ou vertiges.
- **Toxicité spécifique pour certains organes cibles - exposition répétée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Danger par aspiration** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

### RUBRIQUE 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
- **Autres indications écologiques:**
- **Indications générales:** Aucune pollution des eaux connue.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.
- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

FR

(suite page 7)

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016


Nom du produit: Graphite Conductive Adhesive 154

(suite de la page 6)

### RUBRIQUE 13: Considérations relatives à l'élimination

- 13.1 Méthodes de traitement des déchets
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

### RUBRIQUE 14: Informations relatives au transport

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· 14.1 Numéro ONU</li> <li>· ADR, IMDG, IATA</li> </ul>   | UN1993  |
| <ul style="list-style-type: none"> <li>· 14.2 Désignation officielle de transport de l'ONU</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul>   | 1993 LIQUIDE INFLAMMABLE, N.S.A. (ISOPROPANOL (ALCOOL ISOPROPYLIQUE))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))   |
| <ul style="list-style-type: none"> <li>· 14.3 Classe(s) de danger pour le transport</li> <li>· ADR, IMDG, IATA</li> </ul>  | <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· Classe</li> <li>· Étiquette</li> </ul> |
| <ul style="list-style-type: none"> <li>· 14.4 Groupe d'emballage</li> <li>· ADR, IMDG, IATA</li> </ul>   | 3 Liquides inflammables.<br>3   |
| <ul style="list-style-type: none"> <li>· 14.5 Dangers pour l'environnement:</li> </ul>   | Non applicable.   |
| <ul style="list-style-type: none"> <li>· 14.6 Précautions particulières à prendre par l'utilisateur</li> <li>· Indice Kemler:</li> <li>· No EMS:</li> <li>· Stowage Category</li> </ul>                    | Attention: Liquides inflammables.<br>33<br>F-E,S-E<br>B   |
| <ul style="list-style-type: none"> <li>· 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC</li> </ul>  | Non applicable.   |
| <ul style="list-style-type: none"> <li>· Indications complémentaires de transport:</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>· ADR</li> <li>· Quantités limitées (LQ)</li> <li>· Quantités exceptées (EQ)</li> <li>· Catégorie de transport</li> <li>· Code de restriction en tunnels</li> </ul> | IL<br>Code: E2<br>Quantité maximale nette par emballage intérieur: 30 ml<br>Quantité maximale nette par emballage extérieur: 500 ml<br>2<br>D/E   |

(suite page 8)

FR



# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

Date d'impression : 04.08.2016

Révision: 04.08.2016

**Nom du produit: Graphite Conductive Adhesive 154**

(suite de la page 7)

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul> | <p>1L<br/>Code: E2<br/>Maximum net quantity per inner packaging: 30 ml<br/>Maximum net quantity per outer packaging: 500 ml</p> |
| <ul style="list-style-type: none"> <li>· <b>"Règlement type" de l'ONU:</b></li> </ul>  | <p>UN 1993 LIQUIDE INFLAMMABLE, N.S.A. (ISOPROPANOL (ALCOOL ISOPROPYLIQUE)), 3, II</p>  |

### RUBRIQUE 15: Informations relatives à la réglementation

- **15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement**
- **Directive 2012/18/UE**
- **Substances dangereuses désignées - ANNEXE I** Aucun des composants n'est compris.
- **Catégorie SEVESO P5c LIQUIDES INFLAMMABLES**
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas** 5.000 t
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut** 50.000 t
- **RÈGLEMENT (CE) N° 1907/2006 ANNEXE XVII** Conditions de limitation: 3
- **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

### RUBRIQUE 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

- **Phrases importantes**
- H225 Liquide et vapeurs très inflammables.
- H226 Liquide et vapeurs inflammables.
- H302 Nocif en cas d'ingestion.
- H312 Nocif par contact cutané.
- H315 Provoque une irritation cutanée.
- H318 Provoque des lésions oculaires graves.
- H319 Provoque une sévère irritation des yeux.
- H332 Nocif par inhalation.
- H335 Peut irriter les voies respiratoires.
- H336 Peut provoquer somnolence ou vertiges.
- **Acronymes et abréviations:**
- ADR: Accord européen sur le transport des marchandises dangereuses par Route
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 2: Liquides inflammables – Catégorie 2
- Flam. Liq. 3: Liquides inflammables – Catégorie 3
- Acute Tox. 4: Toxicité aiguë – Catégorie 4
- Skin Irrit. 2: Corrosion cutanée/irritation cutanée – Catégorie 2
- Eye Dam. 1: Lésions oculaires graves/irritation oculaire – Catégorie 1

(suite page 9)

**Fiche de données de sécurité**  
**selon 1907/2006/CE, Article 31**

Date d'impression : 04.08.2016

Révision: 04.08.2016

**Nom du produit: Graphite Conductive Adhesive 154**

Eye Irrit. 2: Lésions oculaires graves/irritation oculaire – Catégorie 2  
STOT SE 3: Toxicité spécifique pour certains organes cibles (exposition unique) – Catégorie 3

(suite de la page 8)

FR

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

### ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

- **1.1 Produktidentifikator**
- **Handelsname:** Graphite Conductive Adhesive 154
- **Artikelnummer:** 12691-30, 12691-30-sp, 12691
- **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**  
Keine weiteren relevanten Informationen verfügbar.
- **Verwendung des Stoffes / des Gemisches** Laborchemikalien
- **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**
- **Hersteller/Lieferant:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com  
  
Science Services GmbH  
Unterhachinger Str. 75  
81737 München Germany  
Tel: +49(0)89 18 93 668-0  
safety@scienceservices.de  
  
24h Giftnotruf Munchen: +49 (0)89 19240  
Toxikologische Abteilung der II. Medizinischen Klinik  
rechts der Isar, Munchen. - www.toxinfo.org
- **Auskunftgebender Bereich:** Product safety department
- **1.4 Notrufnummer:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### ABSCHNITT 2: Mögliche Gefahren

- **2.1 Einstufung des Stoffs oder Gemischs**
- **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**



GHS02 Flamme

Flam. Liq. 2 H225 Flüssigkeit und Dampf leicht entzündbar.



GHS07

Skin Irrit. 2 H315 Verursacht Hautreizungen.

Eye Irrit. 2 H319 Verursacht schwere Augenreizung.

STOT SE 3 H336 Kann Schläfrigkeit und Benommenheit verursachen.

- **2.2 Kennzeichnungselemente**
- **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**  
Das Produkt ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.

(Fortsetzung auf Seite 2)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

Handelsname: Graphite Conductive Adhesive 154

(Fortsetzung von Seite 1)

## · Gefahrenpiktogramme



GHS02 GHS07

## · Signalwort Gefahr

## · Gefahrbestimmende Komponenten zur Etikettierung:

Propan-2-ol

## · Gefahrenhinweise

H225 Flüssigkeit und Dampf leicht entzündbar.

H315 Verursacht Hautreizungen.

H319 Verursacht schwere Augenreizung.

H336 Kann Schläfrigkeit und Benommenheit verursachen.

## · Sicherheitshinweise

P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen und anderen Zündquellen fernhalten. Nicht rauchen.

P261 Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.

P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen/duschen.

P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.

P405 Unter Verschluss aufbewahren.

P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.

## · 2.3 Sonstige Gefahren

## · Ergebnisse der PBT- und vPvB-Beurteilung

· PBT: Nicht anwendbar.

· vPvB: Nicht anwendbar.

### ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

## · 3.2 Chemische Charakterisierung: Gemische

· Beschreibung: Gemisch aus nachfolgend angeführten Stoffen mit ungefährlichen Beimengungen.

## · Gefährliche Inhaltsstoffe:

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | Propan-2-ol<br>⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336   | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | Graphit (natürlicher und synthetischer)<br>⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315 | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | Butan-1-ol<br>⚠ Flam. Liq. 3, H226; ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336      | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-Methyl-2,4-pentandiol<br>⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-Methoxy-2-propanol<br>⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336  | 2,5-10% |

· Zusätzliche Hinweise: Der Wortlaut der angeführten Gefahrenhinweise ist dem Abschnitt 16 zu entnehmen.

DE

(Fortsetzung auf Seite 3)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

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überarbeitet am: 04.08.2016

**Handelsname: Graphite Conductive Adhesive 154**

(Fortsetzung von Seite 2)

### ABSCHNITT 4: Erste-Hilfe-Maßnahmen

#### · 4.1 Beschreibung der Erste-Hilfe-Maßnahmen

##### · **Allgemeine Hinweise:**

Vergiftungssymptome können erst nach vielen Stunden auftreten, deshalb ärztliche Überwachung mindestens 48 Stunden nach einem Unfall.

##### · **Nach Einatmen:**

Frischlufzufuhr, gegebenenfalls Atemspende, Wärme. Bei anhaltenden Beschwerden Arzt konsultieren.

Bei Bewußtlosigkeit Lagerung und Transport in stabiler Seitenlage.

##### · **Nach Hautkontakt:** Im allgemeinen ist das Produkt nicht hautreizend.

##### · **Nach Augenkontakt:**

Augen mehrere Minuten bei geöffnetem Lidspalt unter fließendem Wasser spülen. Bei anhaltenden Beschwerden Arzt konsultieren.

##### · **Nach Verschlucken:** Bei anhaltenden Beschwerden Arzt konsultieren.

#### · 4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen

Keine weiteren relevanten Informationen verfügbar.

#### · 4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung

Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

#### · 5.1 Löschmittel

· **Geeignete Löschmittel:** CO<sub>2</sub>, Sand, Löschpulver. Kein Wasser verwenden.

· **Aus Sicherheitsgründen ungeeignete Löschmittel:** Wasser im Vollstrahl

#### · 5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren

Keine weiteren relevanten Informationen verfügbar.

#### · 5.3 Hinweise für die Brandbekämpfung

· **Besondere Schutzausrüstung:** Atemschutzgerät anlegen.

### ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

#### · 6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren

Schutzausrüstung tragen. Ungeschützte Personen fernhalten.

#### · 6.2 Umweltschutzmaßnahmen: Eindringen in Kanalisation, Gruben und Keller verhindern.

#### · 6.3 Methoden und Material für Rückhaltung und Reinigung:

Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder, Sägemehl) aufnehmen.

Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.

Für ausreichende Lüftung sorgen.

Nicht mit Wasser oder wäßrigen Reinigungsmitteln wegspülen.

#### · 6.4 Verweis auf andere Abschnitte

Informationen zur sicheren Handhabung siehe Abschnitt 7.

Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.

Informationen zur Entsorgung siehe Abschnitt 13.

### ABSCHNITT 7: Handhabung und Lagerung

#### · 7.1 Schutzmaßnahmen zur sicheren Handhabung

Für gute Belüftung/Absaugung am Arbeitsplatz sorgen.

Aerosolbildung vermeiden.

#### · **Hinweise zum Brand- und Explosionsschutz:**

Zündquellen fernhalten - nicht rauchen.

(Fortsetzung auf Seite 4)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

**Handelsname: Graphite Conductive Adhesive 154**

(Fortsetzung von Seite 3)

Vor Hitze schützen.

Maßnahmen gegen elektrostatische Aufladung treffen.

**· 7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
**· Lagerung:**
**· Anforderung an Lagerräume und Behälter:** An einem kühlen Ort lagern.

**· Zusammenlagerungshinweise:** Nicht erforderlich.

**· Weitere Angaben zu den Lagerbedingungen:**

Behälter dicht geschlossen halten.

In gut verschlossenen Gebinden kühl und trocken lagern.

Vor Hitze und direkter Sonnenbestrahlung schützen.

**· Lagerklasse:**
**· Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** Entzündbare Flüssigkeiten

**· 7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

**· Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.

**· 8.1 Zu überwachende Parameter**
**· Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**
**67-63-0 Propan-2-ol**

 AGW Langzeitwert: 500 mg/m<sup>3</sup>, 200 ml/m<sup>3</sup>  
 2(II);DFG, Y

**71-36-3 Butan-1-ol**

 AGW Langzeitwert: 310 mg/m<sup>3</sup>, 100 ml/m<sup>3</sup>  
 1(I);DFG, Y

**107-41-5 2-Methyl-2,4-pentandiol**

 MAK Langzeitwert: 49\* mg/m<sup>3</sup>, 10 ml/m<sup>3</sup>  
 vgl.Abschn.Xc; \*Dampf und Aerosol

**107-98-2 1-Methoxy-2-propanol**

 AGW Langzeitwert: 370 mg/m<sup>3</sup>, 100 ml/m<sup>3</sup>  
 2(I);DFG, EU, Y

**· Bestandteile mit biologischen Grenzwerten:**
**67-63-0 Propan-2-ol**

 BGW 25 mg/l  
 Untersuchungsmaterial: Vollblut  
 Probennahmezeitpunkt: Expositionsende bzw. Schichtende  
 Parameter: Aceton

 25 mg/l  
 Untersuchungsmaterial: Urin  
 Probennahmezeitpunkt: Expositionsende bzw. Schichtende  
 Parameter: Aceton

(Fortsetzung auf Seite 5)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

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**Handelsname: Graphite Conductive Adhesive 154**

(Fortsetzung von Seite 4)

**71-36-3 Butan-1-ol**

|     |  |
|-----|--|
| BGW | 2 mg/g Kreatinin<br>Untersuchungsmaterial: Urin<br>Probennahmezeitpunkt: vor nachfolgender Schicht<br>Parameter: 1-Butanol<br><br>10 mg/g Kreatinin<br>Untersuchungsmaterial: Urin<br>Probennahmezeitpunkt: Expositionsende bzw. Schichtende<br>Parameter: 1-Butanol |
|-----|--|

**107-98-2 1-Methoxy-2-propanol**

|     |   |
|-----|---|
| BGW | 15 mg/l<br>Untersuchungsmaterial: Urin<br>Probennahmezeitpunkt: Expositionsende bzw. Schichtende<br>Parameter: 1-Methoxypropan-2-ol |
|-----|---|

- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.
- **8.2 Begrenzung und Überwachung der Exposition**
- **Persönliche Schutzausrüstung:**
- **Allgemeine Schutz- und Hygienemaßnahmen:**
  - Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.
  - Beschmutzte, getränkte Kleidung sofort ausziehen.
  - Vor den Pausen und bei Arbeitsende Hände waschen.
  - Berührung mit den Augen vermeiden.
  - Berührung mit den Augen und der Haut vermeiden.
- **Atemschutz:**
  - Bei kurzzeitiger oder geringer Belastung Atemfiltergerät; bei intensiver bzw. längerer Exposition unluftunabhängiges Atemschutzgerät verwenden.
- **Handschutz:**
  - Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein.
  - Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.
  - Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.
- **Handschuhmaterial**
  - Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich. Da das Produkt eine Zubereitung aus mehreren Stoffen darstellt, ist die Beständigkeit von Handschuhmaterialien nicht vorausberechenbar und muß deshalb vor dem Einsatz überprüft werden.
- **Durchdringungszeit des Handschuhmaterials**
  - Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.
- **Augenschutz:**



Dichtschließende Schutzbrille

DE

(Fortsetzung auf Seite 6)



# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

Handelsname: Graphite Conductive Adhesive 154

(Fortsetzung von Seite 5)

### ABSCHNITT 9: Physikalische und chemische Eigenschaften

#### · 9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

##### · Allgemeine Angaben

##### · Aussehen:

**Form:** Flüssigkeit

**Farbe:** Schwarz

· **Geruch:** Alkoholartig

· **Geruchsschwelle:** Nicht bestimmt.

· **pH-Wert:** Nicht bestimmt.

##### · Zustandsänderung

**Schmelzpunkt/Schmelzbereich:** Nicht bestimmt.

**Siedepunkt/Siedebereich:** Nicht bestimmt.

· **Flammpunkt:** 13 °C

· **Entzündlichkeit (fest, gasförmig):** Nicht anwendbar.

· **Zündtemperatur:** 425 °C

· **Zersetzungstemperatur:** Nicht bestimmt.

· **Selbstentzündlichkeit:** Das Produkt ist nicht selbstentzündlich.

· **Explosionsgefahr:** Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.

##### · Explosionsgrenzen:

**Untere:** 2,0 Vol %

**Obere:** 12,0 Vol %

· **Dampfdruck bei 20 °C:** 43 hPa

· **Dichte:** Nicht bestimmt.

· **Relative Dichte:** Nicht bestimmt.

· **Dampfdichte:** Nicht bestimmt.

· **Verdampfungsgeschwindigkeit:** Nicht bestimmt.

##### · Löslichkeit in / Mischbarkeit mit

**Wasser:** Nicht bzw. wenig mischbar.

· **Verteilungskoeffizient (n-Octanol/Wasser):** Nicht bestimmt.

##### · Viskosität:

**Dynamisch:** Nicht bestimmt.

**Kinematisch:** Nicht bestimmt.

##### · Lösemittelgehalt:

**Organische Lösemittel:** 76,8 %

**VOC (EU)** 76,79 %

· **9.2 Sonstige Angaben** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 10: Stabilität und Reaktivität

· **10.1 Reaktivität** Keine weiteren relevanten Informationen verfügbar.

· **10.2 Chemische Stabilität**

· **Thermische Zersetzung / zu vermeidende Bedingungen:**

Keine Zersetzung bei bestimmungsgemäßer Verwendung.

(Fortsetzung auf Seite 7)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

**Handelsname: Graphite Conductive Adhesive 154**

(Fortsetzung von Seite 6)

- **10.3 Möglichkeit gefährlicher Reaktionen** Keine gefährlichen Reaktionen bekannt.
- **10.4 Zu vermeidende Bedingungen** Keine weiteren relevanten Informationen verfügbar.
- **10.5 Unverträgliche Materialien:** Keine weiteren relevanten Informationen verfügbar.
- **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

### ABSCHNITT 11: Toxikologische Angaben

- **11.1 Angaben zu toxikologischen Wirkungen**
- **Akute Toxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.

· **Einstufungsrelevante LD/LC50-Werte:**

**67-63-0 Propan-2-ol**

|           |          |                      |
|-----------|----------|----------------------|
| Oral      | LD50     | 5045 mg/kg (rat)     |
| Dermal    | LD50     | 12800 mg/kg (rabbit) |
| Inhalativ | LC50/4 h | 30 mg/l (rat)        |

- **Primäre Reizwirkung:**
- **Ätz-/Reizwirkung auf die Haut**  
Verursacht Hautreizungen.
- **Schwere Augenschädigung/-reizung**  
Verursacht schwere Augenreizung.
- **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)**
- **Keimzell-Mutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Karzinogenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**  
Kann Schläfrigkeit und Benommenheit verursachen.
- **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**  
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Aspirationsgefahr** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.

### ABSCHNITT 12: Umweltbezogene Angaben

- **12.1 Toxizität**
- **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
- **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
- **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
- **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
- **Weitere ökologische Hinweise:**
- **Allgemeine Hinweise:** Keine Wassergefährdung bekannt.
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 13: Hinweise zur Entsorgung

- **13.1 Verfahren der Abfallbehandlung**
- **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.

(Fortsetzung auf Seite 8)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016


überarbeitet am: 04.08.2016

Handelsname: Graphite Conductive Adhesive 154

(Fortsetzung von Seite 7)

- Ungereinigte Verpackungen:
- Empfehlung: Entsorgung gemäß den behördlichen Vorschriften.

### ABSCHNITT 14: Angaben zum Transport

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· 14.1 UN-Nummer</li> <li>· ADR, IMDG, IATA</li> </ul>  | <p style="text-align: right;">UN1993</p>   |
| <ul style="list-style-type: none"> <li>· 14.2 Ordnungsgemäße UN-Versandbezeichnung</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul>   | <p style="text-align: right;">1993 ENTZÜNDBARER FLÜSSIGER STOFF, N.A.G. (ISOPROPANOL (ISOPROPYLALKOHOL))<br/>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))</p>                      |
| <ul style="list-style-type: none"> <li>· 14.3 Transportgefahrenklassen</li> <li>· ADR, IMDG, IATA</li> </ul>   | <div style="text-align: center;">  </div> <p style="text-align: right;">3 Entzündbare flüssige Stoffe<br/>3</p> |
| <ul style="list-style-type: none"> <li>· 14.4 Verpackungsgruppe</li> <li>· ADR, IMDG, IATA</li> </ul>  | <p style="text-align: right;">II</p>   |
| <ul style="list-style-type: none"> <li>· 14.5 Umweltgefahren:</li> </ul>   | <p style="text-align: right;">Nicht anwendbar.</p>   |
| <ul style="list-style-type: none"> <li>· 14.6 Besondere Vorsichtsmaßnahmen für den Verwender</li> <li>· Kemler-Zahl:</li> <li>· EMS-Nummer:</li> <li>· Stowage Category</li> </ul>               | <p style="text-align: right;">Achtung: Entzündbare flüssige Stoffe<br/>33<br/>F-E,<u>S-E</u><br/>B</p>   |
| <ul style="list-style-type: none"> <li>· 14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code</li> </ul>   | <p style="text-align: right;">Nicht anwendbar.</p>   |
| <ul style="list-style-type: none"> <li>· Transport/weitere Angaben:</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>· ADR</li> <li>· Begrenzte Menge (LQ)</li> <li>· Freigestellte Mengen (EQ)</li> <li>· Beförderungskategorie</li> <li>· Tunnelbeschränkungscode</li> </ul> | <p style="text-align: right;">1L<br/>Code: E2<br/>Höchste Nettomenge je Innenverpackung: 30 ml<br/>Höchste Nettomenge je Außenverpackung: 500 ml<br/>2<br/>D/E</p>                               |
| <ul style="list-style-type: none"> <li>· IMDG</li> <li>· Limited quantities (LQ)</li> <li>· Excepted quantities (EQ)</li> </ul>  | <p style="text-align: right;">1L<br/>Code: E2<br/>Maximum net quantity per inner packaging: 30 ml<br/>Maximum net quantity per outer packaging: 500 ml</p>                                       |

(Fortsetzung auf Seite 9)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

**Handelsname: Graphite Conductive Adhesive 154**

(Fortsetzung von Seite 8)

· **UN "Model Regulation":** UN 1993 ENTZÜNDBARER FLÜSSIGER STOFF, N.A.G.  
(ISOPROPANOL (ISOPROPYLALKOHOL)), 3, II

### ABSCHNITT 15: Rechtsvorschriften

- **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**
- Richtlinie 2012/18/EU
- **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Keiner der Inhaltsstoffe ist enthalten.
- **Seveso-Kategorie P5c ENTZÜNDBARE FLÜSSIGKEITEN**
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse 5.000 t**
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse 50.000 t**
- **VERORDNUNG (EG) Nr. 1907/2006 ANHANG XVII Beschränkungsbedingungen: 3**
- **Nationale Vorschriften:**
- **Technische Anleitung Luft:**

| Klasse | Anteil in % |
|--------|-------------|
| NK     | 76,8        |

- **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

### ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

- **Relevante Sätze**
- H225 Flüssigkeit und Dampf leicht entzündbar.
- H226 Flüssigkeit und Dampf entzündbar.
- H302 Gesundheitsschädlich bei Verschlucken.
- H312 Gesundheitsschädlich bei Hautkontakt.
- H315 Verursacht Hautreizungen.
- H318 Verursacht schwere Augenschäden.
- H319 Verursacht schwere Augenreizung.
- H332 Gesundheitsschädlich bei Einatmen.
- H335 Kann die Atemwege reizen.
- H336 Kann Schläfrigkeit und Benommenheit verursachen.
- **Abkürzungen und Akronyme:**
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 2: Entzündbare Flüssigkeiten – Kategorie 2
- Flam. Liq. 3: Entzündbare Flüssigkeiten – Kategorie 3
- Acute Tox. 4: Akute Toxizität – Kategorie 4
- Skin Irrit. 2: Hautreizende/-ätzende Wirkung – Kategorie 2

(Fortsetzung auf Seite 10)

**Sicherheitsdatenblatt**  
gemäß 1907/2006/EG, Artikel 31

Druckdatum: 04.08.2016

überarbeitet am: 04.08.2016

**Handelsname: Graphite Conductive Adhesive 154**

*Eye Dam. 1: Schwere Augenschädigung/Augenreizung – Kategorie 1*  
*Eye Irrit. 2: Schwere Augenschädigung/Augenreizung – Kategorie 2*  
*STOT SE 3: Spezifische Zielorgan-Toxizität (einmalige Exposition) – Kategorie 3*

(Fortsetzung von Seite 9)

DE

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

### SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

- **1.1 Identificatore del prodotto**
- **Denominazione commerciale:** Graphite Conductive Adhesive 154
- **Articolo numero:** 12691-30, 12691-30-sp, 12691
- **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**  
Non sono disponibili altre informazioni.
- **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio
- **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**
- **Produttore/fornitore:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Societa Italiana Chimici**  
Via Rio Nell Ellba 140  
00138 Rome, Italy  
Tel: 39 06 8800211  
Fax: 39 30 06 8815313  
Web: www.sichim.com
- **Informazioni fornite da:** Product safety department
- **1.4 Numero telefonico di emergenza:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### SEZIONE 2: Identificazione dei pericoli

- **2.1 Classificazione della sostanza o della miscela**
- **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS02 fiamma

Flam. Liq. 2 H225 Liquido e vapori facilmente infiammabili.



GHS07

Skin Irrit. 2 H315 Provoca irritazione cutanea.

Eye Irrit. 2 H319 Provoca grave irritazione oculare.

STOT SE 3 H336 Può provocare sonnolenza o vertigini.

- **2.2 Elementi dell'etichetta**
- **Etichettatura secondo il regolamento (CE) n. 1272/2008**  
Il prodotto è classificato ed etichettato conformemente al regolamento CLP.
- **Pittogrammi di pericolo**



GHS02



GHS07

(continua a pagina 2)

## Scheda di dati di sicurezza ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 1)

· **Avvertenza Pericolo**

· **Componenti pericolosi che ne determinano l'etichettatura:**

2-propanolo

· **Indicazioni di pericolo**

H225 Liquido e vapori facilmente infiammabili.

H315 Provoca irritazione cutanea.

H319 Provoca grave irritazione oculare.

H336 Può provocare sonnolenza o vertigini.

· **Consigli di prudenza**

P210 Tenere lontano da fonti di calore, superfici riscaldate, scintille, fiamme e altre fonti di innesco. Vietato fumare.

P261 Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

P303+P361+P353 IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliere immediatamente tutti gli indumenti contaminati. Sciacquare la pelle/fare una doccia.

P305+P351+P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

P405 Conservare sotto chiave.

P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

· **2.3 Altri pericoli**

· **Risultati della valutazione PBT e vPvB**

· **PBT:** Non applicabile.

· **vPvB:** Non applicabile.

### SEZIONE 3: Composizione/informazioni sugli ingredienti

· **3.2 Caratteristiche chimiche: Miscela**

· **Descrizione:** Miscela delle seguenti sostanze con additivi non pericolosi.

· **Sostanze pericolose:**

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | 2-propanolo<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336   | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | grafite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                         | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butan-1-olo<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-metil-2,4-pentandiolo<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-metossi-2-propanolo<br>Flam. Liq. 3, H226; STOT SE 3, H336   | 2,5-10% |

· **Ulteriori indicazioni:** Il testo dell'avvertenza dei pericoli citati può essere appreso dal capitolo 16

### SEZIONE 4: Misure di primo soccorso

· **4.1 Descrizione delle misure di primo soccorso**

· **Indicazioni generali:**

I sintomi di avvelenamento possono comparire dopo molte ore, per tale motivo è necessaria la sorveglianza di un medico nelle 48 ore successive all'incidente.

(continua a pagina 3)



**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 2)

· **Inalazione:**

Portare in zona ben areata, praticare eventualmente la respirazione artificiale, tenere al caldo. Se i disturbi persistono consultare il medico.

Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.

· **Contatto con la pelle:** Generalmente il prodotto non è irritante per la pelle.

· **Contatto con gli occhi:**

Lavare con acqua corrente per diversi minuti tenendo le palpebre ben aperte. Se persiste il dolore consultare il medico.

· **Ingestione:** Se il dolore persiste consultare il medico.

· **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.

· **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**

Non sono disponibili altre informazioni.

### SEZIONE 5: Misure antincendio

· **5.1 Mezzi di estinzione**

· **Mezzi di estinzione idonei:** CO<sub>2</sub>, sabbia, polvere. Non usare acqua.

· **Mezzi di estinzione inadatti per motivi di sicurezza:** Getti d'acqua

· **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.

· **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**

· **Mezzi protettivi specifici:** Indossare il respiratore.

### SEZIONE 6: Misure in caso di rilascio accidentale

· **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza**

Indossare equipaggiamento protettivo. Allontanare le persone non equipaggiate.

· **6.2 Precauzioni ambientali:** Impedire l'entrata del prodotto nelle fognature, cave o cantine.

· **6.3 Metodi e materiali per il contenimento e per la bonifica:**

Raccogliere il liquido con materiale assorbente (sabbia, tripoli, legante di acidi, legante universale, segatura).

Smaltimento del materiale contaminato conformemente al punto 13.

Provvedere ad una sufficiente areazione.

Non dilavare con acqua o detergenti liquidi.

· **6.4 Riferimento ad altre sezioni**

Per informazioni relative ad un manipolazione sicura, vedere capitolo 7.

Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.

Per informazioni relative allo smaltimento vedere Capitolo 13.

### SEZIONE 7: Manipolazione e immagazzinamento

· **7.1 Precauzioni per la manipolazione sicura**

Accurata ventilazione/aspirazione nei luoghi di lavoro.

Evitare la formazione di aerosol.

· **Indicazioni in caso di incendio ed esplosione:**

Tenere lontano da fonti di calore, non fumare.

Proteggere dal calore.

Adottare provvedimenti contro cariche elettrostatiche.

· **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**

· **Stoccaggio:**

· **Requisiti dei magazzini e dei recipienti:** Conservare in ambiente fresco.

· **Indicazioni sullo stoccaggio misto:** Non necessario.

(continua a pagina 4)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 3)

- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:**  
Mantenere i recipienti ermeticamente chiusi.  
Conservare in luogo fresco e asciutto in fusti ben chiusi.  
Proteggere dal calore e dai raggi diretti del sole.
- **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

### SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.

#### · 8.1 Parametri di controllo

- **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:**

##### **67-63-0 2-propanolo**

|     |   |
|-----|---|
| TWA | Valore a breve termine: 983 mg/m <sup>3</sup> , 400 ppm |
|     | Valore a lungo termine: 492 mg/m <sup>3</sup> , 200 ppm |
|     | A4  |

##### **71-36-3 butan-1-olo**

|     |   |
|-----|---|
| TWA | Valore a lungo termine: 61 mg/m <sup>3</sup> , 20 ppm |
|-----|---|

##### **107-41-5 2-metil-2,4-pentandiolo**

|     |  |
|-----|--|
| TWA | Limite Ceiling: 121 mg/m <sup>3</sup> , 25 ppm |
|-----|--|

##### **107-98-2 1-metossi-2-propanolo**

|     |   |
|-----|---|
| TWA | Valore a breve termine: 553 mg/m <sup>3</sup> , 150 ppm |
|     | Valore a lungo termine: 369 mg/m <sup>3</sup> , 100 ppm |
| VL  | Valore a breve termine: 568 mg/m <sup>3</sup> , 150 ppm |
|     | Valore a lungo termine: 375 mg/m <sup>3</sup> , 100 ppm |
|     | Pelle   |

- **Componenti con valori limite biologici:**

##### **67-63-0 2-propanolo**

|     |                                 |
|-----|---------------------------------|
| IBE | 40 mg/l                         |
|     | Campioni: urine                 |
|     | Momento del prelievo: f.t.f.s.l |
|     | Indicatore biologico: acetone   |

- **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.

#### · 8.2 Controlli dell'esposizione

##### · Mezzi protettivi individuali:

##### · Norme generali protettive e di igiene del lavoro:

- Tenere lontano da cibo, bevande e foraggi.
- Togliere immediatamente gli abiti contaminati.
- Lavarsi le mani prima dell'intervallo o a lavoro terminato.
- Evitare il contatto con gli occhi.
- Evitare il contatto con gli occhi e la pelle.

##### · Maschera protettiva:

Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.

##### · Guanti protettivi:

Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.

A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.

Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.

(continua a pagina 5)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 4)

· **Materiale dei guanti**

La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro. Poiché il prodotto rappresenta una formulazione di più sostanze, la stabilità dei materiali dei guanti non è calcolabile in anticipo e deve essere testata prima dell'impiego

· **Tempo di permeazione del materiale dei guanti**

Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.

· **Occhiali protettivi:**



Occhiali protettivi a tenuta

**SEZIONE 9: Proprietà fisiche e chimiche**

· **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**

· **Indicazioni generali**

· **Aspetto:**

Forma: Liquido

Colore: Nero

· **Odore:** Simile all'alcool

· **Soglia olfattiva:** Non definito.

· **valori di pH:** Non definito.

· **Cambiamento di stato**

Temperatura di fusione/ambito di fusione: Non definito.

Temperatura di ebollizione/ambito di ebollizione: Non definito.

· **Punto di infiammabilità:** 13 °C

· **Infiammabilità (solido, gassoso):** Non applicabile.

· **Temperatura di accensione:** 425 °C

· **Temperatura di decomposizione:** Non definito.

· **Autoaccensione:** Prodotto non autoinfiammabile.

· **Pericolo di esplosione:** Prodotto non è esplosivo, è tuttavia possibile la formazione di miscele di vapori/aria esplosive.

· **Limiti di infiammabilità:**

Inferiore: 2,0 Vol %

Superiore: 12,0 Vol %

· **Tensione di vapore a 20 °C:** 43 hPa

· **Densità:** Non definito.

· **Densità relativa** Non definito.

· **Densità del vapore** Non definito.

· **Velocità di evaporazione** Non definito.

· **Solubilità in/Miscibilità con acqua:**

Poco e/o non miscibile.

· **Coefficiente di distribuzione (n-Octanol/acqua):** Non definito.

· **Viscosità:**

Dinamica: Non definito.

(continua a pagina 6)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 5)

|                                 |  |
|---------------------------------|--|
| <b>Cinematica:</b>              | Non definito.                            |
| · <b>Tenore del solvente:</b>   |  |
| <b>Solventi organici:</b>       | 76,8 %                                   |
| <b>VOC (CE)</b>                 | 76,79 %                                  |
| · <b>9.2 Altre informazioni</b> | Non sono disponibili altre informazioni. |

### SEZIONE 10: Stabilità e reattività

- **10.1 Reattività** Non sono disponibili altre informazioni.
- **10.2 Stabilità chimica**
- **Decomposizione termica/ condizioni da evitare:** Il prodotto non si decompone se utilizzato secondo le norme.
- **10.3 Possibilità di reazioni pericolose** Non sono note reazioni pericolose.
- **10.4 Condizioni da evitare** Non sono disponibili altre informazioni.
- **10.5 Materiali incompatibili:** Non sono disponibili altre informazioni.
- **10.6 Prodotti di decomposizione pericolosi:** Non sono noti prodotti di decomposizione pericolosi.

### SEZIONE 11: Informazioni tossicologiche

- **11.1 Informazioni sugli effetti tossicologici**
- **Tossicità acuta** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

· **Valori LD/LC50 rilevanti per la classificazione:**

#### 67-63-0 2-propanolo

|                |          |                      |
|----------------|----------|----------------------|
| Orale          | LD50     | 5045 mg/kg (rat)     |
| Cutaneo        | LD50     | 12800 mg/kg (rabbit) |
| Per inalazione | LC50/4 h | 30 mg/l (rat)        |

- **Irritabilità primaria:**
- **Corrosione/irritazione cutanea**  
Provoca irritazione cutanea.
- **Lesioni oculari gravi/irritazioni oculari gravi**  
Provoca grave irritazione oculare.
- **Sensibilizzazione respiratoria o cutanea**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
- **Mutagenicità delle cellule germinali**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Cancerogenicità** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**  
Può provocare sonnolenza o vertigini.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Pericolo in caso di aspirazione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

### SEZIONE 12: Informazioni ecologiche

- **12.1 Tossicità**
- **Tossicità acquatica:** Non sono disponibili altre informazioni.
- **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.

(continua a pagina 7)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**


(Segue da pagina 6)

- **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
- **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.
- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:** Non si conoscono dati di pericolosità per le acque.
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

### SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

### SEZIONE 14: Informazioni sul trasporto

- |   |  |
|---|--|
| · <b>14.1 Numero ONU</b><br>· <b>ADR, IMDG, IATA</b>  | UN1993   |
| · <b>14.2 Nome di spedizione dell'ONU</b><br>· <b>ADR</b><br>· <b>IMDG, IATA</b>  | 1993 LIQUIDO INFIAMMABILE, N.A.S. (ISOPROPRANOLO (ALCOL ISOPROPILICO))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| · <b>14.3 Classi di pericolo connesso al trasporto</b><br>· <b>ADR, IMDG, IATA</b>  |  |
|    |  |
| · <b>Classe</b><br>· <b>Etichetta</b>   | 3 Liquidi infiammabili<br>3  |
| · <b>14.4 Gruppo di imballaggio</b><br>· <b>ADR, IMDG, IATA</b>   | II   |
| · <b>14.5 Pericoli per l'ambiente:</b>  | Non applicabile.   |
| · <b>14.6 Precauzioni speciali per gli utilizzatori</b><br>· <b>Numero Kemler:</b><br>· <b>Numero EMS:</b><br>· <b>Stowage Category</b> | Attenzione: Liquidi infiammabili<br>33<br>F-E, S-E<br>B  |
| · <b>14.7 Trasporto di rifiuti secondo l'allegato II di MARPOL ed il codice IBC</b>   | Non applicabile.   |

(continua a pagina 8)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 7)

**· Trasporto/ulteriori indicazioni:**

**· ADR**

· **Quantità limitate (LQ)**

1L

· **Quantità esenti (EQ)**

Codice: E2

Quantità massima netta per imballaggio interno: 30 ml

Quantità massima netta per imballaggio esterno: 500 ml

· **Categoria di trasporto**

2

· **Codice di restrizione in galleria**

D/E

**· IMDG**

· **Limited quantities (LQ)**

1L

· **Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":**

UN 1993 LIQUIDO INFIAMMABILE, N. A. S.  
(ISOPROPRANOLO (ALCOL ISOPROPILICO)), 3, II

### SEZIONE 15: Informazioni sulla regolamentazione

· **15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**

· **Direttiva 2012/18/UE**

· **Sostanze pericolose specificate - ALLEGATO I** Nessuno dei componenti è contenuto.

· **Categoria Seveso P5c** LIQUIDI INFIAMMABILI

· **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore** 5.000 t

· **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore** 50.000 t

· **REGOLAMENTO (CE) n. 1907/2006 ALLEGATO XVII** Restrizioni: 3

· **Disposizioni nazionali:**

· **Istruzione tecnica aria:**

| Classe | quota in % |
|--------|------------|
| NC     | 76,8       |

· **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

### SEZIONE 16: Altre informazioni

I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.

· **Frasi rilevanti**

H225 Liquido e vapori facilmente infiammabili.

H226 Liquido e vapori infiammabili.

H302 Nocivo se ingerito.

H312 Nocivo per contatto con la pelle.

H315 Provoca irritazione cutanea.

H318 Provoca gravi lesioni oculari.

H319 Provoca grave irritazione oculare.

H332 Nocivo se inalato.

H335 Può irritare le vie respiratorie.

H336 Può provocare sonnolenza o vertigini.

(continua a pagina 9)

**Scheda di dati di sicurezza**  
**ai sensi del regolamento 1907/2006/CE, Articolo 31**

Stampato il: 04.08.2016

Revisione: 04.08.2016

**Denominazione commerciale: Graphite Conductive Adhesive 154**

(Segue da pagina 8)

**· Abbreviazioni e acronimi:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*VOC: Volatile Organic Compounds (USA, EU)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Flam. Liq. 2: Liquidi infiammabili – Categoria 2*

*Flam. Liq. 3: Liquidi infiammabili – Categoria 3*

*Acute Tox. 4: Tossicità acuta – Categoria 4*

*Skin Irrit. 2: Corrosione/irritazione della pelle – Categoria 2*

*Eye Dam. 1: Gravi lesioni oculari/irritazione oculare – Categoria 1*

*Eye Irrit. 2: Gravi lesioni oculari/irritazione oculare – Categoria 2*

*STOT SE 3: Tossicità specifica per organi bersaglio (esposizione singola) – Categoria 3*

IT



# 물질안전보건자료 GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

## 1 화학제품과 회사에 관한 정보

- **제품 식별자**
- **제품명: Graphite Conductive Adhesive 154**
- **상품번호:** 12691-30, 12691-30-sp, 12691
- **해당 순물질이나 혼합물의 관련 하위용도 및 사용금지용도** 추가적인 정보가 존재하지 않습니다.
- **제품의 권고 용도와 사용상의 제한:** 실험실화학품
- **안전데이터표(Safety Data Sheet)내 공급업체 관련 상세 정보**
- **제조자/수입자/유통업자 정보:**  
 Electron Microscopy Sciences  
 1560 Industry Road  
 USA-Hatfield, PA 19440  
 Tel: 215-412-8400 Fax: 215-412-8450  
 email: sgkcck@aol.com  
 www.emsdiasum.com
- **Samchang Commercial Co., Ltd.**  
 Yeo Eui Do  
 PO Box 1110  
 Seoul, Korea  
 Tel: 82 2 703 3040  
 Fax: 82 2 717 3298
- **추가적인 정보 획득 가능:** Product safety department
- **비상연락 전화번호:**  
 ChemTrec 1-800-424-9300 Contract CCN7661  
 1-703-527-3887

## 2 유해성·위험성

- **순물질 또는 혼합물의 분류**



화염

인화성 액체 - 구분 2

H225 고인화성 액체 및 증기



심한 눈 손상성/눈 자극성 - 구분 2

H319 눈에 심한 자극을 일으킴

특정표적장기 독성 - 1회 노출 - 구분 3 H336 졸음 또는 현기증을 일으킬 수 있음

- **라벨표기 요소**

- **GHS 라벨 요소**

본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

- **그림문자**



GHS02



GHS07

- **신호어 위험**

- **유해·위험 문구**

고인화성 액체 및 증기

(2 쪽에 계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명: Graphite Conductive Adhesive 154**

(1 쪽부터 계속)

눈에 심한 자극을 일으킴  
 줄음 또는 현기증을 일으킬 수 있음

**· 예방조치 문구**

열·스파크·화염·고열로부터 멀리하십시오 - 금연  
 (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하십시오.  
 피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗으십시오. 피부를 물로 씻으십시오/샤워하십시오.  
 눈에 묻으면 몇 분간 물로 조심해서 씻으십시오. 가능하면 콘택트렌즈를 제거하십시오. 계속 씻으십시오.  
 잠금장치가 있는 저장장소에 저장하십시오.  
 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

**· 기타 유해성**

- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.

### 3 구성성분의 명칭 및 함유량

- **화학적 특성:** 혼합물
- **설명:** 무해한 첨가물이 함유된 아래에 열거된 물질로 만들어진 혼합물.

**· 위험요소:**

|           |  |         |
|-----------|--|---------|
| 67-63-0   | propan-2-ol<br><span style="color: red;">⚠</span> 인화성 액체 - 구분 2, H225; <span style="color: red;">⚠</span> 심한 눈 손상성/눈 자극성 - 구분 2, H319; 특정표적장기 독성 - 1회 노출 - 구분 3, H336  | 50-100% |
| 7782-42-5 | Graphite<br><span style="color: red;">⚠</span> 심한 눈 손상성/눈 자극성 - 구분 2, H319   | 10-25%  |
| 71-36-3   | n-Butyl Alcohol<br><span style="color: red;">⚠</span> 인화성 액체 - 구분 3, H226; <span style="color: red;">⚠</span> 심한 눈 손상성/눈 자극성 - 구분 1, H318; <span style="color: red;">⚠</span> 급성 독성 - 경구 - 구분 4, H302; 피부 부식성/피부 자극성 - 구분 2, H315; 특정표적장기 독성 - 1회 노출 - 구분 3, H335-H336 | 2.5-10% |
| 107-41-5  | 2-methylpentane-2,4-diol<br><span style="color: red;">⚠</span> 피부 부식성/피부 자극성 - 구분 2, H315; 심한 눈 손상성/눈 자극성 - 구분 2, H319   | 2.5-10% |
| 107-98-2  | 1-methoxy-2-propanol<br><span style="color: red;">⚠</span> 인화성 액체 - 구분 3, H226; <span style="color: red;">⚠</span> 특정표적장기 독성 - 1회 노출 - 구분 3, H336  | 2.5-10% |

### 4 응급조치 요령

**· 응급조치요령 내용**

**· 일반적 정보:**

중독 증상은 몇 시간이 지난 뒤에 발생할 수 있다. 따라서 사고가 발생한 후에 적어도 48 시간 동안은 의료진의 관찰을 받아야 한다.

**· 흡입했을 때:**

신선한 공기를 쐬고, 필요할 경우에는 산소 호흡기의 도움을 받는다. 환자를 따뜻하게 하고, 증상이 지속될 경우에는 의료진의 도움을 구한다.

환자가 의식을 잃었을 경우에는 안전한 자세에서 환자를 운반한다.

**· 피부에 접촉했을 때:** 일반적으로 이 제품은 피부에 자극적이지 않다.

**· 눈에 들어갔을 때:** 흐르는 물에 눈을 몇 분 동안 씻어내고 나서, 증상이 지속될 경우에는 의사와 상담한다

**· 먹었을 때:** 증상이 지속될 경우에는 의사와 상담한다.

**· 기타 의사의 주의사항:**

**· 가장 중요한 급·만성 증상 및 영향** 추가적인 정보가 존재하지 않습니다.

(3 쪽에 계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명:** Graphite Conductive Adhesive 154

- **즉각적인 의료처치 및 특별치료가 필요함을 시사하는 징후** 추가적인 정보가 존재하지 않습니다. (2 쪽부터계속)

### 5 폭발·화재시 대처방법

- **소화제**
- **적절한 소화제:** 이 산화 탄소, 모래, 석회 가루를 사용하고, 물을 사용하지 않는다.
- **부적절한 소화제:** 플레트용 물
- **본 화학물질이나 혼합물에서 발생하는 특별 유해성** 추가적인 정보가 존재하지 않습니다.
- **소방관에 대한 권고사항**
- **화재 진압 시 착용할 보호구 및 예방조치:** 호흡보호장비설치.

### 6 누출 사고 시 대처방법

- **개인적 예방조치, 보호장비 및 응급처치 절차** 안전장비 착용하고, 무방비 의 사람은 격리 시킨다.
- **환경 관련 예방조치:** 하수도, 구덩이그리고지하실로의유입을막는다.
- **밀폐 및 정화 방법과 소재:**  
액체가 혼합된 물질 (모래, 규조토, 산성결합물, 일반결합물, 톱밥)에 흡입되도록 한다.  
항목 13에 따라 오염된 물질을 쓰레기로 처분한다.  
충분한 환기가 되도록 한다.  
물이나 묽은 세척제로 씻어 내지 마시오
- **타 섹션 참조**  
안전관리에 대한 정보는 제7장을 참고하십시오.  
개인보호장비에 대한 정보는 제8장을 참고하십시오.  
쓰레기처리에 대한 정보는 제13장을 참고하십시오.

### 7 취급 및 저장방법

- **취급:**
- **안전 취급을 위한 예방조치**  
작업장에서는통풍이잘되고/습기제거가잘되게주의한다.  
연무질이형성되는것을피한다.
- **화재 및 폭발 사고 예방대책에 관한 정보:**  
발화요소는 멀리둔다-금연.  
열로부터보호한다.  
정전기의충전으로부터보호한다.
- **혼합위험성 등 안전 저장 조건**
- **보관:**
- **안전한 저장 방법:** 차가운 장소에 보관한다.
- **하나의 공동 보관 시설에 대한 보관 관련 정보:** 필요없음
- **보관 조건에 관한 추가적인 정보:**  
용기를새지않게밀폐한채보관한다.  
밀폐된용기속에서늘하고건조하게보관한다.  
열이나직사광선으로부터보호한다.
- **구체적 최종 사용자** 추가적인 정보가 존재하지 않습니다.

### 8 누출방지 및 개인보호구

- **첨단시설 디자인에 대한 추가정보:** 더 이상 의 자료는 없음. 항목 7 을 참고하십시오.

(4 쪽에계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명: Graphite Conductive Adhesive 154**

(3 쪽부터계속)

**통제 변수**

**· 화학물질의 노출기준, 생물학적 노출기준 등:**

|  |   |
|--|---|
| <b>67-63-0 propan-2-ol</b>               |   |
| TLV (KR)                                 | 단기간의값: 980 mg/m <sup>3</sup> , 400 ppm<br>장기간의값: 480 mg/m <sup>3</sup> , 200 ppm  |
| PEL (US)                                 | 장기간의값: 980 mg/m <sup>3</sup> , 400 ppm  |
| REL (US)                                 | 단기간의값: 1225 mg/m <sup>3</sup> , 500 ppm<br>장기간의값: 980 mg/m <sup>3</sup> , 400 ppm   |
| TLV (US)                                 | 단기간의값: 984 mg/m <sup>3</sup> , 400 ppm<br>장기간의값: 492 mg/m <sup>3</sup> , 200 ppm<br>BEI   |
| <b>71-36-3 n-Butyl Alcohol</b>           |   |
| TLV (KR)                                 | 최고노출기준: 150 mg/m <sup>3</sup> , 50 ppm  |
| PEL (US)                                 | 장기간의값: 300 mg/m <sup>3</sup> , 100 ppm  |
| REL (US)                                 | 최고노출기준: 150 mg/m <sup>3</sup> , 50 ppm<br>Skin  |
| TLV (US)                                 | 장기간의값: 61 mg/m <sup>3</sup> , 20 ppm  |
| <b>107-41-5 2-methylpentane-2,4-diol</b> |   |
| TLV (KR)                                 | 최고노출기준: 125 mg/m <sup>3</sup> , 25 ppm  |
| REL (US)                                 | 최고노출기준: 125 mg/m <sup>3</sup> , 25 ppm  |
| TLV (US)                                 | 단기간의값: NIC-242* mg/m <sup>3</sup> , NIC-50* NIC-10** ppm<br>장기간의값: NIC-121* mg/m <sup>3</sup> , NIC-25* ppm<br>최고노출기준: (121) mg/m <sup>3</sup> , (25) ppm<br>*vapor **inhalable fraction, H |
| <b>107-98-2 1-methoxy-2-propanol</b>     |   |
| TLV (KR)                                 | 단기간의값: 540 mg/m <sup>3</sup> , 150 ppm<br>장기간의값: 360 mg/m <sup>3</sup> , 100 ppm  |
| IOELV (EU)                               | 단기간의값: 568 mg/m <sup>3</sup> , 150 ppm<br>장기간의값: 375 mg/m <sup>3</sup> , 100 ppm<br>Skin  |
| REL (US)                                 | 단기간의값: 540 mg/m <sup>3</sup> , 150 ppm<br>장기간의값: 360 mg/m <sup>3</sup> , 100 ppm  |
| TLV (US)                                 | 단기간의값: 369 mg/m <sup>3</sup> , 100 ppm<br>장기간의값: 184 mg/m <sup>3</sup> , 50 ppm   |

**· 추가 정보:** 제조할 당시에 유효한 목록을 기초로 사용했다.

**· 노출 통제**

**· 개인 보호구**

**· 일반적보호조치및위생조치:**

- 식료품, 음료수와 사료로부터 멀리 떨어져 뜨려 놓는다.
- 더러워지거나 음료수가 묻은 옷은 즉시 탈의한다.
- 휴식 전이나 작업이 끝날때마다 손을 씻는다.
- 눈과의 접촉을 피한다.
- 눈과 피부와의 접촉은 피한다.

**· 호흡기 보호:**

단시간 또는 경미한 오염의 경우에는 호흡여과기를 사용한다. 심각한 또는 장기간 노출시에는 호흡보호장비를 사용한다.

**· 손 보호:**

장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.

(5 쪽에계속)

# 물질안전보건자료 GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명: Graphite Conductive Adhesive 154**

(4 쪽부터계속)

테스트를 하지 않았기 때문에 제품 / 조제 / 화학 혼합 물에 적합한 장갑재질에 대한 추천이 없다.  
투과 시간, 침투율과 저하를 고려해서 장갑 재료를 선택한다.

**· 장갑의재료**

적합한장갑의선택은재질차이뿐만아니라품질기준의차이도고려하여이루어져야하고제조업종에따라서도다르게선정되어야한다. 제품은다양한재료로부터의조제로이루어지는것이기때문에, 장갑재질의안정성은사전에예측되어질수있는것이아니고, 반드시사용전에 (그안전성이) 체크되어야한다.

· **장갑재료의투과시간** 정확한관통시간은보호장갑제조자에의하여인지되고, 준수되어야한다.

· **눈 보호:**



· **확조이는보안경**

## 9 물리화학적 특성

**· 기본 물리 및 화학적 특성에 대한 정보**

· **일반정보**

· **외형**

|           |        |
|-----------|--------|
| · 물리적 상태: | 액체     |
| · 색:      | 검은     |
| · 냄새:     | 알코올종류의 |
| · 후각역치    | 알맞지않다. |

· pH: 알맞지않다.

· **상태변화**

|                   |      |
|-------------------|------|
| · 녹는점/어는점:        | 맞지않는 |
| · 초기 끓는점과 끓는점 범위: | 맞지않는 |

· 인화점: 13 °C

· 인화성(고체, 기체): 해당사항 없음.

· 점화온도: 425 °C

· 분해 온도: 알맞지않다.

· 자기점화: 이제품은자연발화성이없다.

· 폭발위험: 이제품은폭발위험성이없지만, 폭발가능성이있는증기화합물/공기화합물의형성가능성이있다.

· **인화 또는 폭발 범위의 상한/하한**

|        |            |
|--------|------------|
| · 아래로: | 2.0 Vol %  |
| · 위로:  | 12.0 Vol % |

· 증기압 의경우 20 °C: 43 hPa

· 밀도: 맞지않는다.

· 비중: 알맞지않다.

· 증기밀도: 알맞지않다.

· 증발 속도: 알맞지않다.

· **용해도:**

· 물: 각각의경우에따라서는거의혼합할수없는

· n 옥탄올/물 분배계수: 알맞지않다.

(6 쪽에계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명:** Graphite Conductive Adhesive 154

(5 쪽부터계속)

|                   |                     |
|-------------------|---------------------|
| · <b>점도:</b>      |                     |
| · <b>역확성:</b>     | 알맞지않다.              |
| · <b>동점성:</b>     | 알맞지않다.              |
| · <b>용매내용물</b>    |                     |
| · <b>유기용매:</b>    | 76.8 %              |
| · <b>VOC (EU)</b> | 76.79 %             |
| · <b>기타 정보</b>    | 추가적인 정보가 존재하지 않습니다. |

### 10 안정성 및 반응성

- **반응성** 추가적인 정보가 존재하지 않습니다.
- **화학적 안정성**
- **화학적 안정성 및 유해 반응의 가능성 / 피해야 할 조건:** 규정에따라사용할경우해체는없다
- **유해반응 가능성** 위험한반응으로는알려지지않았다.
- **피해야 할 조건** 추가적인 정보가 존재하지 않습니다.
- **혼합 금지 물질:** 추가적인 정보가 존재하지 않습니다.
- **유해분해물질:** 위험성있는분해물들은알려지지않았다.

### 11 독성에 관한 정보

- **독성학적 영향에 대한 정보**
- **급성 독성:**

· **LD/LC50-수치에 따른 분류:**

**67-63-0 propan-2-ol**

|     |          |                      |
|-----|----------|----------------------|
| 구강의 | LD50     | 5045 mg/kg (rat)     |
| 피부의 | LD50     | 12800 mg/kg (rabbit) |
| 흡입의 | LC50/4 h | 30 mg/l (rat)        |

- **일차적 자극 효과:**
- **피부 부식성 또는 자극성:** 무자극
- **심한 눈 손상 또는 자극성:** 자극
- **감각화:** 민감한영향이없는것으로알려져있다.
- **추 가 적 인 독 성 에 관 한 정 보:**  
 이제품은유럽공동체의공동분류원칙의합법적인절차에근거하여최근에발효된원고에서아래위험들의사전준비에대하여제시하고있다.  
 건강에해로운  
 자극적인

### 12 환경에 미치는 영향

- **독성**
- **수생독성:** 추가적인 정보가 존재하지 않습니다.
- **지속성 및 분해성** 추가적인 정보가 존재하지 않습니다.
- **환 경 시 스템 에 서 의 행 동:**
- **생물농축 잠재성** 추가적인 정보가 존재하지 않습니다.
- **토양내 이동성** 추가적인 정보가 존재하지 않습니다.
- **추 가 적 인 생 태 학 정 보:**
- **일반 특징:** 수질오염이알려져있지않다.

(7 쪽에계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명:** Graphite Conductive Adhesive 154


- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.
- 기타 부작용 추가적인 정보가 존재하지 않습니다.

(6 쪽부터계속)

### 13 폐기시 주의사항

- 폐기물 처리 방법
- 권고: 생활쓰레기와 함께 처리되어서는 안 된다. 하수도망으로 유입되어서는 안 된다.
- 비위생적 포장:
- 권고: 당국의 지침에 입각한 쓰레기 처리.

### 14 운송에 필요한 정보

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· 유엔 번호</li> <li>· ADR, IMDG, IATA</li> </ul>   | <p style="text-align: center;">UN1993</p>  |
| <ul style="list-style-type: none"> <li>· UN 적정 선적명</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul>                               | <p>1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))</p> <p>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))</p> |
| <ul style="list-style-type: none"> <li>· 교통 위험 클래스</li> <li>· ADR, IMDG, IATA</li> </ul>   | <div style="text-align: center;">  </div>             |
| <ul style="list-style-type: none"> <li>· 등급</li> <li>· 위험물 라벨</li> </ul>   | <p>3 발화성용액</p> <p>3</p>  |
| <ul style="list-style-type: none"> <li>· 용기등급</li> <li>· ADR, IMDG, IATA</li> </ul>  | <p style="text-align: center;">II</p>  |
| <ul style="list-style-type: none"> <li>· 환경적 유해물질:</li> </ul>  | <p>해당사항 없음.</p>  |
| <ul style="list-style-type: none"> <li>· 이용자 특별 예방조치</li> <li>· 위험 코드:</li> <li>· EMS-번호:</li> <li>· Stowage Category</li> </ul> | <p>경고: 발화성용액</p> <p>33</p> <p>F-E, S-E</p> <p>B</p>  |
| <ul style="list-style-type: none"> <li>· MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송</li> </ul>      | <p>해당사항 없음.</p>  |
| <ul style="list-style-type: none"> <li>· 운송/추가 정보:</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>· ADR</li> <li>· 한정 수량 (LQ)</li> <li>· Excepted quantities (EQ)</li> </ul>                | <p>1L</p> <p>Code: E2</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p> |
| <ul style="list-style-type: none"> <li>· 운송 구분</li> </ul>  | <p>2</p>   |

(8 쪽에계속)



# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명: Graphite Conductive Adhesive 154**

(7 쪽부터계속)

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>· <b>터널 제한 코드</b></li> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul> | <p>D/E</p> <p>1L</p> <p>Code: E2</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p> |
| <ul style="list-style-type: none"> <li>· <b>UN "모범 규제":</b></li> </ul>  | <p>UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II</p>  |

### 15 법적 규제현황

· 해당 순물질 또는 혼합물에 대한 안전, 보건 및 환경 규제/법률

| · Korean Existing Chemical Inventory |                          |          |
|--------------------------------------|--------------------------|----------|
| 67-63-0                              | propan-2-ol              | KE-29363 |
| 7782-42-5                            | Graphite                 | KE-18101 |
| 71-36-3                              | n-Butyl Alcohol          | KE-03867 |
| 107-41-5                             | 2-methylpentane-2,4-diol | KE-24702 |
| 107-98-2                             | 1-methoxy-2-propanol     | KE-23379 |

· **화학물질관리법**

|                   |  |
|-------------------|--|
| <b>· 사고대비물질</b>   |  |
| 어떠한내용물도 목록화되어있지않다 |  |

· **금지물질**

|                   |  |
|-------------------|--|
|                   |  |
| 어떠한내용물도 목록화되어있지않다 |  |

· **제한물질**

|                   |  |
|-------------------|--|
|                   |  |
| 어떠한내용물도 목록화되어있지않다 |  |

· **유독물질**

|                   |  |
|-------------------|--|
|                   |  |
| 어떠한내용물도 목록화되어있지않다 |  |

· **허가물질**

|                   |  |
|-------------------|--|
|                   |  |
| 어떠한내용물도 목록화되어있지않다 |  |

· **GHS 라벨 요소**

본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

· **그림문자**



GHS02    GHS07

· **신호어 위험**

· **유해.위험 문구**

고인화성 액체 및 증기  
 눈에 심한 자극을 일으킴  
 졸음 또는 현기증을 일으킬 수 있음

· **예방조치 문구**

열·스파크·화염·고열로부터 멀리하시오 - 금연  
 (분진·흙·가스·미스트·증기·스프레이)의 흡입을 피하시오.  
 피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗으시오. 피부를 물로 씻으시오/샤워하시오.

(9 쪽에계속)

# 물질안전보건자료

## GHS에 따라

기압점: 2016.08.04

개정: 2016.08.04

**제품명: Graphite Conductive Adhesive 154**

눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면콘택트렌즈를 제거하십시오. 계속 씻으시오. (8 쪽부터계속)  
 잠금장치가 있는 저장장소에 저장 하시오.  
 현지/지역/국가/국제 규정에 따라서 내용물/용기 노출  
 · **화학물질 안전성 평가:** 화학물질 안전성 평가가 수행되지 않음

### 16 그 밖의 참고사항

이보고는우리지식에대한오늘날의상태에대하여평가하고있다, 하지만이보고서는생산특성에관한보증은 기술하지않았으며계약적인법률관계에기반을두고있지도않다

- **최초 작성일자:** 2016.08.04
- **개정 횟수 및 최종 개정일자:** 1 / 2016.08.04
- **약어와 두문자어:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative

# Risalah Data Keselamatan Bahan

## Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

### 1 Pengenalpastian bahan/sediaan dan syarikat

- **Pengenal pasti produk**
- **Nama dagang:** Graphite Conductive Adhesive 154
- **Nombor artikel:** 12691-30, 12691-30-sp, 12691
- **Kegunaan berkaitan yang dikenal pasti bagi bahan atau campuran dan penggunaan**  
Tiada maklumat lanjut yang diperolehi.
- **Penggunaan bahan/sediaan** Bahan kimia makmal
- **Perincian pembekal risalah data keselamatan**
- **Pengilang/Pembekal:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkceck@aol.com  
www.emsdiasum.com
- **Maklumat lanjut dapat diperolehi daripada:** Product safety department
- **Nombor telefon kecemasan:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### 2 Pengenalpastian bahaya

- **Pengelasan bahan atau campuran**



Nyalaan

Cec. M. Bkr 2 H225 Cecair dan wap amat mudah terbakar.



Kreng. Mata 2 H319 Menyebabkan kerengsaan mata yang serius.

STOT SE 3 H336 Boleh menyebabkan mengantuk atau kepeningan.

- **Melabelkan unsur**
- **Unsur label GHS** Produk ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).
- **Piktogram hazard**



GHS02



GHS07

- **Perkataan isyarat Bahaya**
- **Pernyataan hazard**  
Cecair dan wap amat mudah terbakar.  
Menyebabkan kerengsaan mata yang serius.  
Boleh menyebabkan mengantuk atau kepeningan.
- **Pernyataan langkah perlindungan**  
Jauhkan daripada haba/percikan api/nyalaan terbuka/permukaan panas - Dilarang merokok.  
Elakkan daripada tersedut habuk/wasap/gas/kabus/wap/semburan.

(Bersambung ke halaman 2)

# Risalah Data Keselamatan Bahan

## Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

**Nama dagang: Graphite Conductive Adhesive 154**

(Sambungan halaman 1)

**JIKA TERKENA KULIT (atau rambut):** Tanggalkan semua pakaian yang tercemar dengan segera. Basuh kulit dengan air/pancuran.

**JIKA TERKENA MATA:** Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.

Simpan di tempat berkunci.

Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.

- **Bahaya lain**
- **Keputusan penilaian PBT dan vPvB**
- **PBT:** Tidak berkenaan
- **vPvB:** Tidak berkenaan

### 3 Komposisi/maklumat ramuan

- **Ciri kimia:** Campuran
- **Keterangan:** Campuran bahan disenaraikan di bawah bersama dengan bahan tambah tidak berbahaya.

· **Komponen berbahaya :**

|           |   |         |
|-----------|---|---------|
| 67-63-0   | isopropanol<br>☠ Cec. M. Bkr 2, H225; ⚠ Kreng. Mata 2, H319; STOT SE 3, H336  | 50-100% |
| 7782-42-5 | Graphite<br>⚠ Kreng. Mata 2, H319   | 10-25%  |
| 71-36-3   | butan-1-ol<br>☠ Cec. M. Bkr 3, H226; ⚠ Kros. Mata 1, H318; ⚠ Toks. Akut 4, H302; Kreng. Kulit 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| 107-41-5  | 2-methylpentane-2,4-diol<br>⚠ Kreng. Kulit 2, H315; Kreng. Mata 2, H319   | 2,5-10% |
| 107-98-2  | monopropylene glycol methyl ether<br>☠ Cec. M. Bkr 3, H226; ⚠ STOT SE 3, H336   | 2,5-10% |

### 4 Langkah pertolongan cemas

- **Keterangan langkah pertolongan cemas**
- **Maklumat am:**  
Gejala keracunan boleh berlaku selepas beberapa jam, maka rawatan perubatan hendaklah diberikan sekurang-kurangnya 48 jam selepas kemalangan.
- **Jika tersedut:**  
Berikan udara bersih. Jika perlu berikan pernafasan bantuan. Pastikan pesakit dalam keadaan selesa. Rujuk doktor jika gejala berterusan.  
Jika mangsa tidak sedarkan diri, letakkan pesakit dengan stabil dalam kedudukan mengiring untuk diangkat.
- **Jika terkena kulit:** Biasanya produk tidak merengsakan kulit.
- **Jika terkena mata:**  
Bilas mata sambil membukanya di bawah air yang mengalir selama beberapa minit. Jika gejala berterusan, hubungi doktor.
- **Jika tertelan:** Jika gejala berterusan, hubungi doktor.
- **Maklumat untuk doktor:**
- **Gejala dan kesan paling penting, akut dan lewat** Tiada maklumat lanjut yang diperolehi.
- **Arahan bagi apa-apa rawatan perubatan dan rawatan khas yang diperlukan**  
Tiada maklumat lanjut yang diperolehi.

MY

(Bersambung ke halaman 3)

# Risalah Data Keselamatan Bahan

## Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

**Nama dagang: Graphite Conductive Adhesive 154**

(Sambungan halaman 2)

### 5 Langkah memadam kebakaran

- **Bahan pemadam api**
- **Agen pemadam yang sesuai:** CO<sub>2</sub>, pasir, serbuk pemadam kebakaran. Jangan gunakan air.
- **Agen pemadam yang tidak sesuai untuk tujuan keselamatan:** Air dalam pancutan penuh
- **Bahaya khusus yang timbul daripada bahan atau campuran** Tiada maklumat lanjut yang diperoleh.
- **Panduan kepada pemadam kebakaran**
- **Kelengkapan perlindungan:** Peralatan perlindungan pernafasan mulut.

### 6 Langkah menangani pelepasan yang tidak disengajakan

- **Langkah perlindungan diri, kelengkapan pelindung dan prosedur kecemasan**  
Pakai kelengkapan perlindungan. Jauhkan mereka yang tidak dilindungi dari kawasan tercemar.
- **Langkah perlindungan alam sekitar:**  
Elakkan peresapan masuk ke dalam sistem pembetulan, tempat kerja dan bawah tanah.
- **Kaedah dan bahan untuk pembendungan dan pembersihan:**  
Serap dengan bahan cecair pengikat (pasir, diatomit, pengikat asid, pengikat semesta, habuk papan)  
Lupuskan bahan tercemar sebagai sisa mengikut perkara 13.  
Pastikan pengalihudaraan mencukupi.  
Jangan jirus dengan air atau agen pencuci akueus.
- **Rujukan ke bahagian lain**  
Lihat Bahagian 7 untuk maklumat pengendalian yang selamat.  
Lihat Bahagian 8 untuk maklumat kelengkapan perlindungan diri.  
Lihat Bahagian 13 untuk maklumat pelupusan.

### 7 Pengendalian dan penyimpanan

- **Pengendalian:**
- **Langkah perlindungan untuk pengendalian selamat**  
Pastikan pengalihudaraan/ekzos yang mencukupi di tempat kerja.  
Elakkan pembentukan aerosol.
- **Maklumat kebakaran dan perlindungan daripada letupan:**  
Jauhkan dari punca pencucuhan - Dilarang merokok.  
Lindungi daripada haba.  
Lindungi daripada cas-cas elektrostatik.
- **Keadaan untuk penyimpanan selamat, termasuk apa-apa ketakserasian**
- **Penyimpanan:**
- **Keperluan yang mesti dipenuhi oleh bilik stor dan ruang simpanan.** Simpan di tempat sejuk.
- **Maklumat penyimpanan di dalam satu tempat penyimpanan yang biasa:** Tidak diperlukan.
- **Maklumat lanjut tentang syarat penyimpanan:**  
Pastikan bekas sentiasa bertutup rapat.  
Simpan di tempat yang sejuk dan kering di dalam bekas bertutup rapat.  
Lindungi daripada haba dan pancaran terus cahaya matahari.
- **Kegunaan akhir yang khusus** Tiada maklumat lanjut yang diperoleh.

### 8 Kawalan pendedahan/perlindungan diri

- **Maklumat tambahan tentang reka bentuk kemudahan teknikal:** Tiada maklumat lanjut, lihat perkara 7.

(Bersambung ke halaman 4)

## Risalah Data Keselamatan Bahan Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

**Nama dagang: Graphite Conductive Adhesive 154**

(Sambungan halaman 3)

· **Parameter kawalan**

|   |   |
|---|---|
| · <b>Ramuhan dengan nilai had yang memerlukan pemantauan di tempat kerja:</b> |   |
| <b>67-63-0 isopropanol</b>  |   |
| PEL   | Nilai jangka panjang: 49 mg/m <sup>3</sup> , 10 ppm   |
| <b>71-36-3 butan-1-ol</b>   |   |
| PEL   | had siling: 152 mg/m <sup>3</sup> , 50 ppm<br>(kulit) |
| <b>107-41-5 2-methylpentane-2,4-diol</b>                                      |   |
| PEL   | had siling: 121 mg/m <sup>3</sup> , 25 ppm            |
| <b>107-98-2 monopropylene glycol methyl ether</b>                             |   |
| PEL   | Nilai jangka panjang: 369 mg/m <sup>3</sup> , 100 ppm |

· **Maklumat tambahan:** Senarai yang sah semasa pembuatan digunakan sebagai asas.

· **Kawalan pendedahan**

· **Kelengkapan perlindungan diri:**

· **Langkah perlindungan dan kebersihan am:**

- Jauhkan daripada makanan, minuman dan makanan haiwan.
- Segera tanggalkan semua pakaian yang tercemar dan kotor.
- Basuh tangan sebelum berhenti rehat dan apabila kerja selesai.
- Elakkan daripada terkena mata.
- Elakkan daripada terkena mata dan kulit.

· **Perlindungan pernafasan:**

Jika berlaku pendedahan sekejap atau sedikit pencemaran, gunakan alat penapis pernafasan. Jika berlaku pendedahan yang intensif atau berpanjangan, gunakan alat pernafasan perlindungan serba lengkap.

· **Perlindungan tangan:**

Bahan sarung tangan hendaklah telus dan kalis terhadap produk/bahan/sediaan.  
Oleh sebab tiada ujian yang dijalankan, maka tiada syor bagi bahan sarung tangan yang boleh diberikan untuk produk/sediaan/campuran kimia.  
Pemilihan bahan sarung tangan berdasarkan waktu penembusan, kadar pembauran dan degradasi.

· **Bahan sarung tangan**

Pemilihan sarung tangan yang sesuai bukan hanya bergantung pada bahannya, tetapi juga tanda kualiti lainnya serta perbezaannya daripada satu pengeluar dengan pengeluar yang lain. Memandangkan produk merupakan suatu sediaan daripada beberapa bahan, ketahanan bahan sarung tangan tidak boleh dipastikan terlebih dahulu, oleh itu sarung tangan hendaklah diperiksa sebelum digunakan.

· **Jangka masa penyerapan bahan sarung tangan**

Waktu kemunculan yang tepat hendaklah diperoleh pengeluar sarung tangan pelindung dan hendaklah dipatuhi.

· **Perlindungan mata:**



Gogal bertutup rapat

### 9 Ciri fizik dan kimia

· **Maklumat tentang ciri fizik dan kimia**

· **Maklumat Am**

· **Rupa:**

**Bentuk:**

Cecair

**Warna:**

Hitam

(Bersambung ke halaman 5)

## Risalah Data Keselamatan Bahan Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

**Nama dagang: Graphite Conductive Adhesive 154**

(Sambungan halaman 4)

|  |   |
|--|---|
| · <b>Bau:</b>  | Seperti alkohol   |
| · <b>Had ambang bau:</b>   | Tidak ditentukan.   |
| · <b>Nilai pH:</b>   | Tidak ditentukan.   |
| · <b>Perubahan pada keadaan</b><br><b>Takat lebur/Julat lebur:</b>     | Tidak ditentukan.   |
| <b>Takat didih/Julat didih:</b>  | Tidak ditentukan  |
| · <b>Takat kilat:</b>  | 13 °C   |
| · <b>Kemudahbakaran (pepejal, gas)</b>                                 | Tidak berkenaan   |
| · <b>Suhu pencucuhan:</b>  | 425 °C  |
| · <b>Suhu penguraian:</b>  | Tidak ditentukan.   |
| · <b>Pencucuhan sendiri</b>  | Produk tidak tercucuh sendiri   |
| · <b>Bahaya letupan:</b>   | Produk tidak mudah meletup. Walau bagaimanapun, pembentukan campuran udara/wap mungkin berlaku. |
| · <b>Had letupan :</b><br><b>Bawah:</b>                                | 2,0 Vol %   |
| <b>Atas:</b>   | 12,0 Vol %  |
| · <b>Tekanan wap pada 20 °C:</b>                                       | 43 hPa  |
| · <b>Ketumpatan:</b>   | Tidak ditentukan.   |
| · <b>Ketumpatan relatif</b>  | Tidak ditentukan.   |
| · <b>Ketumpatan wap</b>  | Tidak ditentukan.   |
| · <b>Kadar penyejatan</b>  | Tidak ditentukan.   |
| · <b>Keterlarutan dalam / Keterlarutcampuran dengan</b><br><b>Air:</b> | Tidak terlarut campur atau sukar bercampur.   |
| · <b>Pekali pengasingan (n-oktanol/air)</b>                            | Tidak ditentukan.   |
| · <b>Kelikatan:</b><br><b>Dinamik:</b>                                 | Tidak ditentukan.   |
| <b>Kinematik:</b>  | Tidak ditentukan.   |
| · <b>Kandungan pelarut:</b><br><b>Pelarut organik:</b>                 | 76,8 %  |
| · <b>Maklumat lain</b>   | Tiada maklumat lanjut yang diperoleh.   |

### 10 Kestabilan dan kereaktifan

- **Kereaktifan** Tiada maklumat lanjut yang diperoleh.
- **Kestabilan kimia**
- **Penguraian termal/keadaan yang perlu dielakkan:** Tiada penguraian jika digunakan mengikut spesifikasi.
- **Kemungkinan tindak balas berbahaya** Tiada tindak balas berbahaya yang diketahui.
- **Keadaan yang perlu dielakkan** Tiada maklumat lanjut yang diperoleh.
- **Bahan tidak serasi:** Tiada maklumat lanjut yang diperoleh.
- **Produk penguraian yang berbahaya:** Tiada produk penguraian berbahaya yang diketahui.

MY

(Bersambung ke halaman 6)



# Risalah Data Keselamatan Bahan

## Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

Nama dagang: *Graphite Conductive Adhesive 154*

(Sambungan halaman 5)

### 11 Maklumat toksikologi

- Maklumat tentang kesan toksikologi
- Ketoksikan akut:

· Nilai LD/LC50 yang berkaitan untuk pengelasan:

**67-63-0 isopropanol**

|          |          |                      |
|----------|----------|----------------------|
| Oral     | LD50     | 5045 mg/kg (rat)     |
| Derma    | LD50     | 12800 mg/kg (rabbit) |
| Tersedut | LC50/4 h | 30 mg/l (rat)        |

- Kesan kerengsaan primer:
- pada kulit: Tiada kesan merengsa.
- pada mata: Kesan merengsa.
- Pemekaan: Tiada kesan pemekaan yang diketahui.
- Maklumat tambahan toksikologi:  
Produk menunjukkan bahaya berikut mengikut kaedah pengiraan Garis Panduan Pengelasan Am EU bagi Sediaan seperti yang dikeluarkan dalam versi terbaru:  
Memudaratkan  
Perengsa

### 12 Maklumat ekologi

- Ketoksikan
- Ketoksikan akuatik: Tiada maklumat lanjut yang diperoleh.
- Keterusan dan keterdegradasikan: Tiada maklumat lanjut yang diperoleh.
- Kelakuan dalam sistem alam sekitar:
- Potensi bioakumulatif: Tiada maklumat lanjut yang diperoleh.
- Mobiliti di dalam tanah: Tiada maklumat lanjut yang diperoleh.
- Maklumat tambahan ekologi:
- Nota am: Tidak diketahui berbahaya kepada air.
- Keputusan penilaian PBT dan vPvB
- PBT: Tidak berkenaan
- vPvB: Tidak berkenaan
- Kesan buruk yang lain: Tiada maklumat lanjut yang diperoleh.

### 13 Maklumat pelupusan

- Kaedah rawatan sisa
- Syor:  
Tidak boleh dilupuskan bersama dengan sampah isi rumah. Jangan biarkan produk memasuki sistem pembentungan.
- Pembungkusan yang tidak bersih:
- Syor: Pelupusan mestilah dijalankan menurut peraturan rasmi

### 14 Maklumat pengangkutan

- Nombor UN
  - ADR, IMDG, IATA
- UN1993

(Bersambung ke halaman 7)

## Risalah Data Keselamatan Bahan Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

**Nama dagang: Graphite Conductive Adhesive 154**

(Sambungan halaman 6)

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· Nama penghantaran UN yang betul</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul> | <p>1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))</p> <p>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))</p> |
|--|--|

- pengangkutan kelas bahaya
- ADR, IMDG, IATA



|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· Kelas</li> <li>· Label</li> </ul> | <p>3 Cecair mudah terbakar.</p> <p>3</p> |
|--|--|

- Kumpulan pembungkusan
- ADR, IMDG, IATA

II

- Hazard persekitaran:

Tidak berkenaan

- Langkah perlindungan khas untuk pengguna
- Kod bahaya (Kemler):
- Nombor EMS:
- Stowage Category

Amaran: Cecair mudah terbakar.

33

F-E,S-E

B

- Pengangkutan dalam pukal menurut Lampiran II MARPOL73/78 dan Kod IBC

Tidak berkenaan

- Pengangkutan/Maklumat Tambahan:

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>· ADR</li> <li>· Excepted quantities (EQ)</li> </ul> | <p>Code: E2</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p> |
|---|--|

- IMDG
- Limited quantities (LQ)
- Excepted quantities (EQ)

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

- "Peraturan Model" UN:

UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II

### 15 Maklumat Pengawalaturan

- Peraturan/undang-undang keselamatan, kesihatan dan persekitaran khusus untuk bahan atau campuran tersebut
- Unsur label GHS Produk ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).

(Bersambung ke halaman 8)

-MY

# Risalah Data Keselamatan Bahan

## Menurut 91/155 EC

Tarikh cetak 04.08.2016

Disemak semula pada 04.08.2016

Nama dagang: **Graphite Conductive Adhesive 154**

(Sambungan halaman 7)

· **Piktogram hazard**



GHS02 GHS07

· **Perkataan isyarat Bahaya**

· **Pernyataan hazard**

Cecair dan wap amat mudah terbakar.  
Menyebabkan kerengsaan mata yang serius.  
Boleh menyebabkan mengantuk atau kepeningan.

· **Pernyataan langkah perlindungan**

Jauhkan daripada haba/percikan api/nyalaan terbuka/permukaan panas - Dilarang merokok.  
Elakkan daripada tersedut habuk/wasap/gas/kabus/wap/semburan.  
**JIKA TERKENA KULIT** (atau rambut): Tanggalkan semua pakaian yang tercemar dengan segera. Basuh kulit dengan air/pancuran.  
**JIKA TERKENA MATA:** Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.  
Simpan di tempat berkunci.  
Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.

· **Penilaian keselamatan bahan kimia:** Penilaian Keselamatan Bahan Kimia belum dilakukan.

### 16 Maklumat lain

Maklumat ini berdasarkan maklumat kami yang terkini. Walau bagaimanapun, ini tidak akan menjadi jaminan bagi apa-apa ciri produk yang khusus dan tidak akan mewujudkan hubungan kontraktual yang sah dari segi undang-undang.

· **Singkatan dan akronim:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Cec. M. Bkr 2: Flammable liquids – Category 2  
Cec. M. Bkr 3: Flammable liquids – Category 3  
Toks. Akut 4: Acute toxicity – Category 4  
Kreng. Kulit 2: Skin corrosion/irritation – Category 2  
Kros. Mata 1: Serious eye damage/eye irritation – Category 1  
Kreng. Mata 2: Serious eye damage/eye irritation – Category 2  
Kreng. Mata 2: Serious eye damage/eye irritation – Category 2  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

MY

# Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

## Avsnitt 1: Identifikasjon av kjemikaliyet og ansvarlig firma

- **1.1 Produktidentifikator**
- **Handelsnavn:** Graphite Conductive Adhesive 154
- **Artikkelnummer:** 12691-30, 12691-30-sp, 12691
- **1.2 Relevante, identifiserte anvendelser av stoffet eller stoffblandingen, samt anvendelser som frarådes**  
Ikke noe mer relevant informasjon tilgjengelig.
- **Bruk av stoffet/ tilberedning** laboratoriekjemikalier
- **1.3 Enkeltopplysninger om foretaket som leverer sikkerhetsdatabladet**
- **Produsent/leverandør:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Avdeling for nærmere informasjon:** Product safety department
- **1.4 Nødnummer:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## Avsnitt 2: Viktigste faremomenter

- **2.1 Klassifisering av stoff eller stoffblanding**
- **Klassifisering i henhold til EC-forskrift nr.1272/2008**



GHS02 Flamme

Flam. Liq. 2 H225 Meget brannfarlig væske og damp.



GHS07

Skin Irrit. 2 H315 Irriterer huden.

Eye Irrit. 2 H319 Gir alvorlig øyeirritasjon.

STOT SE 3 H336 Kan forårsake dødsighet eller svimmelhet.

- **2.2 Etikettelementer**
- **Merking iht. bestemmelse (EC) Nr. 1272/2008**  
Produktet er klassifisert og merket i henhold til CLP-forordningen.
- **Farepiktogrammer**



GHS02 GHS07

- **Varselord Fare**
- **Farebestemmende komponenter ved etikettering:**  
propan-2-ol
- **Faresetninger**  
H225 Meget brannfarlig væske og damp.  
H315 Irriterer huden.

(fortsatt på side 2)

NO

# Sikkerhetsdatablad

## iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

### Handelsnavn: Graphite Conductive Adhesive 154

(fortsatt fra side 1)

H319 Gir alvorlig øyeirritasjon.

H336 Kan forårsake dødsighet eller svimmelhet.

#### · Sikkerhetssetninger

P210 Holdes vekk fra varme, varme overflater, gnister, åpen ild og andre antenningskilder. Røyking forbudt.

P261 Unngå innånding av støv/røyk/gass/tåke/damp/aerosoler.

P303+P361+P353 VED HUDKONTAKT (eller håret): Tilsølte klær må fjernes straks. Skyll/dusj huden med vann.

P305+P351+P338 VED KONTAKT MED ØYENENE: Skyll forsiktig med vann i flere minutter. Fjern eventuelle kontaktlinser dersom dette enkelt lar seg gjøre. Fortsett skyllingen.

P405 Oppbevares innelåst.

P501 Innholdet / emballasjen skal avhendes i henhold til de lokale / regionale / nasjonale / internasjonale forskrifter.

#### · 2.3 Andre farer

#### · Resultater av PBT- og vPvB-vurdering

· **PBT:** Ikke brukbar.

· **vPvB:** Ikke brukbar.

### Avsnitt 3: Stoffblandingers sammensetning og stoffenes klassifisering

#### · 3.2 Kjemisk karakterisering: Blandinger

· **Beskrivelse:** Blanding av nedenstående oppførte stoffer med ufarlige tilsetninger.

#### · Farlige innholdsstoffer:

|                                     |   |         |
|-------------------------------------|---|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | propan-2-ol<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336  | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | Graphite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                       | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butan-1-ol<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-metyl-2,4-pentandiol<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-metoksy-2-propanol<br>Flam. Liq. 3, H226; STOT SE 3, H336   | 2,5-10% |

· **Ytterligere informasjon:** Teksten til de fareangivelsene som er inkludert her, kan konsulteres i kapittel 16.

### Avsnitt 4: Førstehjelpstiltak

#### · 4.1 Beskrivelse av førstehjelpstiltak

#### · Generelle informasjon:

Forgiftningssymptomer kan også oppstå etter mange timer. Personer må derfor ha legetilsyn i minst 48 timer etter en ulykke.

#### · Etter innånding:

Frisklufttilførsel, eventuelt kunstig åndedrett, varme. Ved fortsatt besvær må lege tilkalles.

Ved bevisstløshet lagring og transport i stabil sidestilling.

· **Etter hudkontakt:** Vanligvis irriterer produktet ikke huden.

#### · Etter øyekontakt:

Skyll øynene med åpne øyenlokk i flere minutter under rennende vann. Ved fortsatt besvær tilkall lege.

· **Etter svelging:** Ved fortsatt besvær må lege konsulteres.

· **4.2 De viktigste symptomer og effekter, både akutt og forsinket** Ikke noe mer relevant informasjon tilgjengelig.

(fortsatt på side 3)

# Sikkerhetsdatablad

## iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

**Handelsnavn: Graphite Conductive Adhesive 154**

(fortsatt fra side 2)

- **4.3 Indikasjon på omgående medisinsk hjelp eller påkrevet spesialbehandling**  
Ikke noe mer relevant informasjon tilgjengelig.

### Avsnitt 5: Tiltak ved brannslukning

- **5.1 Slokkemiddel**
- **Egnede slukningsmidler:** CO<sub>2</sub>, sand, slukningspulver. Bruk ikke vann.
- **Av sikkerhetsgrunner ikke egnede slukningsmidler:** Vann i full stråle
- **5.2 Spesielle farer som oppstår pga. substanser eller blandinger** Ikke noe mer relevant informasjon tilgjengelig.
- **5.3 Informasjon vedr. brannbekjempelse**
- **Spesielt verneutstyr:** Ta på egnet åndedrettsbeskyttelse.

### Avsnitt 6: Tiltak ved utilsiktet utslipp

- **6.1 Personlige vernetiltak, verneutstyr og prosedyrer ved nødsituasjoner**  
Ta på beskyttelsesdrakt. Hold ubeskyttede personer borte.
- **6.2 Miljøverntiltak:** Forhindre at produktet kommer ned i kloakk, grøfter og kjellere.
- **6.3 Metoder og materiale for oppsamling og opprensing:**  
Ta opp stoffet med væskebindende materiale (sand, kiselgur, syrebindemiddel, universalbindemiddel, sagflis).  
Bortskaff kontaminert materiale som avfall i.h.t. punkt 13.  
Sørg for tilstrekkelig ventilasjon.  
Skyll ikke bort med vann eller med vannholdige rengjøringsmidler.
- **6.4 Henvisning til andre avsnitt**  
Informasjoner om sikker håndtering, se kapittel 7.  
Informasjoner om personlig beskyttelsesutstyr, se kapittel 8.  
Informasjoner om bortskaffelse/deponering, se kapittel 13.

### Avsnitt 7: Håndtering og oppbevaring

- **7.1 Forholdsregler for sikker håndtering**  
Sørg for god ventilasjon/avsugning på arbeidsplassen.  
Unngå aerosoldannelse.
- **Henvisninger om brann- og eksplosjonsvern:**  
Bruk av åpen ild forbudt - røyking forbudt.  
Beskytt mot varme.  
Gjør tiltak mot elektrostatisk oppladning.
- **7.2 Vilkår for sikker lagring, inkl. eventuelle inkompatibiliteter**
- **Lagring:**
- **Krav til lagerrom og beholdere:** Lagres på et kjølig sted.
- **Informasjoner om felles lagring:** Ikke nødvendig.
- **Ytterligere informasjoner om lagervilkårene:**  
Hold beholderne tett tillukket.  
Lagres kjølig og tørt i godt tillukkede beholdere.  
Beskyttes mot varme og direkte solpåvirkning.
- **7.3 Spesiell sluttbruk** Ikke noe mer relevant informasjon tilgjengelig.

### Avsnitt 8: Eksponeringskontroll og personlig verneutstyr

- **Ytterligere informasjoner om utforming av tekniske anlegg:** Ingen ytterligere informasjoner, se punkt 7.

(fortsatt på side 4)

# Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

**Handelsnavn: Graphite Conductive Adhesive 154**

(fortsatt fra side 3)

## · 8.1 Kontrollparametere

|  |  |
|--|--|
| · <b>Komponenter med grenseverdier for arbeidsplass som må overholdes:</b> |  |
| <b>67-63-0 propan-2-ol</b>   |  |
| AG   | Langtidsverdi: 245 mg/m <sup>3</sup> , 100 ppm |
| <b>71-36-3 butan-1-ol</b>  |  |
| AG   | Takverdi: 75 mg/m <sup>3</sup> , 25 ppm        |
|  | H  |
| <b>107-41-5 2-metyl-2,4-pentandiol</b>                                     |  |
| AG   | Takverdi: 100 mg/m <sup>3</sup> , 20 ppm       |
| <b>107-98-2 1-metoksy-2-propanol</b>                                       |  |
| AG   | Langtidsverdi: 180 mg/m <sup>3</sup> , 50 ppm  |
|  | H E  |

· **Ytterligere informasjoner:** Basis: listene som var gyldige ved oppstillingen.

## · 8.2 Begrensning og kontroll av eksponering

### · Personlig verneutstyr:

#### · Generelle verne- og hygienetiltak:

Holdes adskilt fra næringsmidler, drikkevarer og førestoffer.

Fjern omgående forurensede, gjennomvætede klær.

Vask hendene før arbeidspauser og ved arbeidets slutt.

Unngå berøring med øynene.

Unngå berøring med øyne og hud.

#### · Åndedrettsvern:

Ved korttidig eller liten belastning åndedrettsfilterapparat; ved intensiv eller lengre utsetting: bruk omluft-uavhengig åndedrettsbeskyttelsesapparat.

#### · Håndvern:

Hanskematerialet må være ugjennomtrengelig og bestandig overfor produktet /stoffet /blandingen.

På grunn av manglende tester kan det ikke gis noen anbefaling om hanskemateriale for produktet / tilberedningsprosessen/kjemikalieblandingen.

Hanskematerialet velges under hensyntagen til holdbarhetstid, gjennomtrengelighet og degradering.

#### · hanskemateriale

Valget av egnet hanske er ikke bare avhengig av materiale, men også av andre kvalitetskjennetegn og er forskjellig fra produsent til produsent. Da produktet representerer en sammensetning av flere stoffer, kan holdbarheten av hanskematerialet ikke forhåndsregnes, og denne må testes før bruk.

#### · gjennomtrengingstid for hanskemateriale

Den nøyaktige holdbarhetstiden må bringes på det rene hos hanskeprodusenten og overholdes.

#### · Øyevern:



Tettsittende vernebrille

## Avsnitt 9: Fysiske og kjemiske egenskaper

### · 9.1 Informasjon om grunnleggende fysiske og kjemiske egenskaper

#### · alminnelige opplysninger

##### · Utseende:

**Form:** Væske

**Farge:** Svart

(fortsatt på side 5)



**Sikkerhetsdatablad**  
iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

**Handelsnavn: Graphite Conductive Adhesive 154**

(fortsatt fra side 4)

|  |  |
|--|--|
| · <b>Lukt:</b>                                   | Alkohollignende  |
| · <b>Luktterskel:</b>                            | Ikke bestemt.  |
| · <b>pH-verdi:</b>                               | Ikke bestemt.  |
| · <b>Tilstandsending</b>                         |  |
| <b>Smeltepunkt/smelteområde:</b>                 | Ikke bestemt.  |
| <b>Kokepunkt/kokeområde:</b>                     | Ikke bestemt.  |
| · <b>Flammepunkt:</b>                            | 13 °C  |
| · <b>Antennelighet (fast, gassformet):</b>       | Ikke brukbar.  |
| · <b>Antennelsestemperatur:</b>                  | 425 °C   |
| · <b>Spaltningstemperatur:</b>                   | Ikke bestemt.  |
| · <b>Selvantennelighet:</b>                      | Produktet er ikke selvantennelig.  |
| · <b>Eksplisjonsfare:</b>                        | Produktet er ikke eksplisjonsfarlig. Dannelse av eksplisjonsfarlige damp-/luftblandinger er dog mulig. |
| · <b>Eksplisjonsgrenser:</b>                     |  |
| <b>Nedre:</b>                                    | 2,0 Vol %  |
| <b>Øvre</b>                                      | 12,0 Vol %   |
| · <b>Damptrykk ved 20 °C:</b>                    | 43 hPa   |
| · <b>Tetthet:</b>                                | Ikke bestemt.  |
| · <b>relativt tetthet</b>                        | Ikke bestemt.  |
| · <b>damptetthet</b>                             | Ikke bestemt.  |
| · <b>fordampningshastighet</b>                   | Ikke bestemt.  |
| · <b>Løslighet i / blandbarhet med vann:</b>     | Ikke, hhv. lite blandbar.  |
| · <b>Fordelingskoeffisient (n-oktanol/vann):</b> | Ikke bestemt.  |
| · <b>Viskositet:</b>                             |  |
| <b>Dynamisk:</b>                                 | Ikke bestemt.  |
| <b>Kinematisk:</b>                               | Ikke bestemt.  |
| · <b>Løsningsmiddelandel:</b>                    |  |
| <b>Organiske løsningsmidler:</b>                 | 76,8 %   |
| <b>VOC (EF)</b>                                  | 76,79 %  |
| · <b>9.2 Annen informasjon</b>                   | Ikke noe mer relevant informasjon tilgjengelig.  |

### Avsnitt 10: Stabilitet og reaktivitet

- **10.1 Reaktivitet** Ikke noe mer relevant informasjon tilgjengelig.
- **10.2 Kjemisk stabilitet**
- **Termisk spaltning / vilkår som må unngås:** Ingen spaltning ved formålsriktig bruk.
- **10.3 Mulighet for farlige reaksjoner** Det kjennes ingen farlige reaksjoner.
- **10.4 Forhold som bør unngås** Ikke noe mer relevant informasjon tilgjengelig.
- **10.5 Inkompatible materialer:** Ikke noe mer relevant informasjon tilgjengelig.
- **10.6 Farlige nedbrytningsprodukter:** Ingen farlige spaltningsprodukter kjente.

NO

(fortsatt på side 6)



# Sikkerhetsdatablad

## iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

Handelsnavn: Graphite Conductive Adhesive 154

(fortsatt fra side 5)

### Avsnitt 11: Opplysninger om helsefare

- **11.1 Informasjon om toksikologiske virkninger**
- **Akutt giftighet** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.

- **Klassifiseringsrelevante LD/LC50-verdier:**

#### 67-63-0 propan-2-ol

|           |          |                      |
|-----------|----------|----------------------|
| Oral      | LD50     | 5045 mg/kg (rat)     |
| Dermal    | LD50     | 12800 mg/kg (rabbit) |
| Inhalativ | LC50/4 h | 30 mg/l (rat)        |

- **Primær irritasjonsvirkning:**
- **Hudetsing/hudirritasjon**  
Irriterer huden.
- **Alvorlig øyeskade/øyeirritasjon**  
Gir alvorlig øyeirritasjon.
- **Sensibiliserende ved innånding eller hudkontakt**  
Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Informasjon om følgende grupper med potensielle virkninger:**
- **CMR-virkninger (kreftfremkallende virkninger, arvestoffskadelige og reproduksjonsskadelige virkninger)**
- **Skader på arvestoffet i kjønnsceller** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Kreftfremkallende egenskap** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Reproduksjonstoksitet** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **STOT – enkelteksponering**  
Kan forårsake dødsighet eller svimmelhet.
- **STOT – gjentatt eksponering** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Aspirasjonsfare** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.

### Avsnitt 12: Miljøopplysninger

- **12.1 Giftighet**
- **Akvatisk toksisitet:** Ikke noe mer relevant informasjon tilgjengelig.
- **12.2 Persistens og nedbrytbarhet** Ikke noe mer relevant informasjon tilgjengelig.
- **12.3 Bioakkumulasjonspotensial** Ikke noe mer relevant informasjon tilgjengelig.
- **12.4 Mobilitet i jord** Ikke noe mer relevant informasjon tilgjengelig.
- **Ytterligere økologiske informasjoner:**
- **Generelle informasjoner:** Ingen vannfare kjent.
- **12.5 Resultater av PBT- og vPvB-vurdering**
- **PBT:** Ikke brukbar.
- **vPvB:** Ikke brukbar.
- **12.6 Andre skadelige virkninger** Ikke noe mer relevant informasjon tilgjengelig.

### Avsnitt 13: Fjerning av kjemikalieavfall

- **13.1 Metoder for avfallsbehandling**
- **Anbefaling:** Må ikke bortskaffes sammen med husholdningsavfall. Må ikke komme ned i kloakk.
- **Ikke rengjort emballasje:**
- **Anbefaling:** Deponering i henhold til myndighetenes forskrifter.

NO

(fortsatt på side 7)

**Sikkerhetsdatablad**  
iflg. forordning (EF) nr. 1907/2006, Artikkel 31


Trykkdato: 04.08.2016

revidert den: 04.08.2016

Handelsnavn: Graphite Conductive Adhesive 154

(fortsatt fra side 6)

### Avsnitt 14: Opplysninger om transport

|   |  |
|---|--|
| · 14.1 UN-nummer:<br>· ADR, IMDG, IATA  | UN1993   |
| · 14.2 Korrekt UN-forsendelsesbetegnelse<br>· ADR<br><br>· IMDG, IATA                               | 1993 BRANNFARLIG VÆSKE N.O.S. (ISOPROPANOL (ISOPROPYLALKOHOL))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)) |
| · 14.3 transport fareklasser<br>· ADR, IMDG, IATA   |  |
|                    |  |
| · klasse<br>· Fareseddel  | 3 Brannfarlige væsker<br>3   |
| · 14.4 Emballasjegruppe:<br>· ADR, IMDG, IATA   | II   |
| · 14.5 Miljøfarer:  | Ikke brukbar.  |
| · 14.6 Særskilte forholdsregler for bruker<br>· Kemler-tall:<br>· EMS-nummer:<br>· Stowage Category | Advarsel: Brannfarlige væsker<br>33<br>F-E, <u>S-E</u><br>B  |
| · 14.7 Transport i bulk iht. annekts II til MARPOL 73/78 og til IBC-koden                           | Ikke brukbar.  |
| · Transport/ytterligere informasjoner:  |  |
| · ADR<br>· Begrenset mengde (LQ)<br>· Unntatte mengder (EQ)   | 1L<br>Kode: E2<br>Maksimal nettovekt per inneremballasje: 30 ml<br>Maksimal nettovekt per ytteremballasje: 500 ml            |
| · Transportkategori<br>· Tunnel restriksjonskode  | 2<br>D/E   |
| · IMDG<br>· Limited quantities (LQ)<br>· Excepted quantities (EQ)                                   | 1L<br>Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml        |
| · UN "Model Regulation":  | UN 1993 BRANNFARLIG VÆSKE N.O.S. (ISOPROPANOL (ISOPROPYLALKOHOL)), 3, II   |

### Avsnitt 15: Opplysninger om lover og forskrifter

- 15.1 Helse-, sikkerhets- og miljøforskrifter/lovgivning som gjelder spesielt for stoffet eller stoffblandingen  
Ikke noe mer relevant informasjon tilgjengelig.

(fortsatt på side 8)

NO

**Sikkerhetsdatablad**  
iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 04.08.2016

revidert den: 04.08.2016

**Handelsnavn: Graphite Conductive Adhesive 154**

(fortsatt fra side 7)

· **15.2 Kjemisk sikkerhetsvurdering:** En kjemisk sikkerhetsvurdering er ikke utført.

**Avsnitt 16: Andre opplysninger av betydning for helse, miljø og sikkerhet**

Opplysningene er basert på vårt kjennskap i dag. De utgjør dog ingen forsikring om produkttegenskaper og er ikke grunnlag for noe kontraktmessig rettsforhold.

· **Relevante satser**

H225 Meget brannfarlig væske og damp.

H226 Brannfarlig væske og damp.

H302 Farlig ved svelging.

H312 Farlig ved hudkontakt.

H315 Irriterer huden.

H318 Gir alvorlig øyeskade.

H319 Gir alvorlig øyeirritasjon.

H332 Farlig ved innånding.

H335 Kan forårsake irritasjon av luftveiene.

H336 Kan forårsake dødsighet eller svimmelhet.

· **Forkortelser og akronymer:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

STOT/SE 3: Specific target organ toxicity (single exposure) – Category 3

# Ficha de dados de segurança

Em conformidade com 1907/2006/CE, Artigo 31.º

data da impressão 04.08.2016

Revisão: 04.08.2016

## SECÇÃO 1: Identificação da substância/mistura e da sociedade/empresa

- **1.1 Identificador do produto**
- **Nome comercial:** Graphite Conductive Adhesive 154
- **Código do produto:** 12691-30, 12691-30-sp, 12691
- **1.2 Utilizações identificadas relevantes da substância ou mistura e utilizações desaconselhadas**  
Não existe mais nenhuma informação relevante disponível.
- **Utilização da substância / da preparação** Químicos de laboratório
- **1.3 Identificação do fornecedor da ficha de dados de segurança**
- **Fabricante/fornecedor:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Entidade para obtenção de informações adicionais:** Product safety department
- **1.4 Número de telefone de emergência:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## SECÇÃO 2: Identificação dos perigos

- **2.1 Classificação da substância ou mistura**
- **Classificação em conformidade com o Regulamento (CE) n.º 1272/2008**



GHS02 chama

Flam. Liq. 2 H225 Líquido e vapor facilmente inflamáveis.



GHS07

Skin Irrit. 2 H315 Provoca irritação cutânea.  
Eye Irrit. 2 H319 Provoca irritação ocular grave.  
STOT SE 3 H336 Pode provocar sonolência ou vertigens.

- **2.2 Elementos do rótulo**
- **Rotulagem em conformidade com o Regulamento (CE) n.º 1272/2008**  
O produto classificou-se e está etiquetado em conformidade com o regulamento CLP.
- **Pictogramas de perigo**



GHS02 GHS07

- **Palavra-sinal Perigo**
- **Componentes determinantes para os perigos constantes do rótulo:**  
2-propanol
- **Advertências de perigo**  
H225 Líquido e vapor facilmente inflamáveis.  
H315 Provoca irritação cutânea.

( continuação na página 2 )

# Ficha de dados de segurança

## Em conformidade com 1907/2006/CE, Artigo 31.º

data da impressão 04.08.2016

Revisão: 04.08.2016

Nome comercial: **Graphite Conductive Adhesive 154**

(continuação da página 1)

H319 Provoca irritação ocular grave.

H336 Pode provocar sonolência ou vertigens.

### · Recomendações de prudência

P210 Manter afastado do calor, superfícies quentes, faíscas, chamas abertas e outras fontes de ignição. Não fumar.

P261 Evitar respirar as poeiras/fumos/gases/névoas/vapores/aerossóis.

P303+P361+P353 SE ENTRAR EM CONTACTO COM A PELE (ou o cabelo): retirar imediatamente toda a roupa contaminada. Enxaguar a pele com água/tomar um duche.

P305+P351+P338 SE ENTRAR EM CONTACTO COM OS OLHOS: enxaguar cuidadosamente com água durante vários minutos. Se usar lentes de contacto, retire-as, se tal lhe for possível. Continuar a enxaguar.

P405 Armazenar em local fechado à chave.

P501 Eliminar o conteúdo/recipiente de acordo com a legislação local/regional/nacional/internacional.

### · 2.3 Outros perigos

#### · Resultados da avaliação PBT e mPmB

· **PBT:** Não aplicável.

· **mPmB:** Não aplicável.

## SECÇÃO 3: Composição/informação sobre os componentes

### · 3.2 Caracterização química: Misturas

· **Descrição:** Mistura das seguintes substâncias com aditivos não perigosos.

#### · Substâncias perigosas:

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | 2-propanol<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336  | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | grafite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                         | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butano-1-ol<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-metil-2,4-pentanodiol<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319   | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-metoxi-2-propanol<br>Flam. Liq. 3, H226; STOT SE 3, H336   | 2,5-10% |

· **Avisos adicionais:** O texto das indicações de perigo aqui incluído poderá ser consultado no capítulo 16.

## SECÇÃO 4: Medidas de primeiros socorros

### · 4.1 Descrição das medidas de primeiros socorros

#### · Indicações gerais:

Os sintomas de envenenamento podem surgir apenas após várias horas, por isso é necessária vigilância médica pelo menos 48 horas após o acidente.

#### · Em caso de inalação:

Remover a vítima para um local arejado. Se necessário administrar respiração artificial. Manter a vítima aquecida. Se os sintomas persistirem, consultar o médico.

Se a vítima estiver inconsciente, posicioná-la e transportá-la com estabilidade, deitada lateralmente.

· **Em caso de contacto com a pele:** Em geral o produto não é irritante para a pele.

(continuação na página 3)

# Ficha de dados de segurança

## Em conformidade com 1907/2006/CE, Artigo 31.º

data da impressão 04.08.2016

Revisão: 04.08.2016

**Nome comercial:** *Graphite Conductive Adhesive 154*

(continuação da página 2)

- **Em caso de contacto com os olhos:**  
*Enxaguar os olhos durante alguns minutos sob água corrente, mantendo as pálpebras abertas. Em caso de persistência dos sintomas, consultar o médico.*
- **Em caso de ingestão:** *Se os sintomas persistirem, consultar o médico.*
- **4.2 Sintomas e efeitos mais importantes, tanto agudos como retardados**  
*Não existe mais nenhuma informação relevante disponível.*
- **4.3 Indicações sobre cuidados médicos urgentes e tratamentos especiais necessários**  
*Não existe mais nenhuma informação relevante disponível.*

### SECÇÃO 5: Medidas de combate a incêndios

- **5.1 Meios de extinção**
- **Meios adequados de extinção:** *CO2, areia, pó extintor. Não usar água.*
- **Meios de extinção que não devam ser utilizados por razões de segurança:** *Água em jacto*
- **5.2 Perigos especiais decorrentes da substância ou mistura**  
*Não existe mais nenhuma informação relevante disponível.*
- **5.3 Recomendações para o pessoal de combate a incêndios**
- **Equipamento especial de protecção:** *Colocar máscara de respiração.*

### SECÇÃO 6: Medidas a tomar em caso de fugas acidentais

- **6.1 Precauções individuais, equipamento de protecção e procedimentos de emergência**  
*Usar equipamento de protecção. Manter as pessoas desprotegidas afastadas.*
- **6.2 Precauções a nível ambiental:** *Impedir a infiltração em canalizações, minas ou caves.*
- **6.3 Métodos e materiais de confinamento e limpeza:**  
*Recolher com produtos que absorvam líquidos (areia, seixos, absorventes universais, serradura ).  
Eliminar residualmente as substâncias contaminadas como um resíduo segundo o Ponto 13.  
Assegurar uma ventilação adequada.  
Não limpar com água ou produtos de limpeza aquosos.*
- **6.4 Remissão para outras secções**  
*Para informações sobre uma manipulação segura, ver o capítulo 7.  
Para informações referentes ao equipamento de protecção individual, ver o capítulo 8.  
Para informações referentes à eliminação residual, ver o capítulo 13.*

### SECÇÃO 7: Manuseamento e armazenagem

- **7.1 Precauções para um manuseamento seguro**  
*Assegurar uma boa ventilação / exaustão no local de trabalho.  
Evitar a formação de aerossóis.*
- **Precauções para prevenir incêndios e explosões:**  
*Manter afastado de fontes de ignição - não fumar.  
Proteger do calor.  
Proteger contra descargas electrostáticas.*
- **7.2 Condições de armazenagem segura, incluindo eventuais incompatibilidades**
- **Armazenagem:**
- **Requisitos para espaços ou contentores para armazenagem:** *Armazenar num local fresco.*
- **Avisos para armazenagem conjunta:** *Não necessário.*
- **Outros avisos sobre as condições de armazenagem:**  
*Manter o recipiente hermeticamente fechado.  
Armazenar em recipientes bem fechados, em local fresco e seco.  
Proteger do calor e da radiação directa do sol.*

(continuação na página 4)

**Ficha de dados de segurança**  
**Em conformidade com 1907/2006/CE, Artigo 31.º**

data da impressão 04.08.2016

Revisão: 04.08.2016

Nome comercial: *Graphite Conductive Adhesive 154*

( continuação da página 3 )

· **7.3 Utilização(ões) final(is) específica(s)** Não existe mais nenhuma informação relevante disponível.

### **SECÇÃO 8: Controlo da exposição/Protecção individual**

· **Indicações adicionais para concepção de instalações técnicas:** Não existem outras informações, ver ponto 7.· **8.1 Parâmetros de controlo**· **Componentes cujo valor do limite de exposição no local de trabalho deve ser monitorizado:****67-63-0 2-propanol**

|     |  |
|-----|--|
| VLE | Valor para exposição curta: 400 ppm<br>Valor para exposição longa: 200 ppm<br>Irritação ocular, do TRS; afecção do SNC |
|-----|--|

**71-36-3 butano-1-ol**

|     |   |
|-----|---|
| VLE | Valor para exposição longa: 20 ppm<br>Irritação ocular e do TRS |
|-----|---|

**107-41-5 2-metil-2,4-pentanodiol**

|     |  |
|-----|--|
| VLE | Valor limite de exposição – concentração máxima: 25 ppm<br>Irritação ocular e do TRS |
|-----|--|

**107-98-2 1-metoxi-2-propanol**

|     |  |
|-----|--|
| VLE | Valor para exposição curta: 150 ppm<br>Valor para exposição longa: 100 ppm<br>Irritação ocular; afecção do SNC |
|-----|--|

· **Indicações adicionais:** Foram utilizadas como base as listas válidas à data da elaboração.· **8.2 Controlo da exposição**· **Equipamento de protecção individual:**· **Medidas gerais de protecção e higiene:**

Manter afastado de alimentos, bebidas e forragens.

Despir imediatamente a roupa contaminada e embebida.

Lavar as mãos antes das pausas e no fim do trabalho.

Evitar o contacto com os olhos.

Evitar o contacto com os olhos e com a pele.

· **Protecção respiratória:**

Utilizar uma máscara respiratória se a exposição for reduzida ou durante um curto espaço de tempo; se esta for mais prolongada ou mais intensa, utilizar uma máscara respiratória independente do ar ambiente.

· **Protecção das mãos:**

O material das luvas tem de ser impermeável e resistente ao produto / à substância / preparação.

Uma vez que não foram realizados testes nesta área, não podemos recomendar um determinado tipo de material para as luvas que seja adequado para o produto / a preparação / a mistura de químicos.

Escolher o material das luvas tendo em consideração a durabilidade, a permeabilidade e a degradação.

· **Material das luvas**

A escolha das luvas mais adequadas não depende apenas do material, mas também de outras características qualitativas e varia de fabricante para fabricante. O facto de o produto ser composto por uma variedade de materiais leva a que não seja possível prever a duração dos mesmos e, conseqüentemente, das luvas, sendo assim necessário proceder a uma verificação antes da sua utilização.

· **Tempo de penetração no material das luvas**

Deve informar-se sobre a validade exacta das suas luvas junto do fabricante e respeitá-la.

( continuação na página 5 )



# Ficha de dados de segurança

## Em conformidade com 1907/2006/CE, Artigo 31.º

data da impressão 04.08.2016

Revisão: 04.08.2016

Nome comercial: Graphite Conductive Adhesive 154

( continuação da página 4 )

· **Protecção dos olhos:**

Óculos de protecção totalmente fechados

### SECÇÃO 9: Propriedades físico-químicas

· **9.1 Informações sobre propriedades físicas e químicas de base**· **Informações gerais**· **Aspecto:**

Forma:

Líquido

Cor:

Preto

· **Odor:**

tipo álcool

· **Limiar olfactivo:**

Não classificado.

· **valor pH:**

Não classificado.

· **Mudança do estado:**

Ponto / intervalo de fusão:

Não classificado.

Ponto / intervalo de ebulição:

Não classificado.

· **Ponto de inflamação:**

13 °C

· **Inflamabilidade (sólido, gás):**

Não aplicável.

· **Temperatura de ignição:**

425 °C

· **Temperatura de decomposição:**

Não classificado.

· **Auto-inflamabilidade:**

O produto não é auto-inflamável.

· **Perigos de explosão:**

O produto não é explosivo. Contudo, é possível a formação de misturas explosivas ar/vapor.

· **Limites de explosão:**

Inferior:

2,0 Vol %

Superior:

12,0 Vol %

· **Pressão de vapor em 20 °C:**

43 hPa

· **Densidade:**

Não classificado.

· **Densidade relativa**

Não classificado.

· **Densidade de vapor**

Não classificado.

· **Velocidade de evaporação**

Não classificado.

· **Solubilidade em / miscibilidade com água:**

Pouco misturável.

· **Coefficiente de distribuição (n-octanol/água):** Não classificado.· **Viscosidade:**

Dinâmico:

Não classificado.

Cinemático:

Não classificado.

· **Percentagem de solvente:**

Solventes orgânicos:

76,8 %

VOC (UE)

76,79 %

( continuação na página 6 )



# Ficha de dados de segurança

Em conformidade com 1907/2006/CE, Artigo 31.º

data da impressão 04.08.2016

Revisão: 04.08.2016

Nome comercial: Graphite Conductive Adhesive 154

( continuação da página 5 )

## · 9.2 Outras informações

Não existe mais nenhuma informação relevante disponível.

## SECÇÃO 10: Estabilidade e reactividade

- 10.1 Reactividade Não existe mais nenhuma informação relevante disponível.
- 10.2 Estabilidade química
- Decomposição térmica / condições a evitar: Não existe decomposição se usado de acordo com as especificações.
- 10.3 Possibilidade de reações perigosas Não se conhecem reações perigosas.
- 10.4 Condições a evitar Não existe mais nenhuma informação relevante disponível.
- 10.5 Materiais incompatíveis: Não existe mais nenhuma informação relevante disponível.
- 10.6 Produtos de decomposição perigosos: Não se conhecem produtos de decomposição perigosos.

## SECÇÃO 11: Informação toxicológica

- 11.1 Informações sobre os efeitos toxicológicos
- Toxicidade aguda Com base nos dados disponíveis, os critérios de classificação não são preenchidos.

## · Valores LD/LC50 relevantes para a classificação:

## 67-63-0 2-propanol

|                 |          |                      |
|-----------------|----------|----------------------|
| por via oral    | LD50     | 5045 mg/kg (rat)     |
| por via dérmica | LD50     | 12800 mg/kg (rabbit) |
| por inalação    | LC50/4 h | 30 mg/l (rat)        |

- Efeito de irritabilidade primário:
- Corrosão/irritação cutânea  
Provoca irritação cutânea.
- Lesões oculares graves/irritação ocular  
Provoca irritação ocular grave.
- Sensibilização respiratória ou cutânea  
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- Efeitos CMR (carcinogenicidade, mutagenicidade e efeitos tóxicos na reprodução)
- Mutagenicidade em células germinativas  
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- Carcinogenicidade Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- Toxicidade reprodutiva Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- Toxicidade para órgãos-alvo específicos (STOT) - exposição única  
Pode provocar sonolência ou vertigens.
- Toxicidade para órgãos-alvo específicos (STOT) - exposição repetida  
Com base nos dados disponíveis, os critérios de classificação não são preenchidos.
- Perigo de aspiração Com base nos dados disponíveis, os critérios de classificação não são preenchidos.

## SECÇÃO 12: Informação ecológica

- 12.1 Toxicidade
- Toxicidade aquática: Não existe mais nenhuma informação relevante disponível.
- 12.2 Persistência e degradabilidade Não existe mais nenhuma informação relevante disponível.
- 12.3 Potencial de bioacumulação Não existe mais nenhuma informação relevante disponível.
- 12.4 Mobilidade no solo Não existe mais nenhuma informação relevante disponível.
- Outras indicações ecológicas:
- Indicações gerais: Não são conhecidos quaisquer perigos para a água.

( continuação na página 7 )

**Ficha de dados de segurança**  
**Em conformidade com 1907/2006/CE, Artigo 31.º**

data da impressão 04.08.2016

Revisão: 04.08.2016

Nome comercial: *Graphite Conductive Adhesive 154*


(continuação da página 6)

- **12.5 Resultados da avaliação PBT e mPmB**
- **PBT:** Não aplicável.
- **mPmB:** Não aplicável.
- **12.6 Outros efeitos adversos** Não existe mais nenhuma informação relevante disponível.

### SECÇÃO 13: Considerações relativas à eliminação

- **13.1 Métodos de tratamento de resíduos**
- **Recomendação:** Não se pode eliminar juntamente com o lixo doméstico. Não permita que chegue à canalização.
- **Embalagens contaminadas:**
- **Recomendação:** Eliminação residual conforme o regulamento dos serviços públicos.

### SECÇÃO 14: Informações relativas ao transporte

- |   |   |
|---|---|
| · <b>14.1 Número ONU</b>  |   |
| · <b>ADR, IMDG, IATA</b>  | UN1993  |
| · <b>14.2 Designação oficial de transporte da ONU</b>   |   |
| · <b>ADR</b>  | 1993 LÍQUIDO INFLAMÁVEL, N.S.A. (ISOPROPANOL (ÁLCOOL ISOPROPÍLICO))   |
| · <b>IMDG, IATA</b>   | FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))  |
| · <b>14.3 Classes de perigo para efeitos de transporte</b>  |   |
| · <b>ADR, IMDG, IATA</b>  |   |
|   |    |
| · <b>Classe</b>   | 3 Líquidos inflamáveis  |
| · <b>Rótulo</b>   | 3   |
| · <b>14.4 Grupo de embalagem</b>  |   |
| · <b>ADR, IMDG, IATA</b>  | II  |
| · <b>14.5 Perigos para o ambiente:</b>  | Não aplicável.  |
| · <b>14.6 Precauções especiais para o utilizador</b>  | Atenção: Líquidos inflamáveis   |
| · <b>Nº Kemler:</b>   | 33  |
| · <b>Nº EMS:</b>  | F-E, S-E  |
| · <b>Stowage Category</b>   | B   |
| · <b>14.7 Transporte a granel em conformidade com o anexo II da Convenção MARPOL e o Código IBC</b> | Não aplicável.  |
| · <b>Transporte/outras informações:</b>   |   |
| · <b>ADR</b>  |   |
| · <b>Quantidades Limitadas (LQ)</b>   | 1L  |
| · <b>Quantidades exceptuadas (EQ)</b>   | Código: E2<br>Quantidade líquida máxima por embalagem interior: 30 ml<br>Quantidade líquida máxima por embalagem exterior: 500 ml |
| · <b>Categoria de transporte</b>  | 2   |

(continuação na página 8)

**Ficha de dados de segurança**  
**Em conformidade com 1907/2006/CE, Artigo 31.º**

data da impressão 04.08.2016

Revisão: 04.08.2016

**Nome comercial: Graphite Conductive Adhesive 154**

(continuação da página 7)

|  |   |
|--|---|
| · <b>Código de restrição em túneis</b> | D/E   |
| · <b>IMDG</b>                          |   |
| · <b>Limited quantities (LQ)</b>       | 1L  |
| · <b>Excepted quantities (EQ)</b>      | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · <b>UN "Model Regulation":</b>        | UN 1993 LÍQUIDO INFLAMÁVEL, N.S.A. (ISOPROPANOL (ÁLCOOL ISOPROPÍLICO)), 3, II                                   |

### SECÇÃO 15: Informação sobre regulamentação

- **15.1 Regulamentação/legislação específica para a substância ou mistura em matéria de saúde, segurança e ambiente**
- **Diretiva 2012/18/UE**
- **Substâncias perigosas designadas - ANEXO I Nenhum dos componentes se encontra listado.**
- **Categoria "Seveso" P5c LÍQUIDOS INFLAMÁVEIS**
- **Quantidades-limiar (em toneladas), para a aplicação de requisitos de nível inferior 5.000 t**
- **Quantidades-limiar (em toneladas), para a aplicação de requisitos de nível superior 50.000 t**
- **Regulamento (CE) n.º 1907/2006 ANEXO XVII Condições de limitação: 3**
- **15.2 Avaliação da segurança química: Não foi realizada nenhuma Avaliação de Segurança Química.**

### SECÇÃO 16: Outras informações

As informações fornecidas baseiam-se no estado actual dos nossos conhecimentos, embora não representem uma garantia das propriedades do produto e não fundamentam uma relação contratual.

- **Frases relevantes**

H225 Líquido e vapor facilmente inflamáveis.

H226 Líquido e vapor inflamáveis.

H302 Nocivo por ingestão.

H312 Nocivo em contacto com a pele.

H315 Provoca irritação cutânea.

H318 Provoca lesões oculares graves.

H319 Provoca irritação ocular grave.

H332 Nocivo por inalação.

H335 Pode provocar irritação das vias respiratórias.

H336 Pode provocar sonolência ou vertigens.

- **Abreviaturas e acrónimos:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Líquidos inflamáveis – Categoria 2

Flam. Liq. 3: Líquidos inflamáveis – Categoria 3

Acute Tox. 4: Toxicidade aguda – Categoria 4

(continuação na página 9)

**Ficha de dados de segurança**  
**Em conformidade com 1907/2006/CE, Artigo 31.º**

data da impressão 04.08.2016

Revisão: 04.08.2016

**Nome comercial: Graphite Conductive Adhesive 154**

( continuação da página 8 )

*Skin Irrit. 2: Corrosão/irritação cutânea – Categoria 2*

*Eye Dam. 1: Lesões oculares graves/irritação ocular – Categoria 1*

*Eye Irrit. 2: Lesões oculares graves/irritação ocular – Categoria 2*

*STOT SE 3: Toxicidade para órgãos-alvo específicos (exposição única) – Categoria 3*

PT

**Паспорт безопасности.**  
в соответствии с 1907/2006/ЕС, Статья 31

Дата печати: 04.08.2016

Дата редактирования: 04.08.2016

## 1 Наименование вещества / препарата и фирмы / предприятия

- Идентификатор продукта
- Торговое наименование: Graphite Conductive Adhesive 154
- Артикульный номер: 12691-30, 12691-30-sp, 12691
- Соответствующие установленные применения вещества или смеси и не рекомендуемые области использования  
Отсутствует какая-либо соответствующая информация.
- Применение вещества / препарата Лабораторные химикаты
- Подробная информация поставщика паспорта безопасности
- Производитель / Поставщик:  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- Отдел, предоставляющий информацию: Product safety department
- Номер телефона экстренной связи:  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## 2 Возможные виды опасности

- Классификация вещества или смеси



пламя

Воспламеняющаяся жидкость 2 H225 Легко воспламеняющаяся жидкость и пар.



Раздражение кожи 2A H319 Вызывает серьезное раздражение глаз.

СТОМ - однократно 3 H336 Может вызывать сонливость или головокружение.

Острая токсичность 5 H333 Может нанести вред при вдыхании.

- Элементы маркировки

- Элементы маркировки в соответствии с СГС

Данный продукт классифицируется и маркируется в соответствии с Согласованной на глобальном уровне системой классификации и маркировки химических веществ (GHS).

- Пиктограммы, обозначающие опасности



GHS02 GHS07

- Сигнальное слово Опасно

- Предупреждения об опасности

Легко воспламеняющаяся жидкость и пар.

Может нанести вред при вдыхании.

Вызывает серьезное раздражение глаз.

(Продолжение на странице 2)

# Паспорт безопасности.

## в соответствии с 1907/2006/ЕС, Статья 31

Дата печати: 04.08.2016

Дата редактирования: 04.08.2016

**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 1)

Может вызывать сонливость или головокружение.

**· Меры предосторожности**

Береечь от тепла/искр/открытого огня/горячих поверхностей. – Не курить.

Избегать вдыхания пыли/дыма/газа/тумана/паров/распылителей жидкости.

**ПРИ ПОПАДАНИИ НА КОЖУ (или волосы):** Немедленно снять всю загрязненную одежду. Промыть кожу водой/под душем.

**ПРИ ПОПАДАНИИ В ГЛАЗА:** Осторожно промыть глаза водой в течение нескольких минут. Снять контактные линзы, если вы пользуетесь ими и если это легко сделать. Продолжить промывание глаз.

Хранить под замком.

Утилизировать содержимое / тару в соответствии с местными / региональными / национальными / международными предписаниями.

**· Другие опасные факторы**

**· Результаты оценки PBT (устойчивое биоаккумулятивное токсическое вещество) и vPvB (очень устойчивое биоаккумулятивное вещество)**

· **PBT:** Неприменимо.

· **vPvB:** Неприменимо.

### 3 Состав / Данные по составляющим компонентам

· **Химическая характеристика: Смеси**

· **Описание:** Смесь из веществ, перечисленных ниже, с неопасными добавками.

· **Содержащиеся опасные вещества:**

|           |   |         |
|-----------|---|---------|
| 67-63-0   | propan-2-ol<br>⚠ Воспламеняющаяся жидкость 2, H225; ⚠ Раздражение кожи 2, H319; СТМ - однократно 3, H336  | 50-100% |
| 7782-42-5 | Graphite<br>Острая токсичность 5, H303; Острая токсичность 5, H313; Острая токсичность 5, H333; Разъедание кожи 3, H316; Раздражение кожи 2В, H320                        | 10-25%  |
| 71-36-3   | n-Butyl Alcohol<br>⚠ Воспламеняющаяся жидкость 3, H226; ⚠ Повреждение глаз 1, H318; ⚠ Острая токсичность 4, H302; Раздражение кожи 2, H315; СТМ - однократно 3, H335-H336 | 2,5-10% |
| 107-41-5  | 2-methylpentane-2,4-diol<br>⚠ Раздражение кожи 2, H315; Раздражение кожи 2А, H319; Воспламеняющаяся жидкость 4, H227  | 2,5-10% |
| 107-98-2  | 1-methoxy-2-propanol<br>⚠ Воспламеняющаяся жидкость 3, H226; ⚠ СТМ - однократно 3, H336   | 2,5-10% |

· **Дополнительные указания:** Текст приведённых указаний на факторы риска см. в Главе 16.

### 4 Меры по оказанию первой помощи

· **Описание мер первой медицинской помощи**

· **Общие указания:**

Симптомы отравления могут проявиться даже спустя много часов, поэтому имеется необходимость в медицинском надзоре в течение как минимум 48 часов после аварии (несчастного случая).

· **После вдыхания:**

Обеспечить доступ свежего воздуха. При необходимости сделать искусственное дыхание. Держать пациента в тепле. Если симптомы не проходят, обратиться к врачу.

При потере сознания (обморочном состоянии) положить пациента на бок в стабильном положении для транспортировки.

· **После контакта с кожей:** Как правило, продукт не оказывает раздражающего воздействия на кожу.

(Продолжение на странице 3)

## Паспорт безопасности. в соответствии с 1907/2006/ЕС, Статья 31

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**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 2)

- **После контакта с глазами:**  
Промойте открытый глаз под проточной водой в течение нескольких минут. При сохранении симптомов обратитесь к врачу.
- **После проглатывания:** При сохранении симптомов обратиться к врачу за консультацией.
- **Указания для врача:**
- **Наиболее важные симптомы и эффекты, как немедленные, так и проявляющиеся впоследствии**  
Отсутствует какая-либо соответствующая информация.
- **Указание на необходимость оперативной медицинской помощи и специального режима**  
Отсутствует какая-либо соответствующая информация.

### 5 Меры по борьбе с пожаром

- **Средства пожаротушения**
- **Надлежащие средства тушения:**  
СО<sub>2</sub>, песок, порошковое средство для тушения. Применение воды не допускается.
- **Средства тушения, являющиеся непригодными из соображений безопасности:** Полноструйная вода
- **Особые опасности, создаваемые веществом или смесью**  
Отсутствует какая-либо соответствующая информация.
- **Рекомендации для пожарных**
- **Защитное оснащение:** Применение устройства защиты дыхательных путей.

### 6 Меры при непреднамеренном выделении (утечке)

- **Меры по обеспечению личной безопасности, защитное снаряжение и порядок действий в чрезвычайной ситуации**  
Надеть защитное снаряжение. Держать на отдалении незащищённых людей.
- **Меры по защите окружающей среды:**  
Не допускать попадания в канализационную систему, котлованы и подвалы.
- **Методы и материалы для локализации и очистки:**  
Собрать при помощи связывающего жидкость материала (песка, кизельгура, кислотнo-вяжущего средства, универсальных вяжущих средств, опилок).  
Утилизировать заражённый материал как отходы в соответствии с Пунктом 13.  
Обеспечить достаточную вентиляцию.  
Не смывать посредством воды или водянистых чистящих средств.
- **Ссылки на другие разделы**  
Информация по безопасному обращению - в Главе 7.  
Информация по индивидуальному защитному снаряжению - в Главе 8.  
Информация по утилизации - в Главе 13.

### 7 Обращение с веществом и его хранение

- **Обращение с веществом:**
- **Меры предосторожности по безопасному обращению**  
Обеспечить хорошую вентиляцию / вытяжку на рабочем месте.  
Не допускать образования аэрозолей.
- **Указания по защите от пожаров и взрывов:**  
Держать подальше от источников воспламенения - не курить.  
Защищать от жара.  
Принять меры против электростатического заряжения.

(Продолжение на странице 4)



**Паспорт безопасности.**  
в соответствии с 1907/2006/ЕС, Статья 31

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**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 3)

- **Условия безопасного хранения, включая несовместимости**
- **Хранение:**
- **Требования, предъявляемые к складским помещениям и таре:** Хранить в прохладном месте.
- **Указания по совместимости с другими веществами при хранении:** Не требуется.
- **Дальнейшие данные по условиям хранения:**  
 Держать ёмкости плотно закрытыми.  
 Хранить в хорошо закрытой таре в прохладном и сухом месте.  
 Защищать от жары и от прямых солнечных лучей.
- **Характерное конечное применение (или применения)**  
 Отсутствует какая-либо соответствующая информация.

### 8 Ограничение воздействия вещества и контроль / индивидуальные средства защиты

- **Дополнительные указания по структуре технических устройств:**  
 Никаких дополнительных данных; см. Пункт 7.

- **Параметры контроля**

- **Составляющие компоненты с предельными значениями, требующие мониторинга на рабочих местах:**

**67-63-0 propan-2-ol**

|     |  |
|-----|--|
| PDK | Краткосрочное значение: 50 мг/м <sup>3</sup><br>Долгосрочное значение: 10 мг/м <sup>3</sup><br>пары и/или газы |
|-----|--|

**71-36-3 n-Butyl Alcohol**

|     |  |
|-----|--|
| PDK | Краткосрочное значение: 30 мг/м <sup>3</sup><br>Долгосрочное значение: 10 мг/м <sup>3</sup><br>пары и/или газы |
|-----|--|

- **Дополнительные указания:**  
 В качестве основы послужили списки, являвшиеся на момент составления актуальными.
- **Требования по охране труда и меры по обеспечению безопасности персонала**
- **Средства индивидуальной защиты:**
- **Общие меры по защите от воздействия и гигиене:**  
 Держать подальше от продуктов питания, напитков и корма для животных.  
 Немедленно снять всю загрязнённую и пропитанную вредными веществами одежду.  
 Мыть руки перед перерывами и по окончании работы.  
 Избегать контакта с глазами.  
 Избегать контакта с глазами и с кожей.
- **Защита органов дыхания:**  
 При кратковременном контакте с веществом или при воздействии вещества низкой концентрации пользоваться фильтрующим устройством для защиты органов дыхания. При интенсивном или более продолжительном контакте следует воспользоваться автономным устройством защиты органов дыхания.
- **Защита рук:**  
 Материал перчаток / рукавиц должен быть устойчивым к воздействию продукта / вещества / препарата и не пропускать их.  
 Никаких рекомендаций в отношении материала перчаток / рукавиц, пригодных для применения в ходе работы с продуктом / препаратом / смесью химикатов дать нельзя, так как никаких испытаний в этом отношении не проводилось.  
 Выбор материала перчаток / рукавиц производится с учётом времени прорыва, степени проницаемости и эрозии.

(Продолжение на странице 5)



# Паспорт безопасности.

## в соответствии с 1907/2006/ЕС, Статья 31

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**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 4)

**· Материал перчаток / рукавиц**

Выбор подходящих перчаток / рукавиц определяется не только материалом, но также и другими качественными особенностями, причём между различными производителями существует большая разница. Так как продукт представляет собой смесь различных веществ, то не представляется никакой возможности для расчёта устойчивости материала, из которого изготовлены перчатки / рукавицы, что вызывает необходимость перепроверки на предмет пригодности перед использованием.

**· Период проницаемости материала перчаток / рукавиц.**

Необходимо осведомиться у производителя защитных перчаток / рукавиц о точном времени прорыва и придерживаться его.

**· Защита глаз:**



Плотно прилегающие защитные очки

### 9 Физические и химические свойства

**· Информация по основным физическим и химическим свойствам**

**· Общая информация**

**· Внешний вид:**

**Форма:**

Жидкость

**Цвет:**

Чёрное

**· Запах:**

Спиртоподобно

**· Порог запаха:**

Не определено.

**· Значение pH:**

Не определено.

**· Изменение состояния**

**Точка плавления / интервал температур**

**плавления:**

Не определено.

**Точка кипения / интервал температур кипения:** Не определено.

**· Температурная точка вспышки:**

13 °C

**· Воспламеняемость (твёрдое, газообразное вещество):**

Неприменимо.

**· Температура воспламенения:**

425 °C

**· Температура распада:**

Не определено.

**· Самовоспламеняемость:**

Продукт не является самовоспламеняемым.

**· Взрывоопасность:**

Продукт не является взрывоопасным, однако возможно образование взрывоопасных смесей пара / воздуха.

**· Границы взрываемости:**

**Нижняя:**

2,0 пол. %

**Верхняя:**

12,0 пол. %

**· Давление пара при 20 °C:**

43 гПа

**· Плотность:**

Не определено.

**· Относительная плотность**

Не определено.

**· Плотность пара**

Не определено.

**· Скорость испарения**

Не определено.

(Продолжение на странице 6)

**Паспорт безопасности.**  
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Дата печати: 04.08.2016

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**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 5)

|  |  |
|--|--|
| · <b>Растворимость в / Смешиваемость с водой:</b>      | Несмешиваемо или трудносмешиваемо.                 |
| · <b>Коэффициент распределения (n-октанол / вода):</b> | Не определено.                                     |
| · <b>Вязкость:</b>                                     |  |
| Динамическая:  | Не определено.                                     |
| Кинематическая:  | Не определено.                                     |
| · <b>Содержание растворителя:</b>                      |  |
| Органические растворители:                             | 76,8 %   |
| VOC (ЕС)   | 76,79 %  |
| · <b>Другая информация</b>                             | Отсутствует какая-либо соответствующая информация. |

### 10 Стабильность и реакционная способность

- **Реакционная способность** Отсутствует какая-либо соответствующая информация.
- **Химическая стабильность**
- **Термический распад / условия, которых следует избегать:**  
При использовании в соответствии с предписаниями не происходит никакого распада.
- **Возможность опасных реакций** Неизвестно ни о каких опасных реакциях.
- **Условия, вызывающие опасные изменения** Отсутствует какая-либо соответствующая информация.
- **Несовместимые материалы:** Отсутствует какая-либо соответствующая информация.
- **Опасные продукты распада:** Неизвестно ни о каких опасных продуктах распада.

### 11 Данные по токсикологии

- **Информация по токсикологическому воздействию**
- **Острая токсичность:**

· **Значения LD/LC50 (летальной дозы/концентрации), необходимые для классифицирования:**

**67-63-0 ргpap-2-01**

|                               |           |                      |
|-------------------------------|-----------|----------------------|
| Орально (через рот)           | LD50      | 5045 мг/кг (rat)     |
| Дермально (через кожу)        | LD50      | 12800 мг/кг (rabbit) |
| Ингаляционно (путём вдыхания) | LC50/4 ч. | 30 мг/л (rat)        |

- **Первичное раздражающее воздействие:**
- **на кожу:** Нет раздражающего воздействия.
- **на глаза:** Раздражающее воздействие.
- **Сенсибилизация:** Неизвестно о наличии сенсибилизирующего воздействия.
- **Дополнительные токсикологические указания:**  
На основании расчётного метода Всеобщей Классификационной Директивы ЕС для Препаратов в её последней (актуальной) редакции продукт представляет следующие виды опасности:  
Вредно для здоровья  
Раздражающе

### 12 Экологическая информация

- **Токсичность**
- **Акватоксичность:** Отсутствует какая-либо соответствующая информация.
- **Стойкость и склонность к деградации** Отсутствует какая-либо соответствующая информация.

(Продолжение на странице 7)

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(Продолжение страницы 6)

- **Поведение в экологических системах:**
- **Биоаккумулятивный потенциал** Отсутствует какая-либо соответствующая информация.
- **Подвижность в грунте** Отсутствует какая-либо соответствующая информация.
- **Дополнительные экологические указания:**
- **Общие указания:** Ничего не известно ни о какой вредности для воды.
- **Результаты оценки РВТ (устойчивое биоаккумулятивное токсическое вещество) и vPvB (очень устойчивое биоаккумулятивное вещество)**
- **РВТ:** Неприменимо.
- **vPvB:** Неприменимо.
- **Другие вредные эффекты** Отсутствует какая-либо соответствующая информация.

### 13 Указания по утилизации

- **Методы обработки отходов**
- **Рекомендация:**  
Утилизация совместно с бытовыми отходами недопустима. Не допускать попадания в канализацию.
- **Неочищенные упаковки:**
- **Рекомендация:**  
Утилизация должна быть осуществлена в соответствии с предписаниями компетентных служб.

### 14 Информация по транспорту

|  |   |
|--|---|
| · <b>Номер UN</b><br>· <b>ADR, IMDG, IATA</b>  | UN1993  |
| · <b>Собственное транспортное наименование ООН</b><br>· <b>ADR</b><br><br>· <b>IMDG, IATA</b>                          | 1993 ЛЕГКОВОСПЛАМЕНЯЮЩАЯСЯ ЖИДКОСТЬ,<br>Н. У. К (ИЗОПРОПАНОЛ (СПИРТ<br>ИЗОПРОПИЛОВЫЙ))<br>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL<br>(ISOPROPYL ALCOHOL)) |
| · <b>классов опасности транспорта</b><br>· <b>ADR, IMDG, IATA</b>  |   |
|                                     |   |
| · <b>Класс</b><br>· <b>Этикетка для опасного содержимого</b>   | 3 Легковоспламеняющиеся жидкости<br>3   |
| · <b>Группа упаковки</b><br>· <b>ADR, IMDG, IATA</b>   | II  |
| · <b>Экологические риски:</b>  | Неприменимо.  |
| · <b>Особые меры предосторожности для пользователей</b><br>· <b>Код опасности (по Кемлеру):</b><br>· <b>Номер EMS:</b> | Осторожно: Легковоспламеняющиеся жидкости<br>33<br>F-E,S-E  |

(Продолжение на странице 8)

RU

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(Продолжение страницы 7)

|  |  |
|--|--|
| · <i>Stowage Category</i>  | B  |
| · <i>Транспортировка навалом в соответствии с Приложением II MARPOL73/78 (Международная конвенция по предотвращению загрязнения вод с судов) и IBC Code (Международный кодекс перевозок опасных химических грузов наливом)</i> | Неприменимо.   |
| · <i>Транспорт / дополнительная информация:</i>  |  |
| · <i>ADR</i>   |  |
| · <i>Ограниченные объёмы (LQ)</i>  | 1L   |
| · <i>Освобожденные количества (EQ)</i>   | Код: E2<br>Максимальное количество нетто на внутреннюю тару: 30 мл<br>Максимальное количество нетто на наружную тару: 500 мл |
| · <i>Транспортная категория</i>  | 2  |
| · <i>Код ограничения проезда через туннели</i>   | D/E  |
| · <i>IMDG</i>  |  |
| · <i>Limited quantities (LQ)</i>   | 1L   |
| · <i>Excepted quantities (EQ)</i>  | Code: E2<br>Maximum net quantity per inner packaging: 30 мл<br>Maximum net quantity per outer packaging: 500 мл              |
| · <i>UN "Model Regulation":</i>  | UN 1993 ЛЕГКОВОСПЛАМЕНЯЮЩАЯСЯ ЖИДКОСТЬ, Н.У.К (ИЗОПРОПАНОЛ (СПИРТ ИЗОПРОПИЛОВЫЙ)), 3, II                                     |

## 15 Предписания

- *Нормы безопасности, правила охраны труда и экологические нормативы или стандарты, действующие для вещества или смеси*
- *Элементы маркировки в соответствии с СГС*  
Данный продукт классифицируется и маркируется в соответствии с Согласованной на глобальном уровне системой классификации и маркировки химических веществ (GHS).
- *Пиктограммы, обозначающие опасности*



GHS02 GHS07

- *Сигнальное слово Опасно*
- *Предупреждения об опасности*  
Легко воспламеняющаяся жидкость и пар.  
Может нанести вред при вдыхании.  
Вызывает серьезное раздражение глаз.  
Может вызывать сонливость или головокружение.
- *Меры предосторожности*  
Беречь от тепла/искр/открытого огня/горячих поверхностей. – Не курить.  
Избегать вдыхания пыли/дыма/газа/тумана/паров/распылителей жидкости.

(Продолжение на странице 9)

**Паспорт безопасности.**  
в соответствии с 1907/2006/ЕС, Статья 31

Дата печати: 04.08.2016

Дата редактирования: 04.08.2016

**Торговое наименование: Graphite Conductive Adhesive 154**

(Продолжение страницы 8)

**ПРИ ПОПАДАНИИ НА КОЖУ (или волосы):** Немедленно снять всю загрязненную одежду. Промыть кожу водой/под душем.

**ПРИ ПОПАДАНИИ В ГЛАЗА:** Осторожно промыть глаза водой в течение нескольких минут. Снять контактные линзы, если вы пользуетесь ими и если это легко сделать. Продолжить промывание глаз.

Хранить под замком.

Утилизировать содержимое / тару в соответствии с местными / региональными / национальными / международными предписаниями.

• **Оценка химической безопасности:** Оценка химической безопасности не проведена.

### 16 Прочая информация:

Данные опираются на актуальные знания, однако они не являются гарантией каких-либо конкретных свойств продукта и не устанавливают никаких действующих с юридической точки зрения договорных отношений.

• **Соответствующие данные**

H225 Легко воспламеняющаяся жидкость и пар.

H226 Воспламеняющаяся жидкость и пар.

H227 Горючая жидкость.

H302 Вредно при проглатывании.

H303 Может нанести вред при проглатывании.

H313 Может нанести вред при контакте с кожей.

H315 Вызывает раздражение кожи.

H316 Вызывает легкое раздражение кожи.

H318 Вызывает серьезные повреждения глаз.

H319 Вызывает серьезное раздражение глаз.

H320 Вызывает раздражение глаз.

H333 Может нанести вред при вдыхании.

H335 Может вызывать раздражение дыхательных путей.

H336 Может вызывать сонливость или головокружение.

• **Аббревиатуры и акронимы:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Воспламеняющаяся жидкость 2: Flammable liquids – Category 2

Воспламеняющаяся жидкость 3: Flammable liquids – Category 3

Воспламеняющаяся жидкость 4: Flammable liquids – Category 4

Острая токсичность 4: Acute toxicity – Category 4

Острая токсичность 5: Acute toxicity – Category 5

Раздражение кожи 2: Skin corrosion/irritation – Category 2

Разъедание кожи 3: Skin corrosion/irritation – Category 3

Повреждение глаз 1: Serious eye damage/eye irritation – Category 1

Раздражение кожи 2: Serious eye damage/eye irritation – Category 2

Раздражение кожи 2A: Serious eye damage/eye irritation – Category 2A

Раздражение кожи 2B: Serious eye damage/eye irritation – Category 2B

СТОМ - однократно 3: Specific target organ toxicity (single exposure) – Category 3

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

### SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

- **1.1 Identificador del producto**
- **Nombre comercial:** Graphite Conductive Adhesive 154
- **Número del artículo:** 12691-30, 12691-30-sp, 12691
- **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**  
No existen más datos relevantes disponibles.
- **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio
- **1.3 Datos del proveedor de la ficha de datos de seguridad**
- **Fabricante/distribuidor:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- **Aname**  
C/ Perez Galdos no. 2  
28693 Quijorna  
Madrid, Spain  
Tel: +34.91.816.89.50  
Fax: +34.91.816.85.94  
email: ventas@aname.es
- **Área de información:** Product safety department
- **1.4 Teléfono de emergencia:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### SECCIÓN 2: Identificación de los peligros

- **2.1 Clasificación de la sustancia o de la mezcla**
- **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS02 llama

Flam. Liq. 2 H225 Líquido y vapores muy inflamables.



GHS07

Skin Irrit. 2 H315 Provoca irritación cutánea.  
Eye Irrit. 2 H319 Provoca irritación ocular grave.  
STOT SE 3 H336 Puede provocar somnolencia o vértigo.

- **2.2 Elementos de la etiqueta**
- **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**  
El producto se ha clasificado y etiquetado de conformidad con el reglamento CLP.

( se continua en página 2 )

**Ficha de datos de seguridad**  
según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

**Nombre comercial: Graphite Conductive Adhesive 154**

( se continua en página 1 )

· **Pictogramas de peligro**



GHS02 GHS07

· **Palabra de advertencia Peligro**

· **Componentes peligrosos a indicar en el etiquetaje:**

2-propanol

· **Indicaciones de peligro**

H225 Líquido y vapores muy inflamables.

H315 Provoca irritación cutánea.

H319 Provoca irritación ocular grave.

H336 Puede provocar somnolencia o vértigo.

· **Consejos de prudencia**

P210 Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar.

P261 Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente todas las prendas contaminadas. Aclararse la piel con agua/ ducharse.

P305+P351+P338 EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.

P405 Guardar bajo llave.

P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/ internacional.

· **2.3 Otros peligros**

· **Resultados de la valoración PBT y mPmB**

· **PBT:** No aplicable.

· **mPmB:** No aplicable.

**SECCIÓN 3: Composición/información sobre los componentes**

· **3.2 Caracterización química: Mezclas**

· **Descripción:** Mezcla formada por las sustancias especificadas a continuación con adiciones no peligrosas.

· **Componentes peligrosos:**

|                                     |   |         |
|-------------------------------------|---|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | 2-propanol<br>⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336   | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | grafito<br>⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                            | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | butan-1-ol<br>⚠ Flam. Liq. 3, H226; ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2,5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-metil-2,4-pentanodiol<br>⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319  | 2,5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-metoxi-2-propanol<br>⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336  | 2,5-10% |

· **Indicaciones adicionales:** El texto de los posibles riesgos aquí indicados se puede consultar en el capítulo 16.

( se continua en página 3 )



# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

Nombre comercial: **Graphite Conductive Adhesive 154**

( se continua en página 2 )

### SECCIÓN 4: Primeros auxilios

#### · 4.1 Descripción de los primeros auxilios

##### · Instrucciones generales:

Los síntomas de intoxicación pueden presentarse después de muchas horas, por lo que se requiere una supervisión médica durante un mínimo de 48 horas después del accidente.

##### · En caso de inhalación del producto:

Suministrar aire fresco; eventualmente hacer respiración artificial, calor. Si los trastornos persisten, consultar al médico.

Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.

##### · En caso de contacto con la piel: Por regla general, el producto no irrita la piel.

##### · En caso de con los ojos:

Limpia los ojos abiertos durante varios minutos con agua corriente. En caso de trastornos persistentes consultar un médico.

##### · En caso de ingestión: Consultar un médico si los trastornos persisten.

##### · 4.2 Principales síntomas y efectos, agudos y retardados No existen más datos relevantes disponibles.

##### · 4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente

No existen más datos relevantes disponibles.

### SECCIÓN 5: Medidas de lucha contra incendios

#### · 5.1 Medios de extinción

· Sustancias extintoras apropiadas: CO<sub>2</sub>, arena, polvo extintor. No utilizar agua.

· Sustancias extintoras inapropiadas por razones de seguridad: Agua a pleno chorro

· 5.2 Peligros específicos derivados de la sustancia o la mezcla No existen más datos relevantes disponibles.

#### · 5.3 Recomendaciones para el personal de lucha contra incendios

· Equipo especial de protección: Colocarse la protección respiratoria.

### SECCIÓN 6: Medidas en caso de vertido accidental

#### · 6.1 Precauciones personales, equipo de protección y procedimientos de emergencia

Llevar puesto equipo de protección. Mantener alejadas las personas sin protección.

· 6.2 Precauciones relativas al medio ambiente: Impedir que penetre en el alcantarillado, en fosas o en sótanos.

#### · 6.3 Métodos y material de contención y de limpieza:

Quitar con material absorbente (arena, kieselgur, aglutinante de ácidos, aglutinante universal, aserrín).

Desechar el material contaminado como vertido según ítem 13.

Asegurar suficiente ventilación.

No enjuagar con agua ni productos de limpieza acuosos.

#### · 6.4 Referencia a otras secciones

Ver capítulo 7 para mayor información sobre una manipulación segura.

Ver capítulo 8 para mayor información sobre el equipo personal de protección.

Para mayor información sobre cómo desechar el producto, ver capítulo 13.

### SECCIÓN 7: Manipulación y almacenamiento

#### · 7.1 Precauciones para una manipulación segura

Asegurar suficiente ventilación /aspiración en el puesto de trabajo.

Evitar la formación de aerosoles.

#### · Prevención de incendios y explosiones:

Mantener alejadas las fuentes de encendido. No fumar.

Proteger del calor.

( se continua en página 4 )



# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

**Nombre comercial:** Graphite Conductive Adhesive 154

( se continua en página 3 )

Tomar medidas contra las cargas electrostáticas.

· **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**

· **Almacenamiento:**

· **Exigencias con respecto al almacén y los recipientes:** Almacenar en un lugar fresco.

· **Normas en caso de un almacenamiento conjunto:** No es necesario.

· **Indicaciones adicionales sobre las condiciones de almacenamiento:**

Mantener el recipiente cerrado herméticamente.

Almacenarlo en envases bien cerrados en un lugar fresco y seco.

Proteger del calor y de la luz directa del sol.

· **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

### SECCIÓN 8: Controles de exposición/protección individual

· **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**

Sin datos adicionales, ver punto 7.

· **8.1 Parámetros de control**

· **Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:**

**67-63-0 2-propanol**

|     |   |
|-----|---|
| LEP | Valor de corta duración: 1000 mg/m <sup>3</sup> , 400 ppm<br>Valor de larga duración: 500 mg/m <sup>3</sup> , 200 ppm<br>VLB, s |
|-----|---|

**71-36-3 butan-1-ol**

|     |   |
|-----|---|
| LEP | Valor de corta duración: 154 mg/m <sup>3</sup> , 50 ppm<br>Valor de larga duración: 61 mg/m <sup>3</sup> , 20 ppm |
|-----|---|

**107-41-5 2-metil-2,4-pentanodiol**

|     |   |
|-----|---|
| LEP | Valor de corta duración: 123 mg/m <sup>3</sup> , 25 ppm |
|-----|---|

**107-98-2 1-metoxi-2-propanol**

|     |  |
|-----|--|
| LEP | Valor de corta duración: 568 mg/m <sup>3</sup> , 150 ppm<br>Valor de larga duración: 375 mg/m <sup>3</sup> , 100 ppm<br>vía dérmica, VLI |
|-----|--|

· **Componentes con valores límite biológicos:**

**67-63-0 2-propanol**

|     |  |
|-----|--|
| VLB | 40 mg/l<br>Muestra: orina<br>Momento de Muestero: Final de la semana laboral<br>Indicador Biológico: Acetona |
|-----|--|

· **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.

· **8.2 Controles de la exposición**

· **Equipo de protección individual:**

· **Medidas generales de protección e higiene:**

Mantener alejado de alimentos, bebidas y alimentos para animales.

Quitarse de inmediato la ropa ensuciada o impregnada.

Lavarse las manos antes de las pausas y al final del trabajo.

Evitar el contacto con los ojos.

Evitar el contacto con los ojos y la piel.

· **Protección respiratoria:**

Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.

( se continua en página 5 )

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

Nombre comercial: **Graphite Conductive Adhesive 154**

( se continua en página 4 )

· **Protección de manos:**

El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.

Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.

Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.

· **Material de los guantes**

La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro. Teniendo en cuenta que el producto está fabricado a partir de diferentes materiales, su calidad no puede ser evaluada de antemano, de modo que los guantes deberán ser controlados antes de su utilización.

· **Tiempo de penetración del material de los guantes**

El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

· **Protección de ojos:**



Gafas de protección herméticas

### SECCIÓN 9: Propiedades físicas y químicas

· **9.1 Información sobre propiedades físicas y químicas básicas**

· **Datos generales**

· **Aspecto:**

|                           |                        |
|---------------------------|------------------------|
| · <b>Forma:</b>           | Líquido                |
| · <b>Color:</b>           | Negro                  |
| · <b>Olor:</b>            | Similar al del alcohol |
| · <b>Umbral olfativo:</b> | No determinado.        |

· **valor pH:** No determinado.

· **Cambio de estado**

· **Punto de fusión /campo de fusión:** Indeterminado.

· **Punto de ebullición /campo de ebullición:** Indeterminado.

· **Punto de inflamación:** 13 °C

· **Inflamabilidad (sólido, gaseiforme):** No aplicable.

· **Temperatura de ignición:** 425 °C

· **Temperatura de descomposición:** No determinado.

· **Autoinflamabilidad:** El producto no es autoinflamable.

· **Peligro de explosión:** El producto no es explosivo; sin embargo, pueden formarse mezclas explosivas de vapor / aire.

· **Límites de explosión:**

|                    |            |
|--------------------|------------|
| · <b>Inferior:</b> | 2,0 Vol %  |
| · <b>Superior:</b> | 12,0 Vol % |

· **Presión de vapor a 20 °C:** 43 hPa

|                            |                 |
|----------------------------|-----------------|
| · <b>Densidad:</b>         | Indeterminado.  |
| · <b>Densidad relativa</b> | No determinado. |
| · <b>Densidad de vapor</b> | No determinado. |

( se continua en página 6 )

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

Nombre comercial: **Graphite Conductive Adhesive 154**

( se continua en página 5 )

|  |  |
|--|--|
| · <b>Velocidad de evaporación</b>                  | No determinado.                              |
| · <b>Solubilidad en / miscibilidad con agua:</b>   | Poco o no mezclable.                         |
| · <b>Coefficiente de reparto (n-octanol/agua):</b> | No determinado.                              |
| · <b>Viscosidad:</b>                               |  |
| <b>Dinámica:</b>                                   | No determinado.                              |
| <b>Cinemática:</b>                                 | No determinado.                              |
| · <b>Concentración del disolvente:</b>             |  |
| <b>Disolventes orgánicos:</b>                      | 76,8 %                                       |
| <b>VOC (CE)</b>                                    | 76,79 %                                      |
| · <b>9.2 Otros datos</b>                           | No existen más datos relevantes disponibles. |

### SECCIÓN 10: Estabilidad y reactividad

- **10.1 Reactividad** No existen más datos relevantes disponibles.
- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

### SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

· **Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:**

#### 67-63-0 2-propanol

|             |          |                      |
|-------------|----------|----------------------|
| Oral        | LD50     | 5045 mg/kg (rat)     |
| Dermal      | LD50     | 12800 mg/kg (rabbit) |
| Inhalatorio | LC50/4 h | 30 mg/l (rat)        |

- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas**  
Provoca irritación cutánea.
- **Lesiones o irritación ocular graves**  
Provoca irritación ocular grave.
- **Sensibilización respiratoria o cutánea**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
- **Mutagenicidad en células germinales**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Carcinogenicidad** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición única**  
Puede provocar somnolencia o vértigo.
- **Toxicidad específica en determinados órganos (STOT) – exposición repetida**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

( se continua en página 7 )

**Ficha de datos de seguridad**  
según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

**Nombre comercial: Graphite Conductive Adhesive 154**

( se continua en página 6 )

· **Peligro de aspiración** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.


**SECCIÓN 12: Información ecológica**

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.
- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:** No se tiene conocimiento de que represente un peligro para el agua.
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

**SECCIÓN 13: Consideraciones relativas a la eliminación**

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

**SECCIÓN 14: Información relativa al transporte**

- **14.1 Número ONU**
- **ADR, IMDG, IATA** UN1993
- **14.2 Designación oficial de transporte de las Naciones Unidas**
- **ADR** 1993 LÍQUIDO INFLAMABLE, N.E.P. (ISOPROPANOL (ALCOHOL ISOPROPÍLICO))
- **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))
- **14.3 Clase(s) de peligro para el transporte**
- **ADR, IMDG, IATA**
- 
- **Clase** 3 Líquidos inflamables
- **Etiqueta** 3
- **14.4 Grupo de embalaje**
- **ADR, IMDG, IATA** II
- **14.5 Peligros para el medio ambiente:** No aplicable.
- **14.6 Precauciones particulares para los usuarios** Atención: Líquidos inflamables
- **Número Kemler:** 33
- **Número EMS:** F-E,S-E

( se continua en página 8 )

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 04.08.2016

Revisión: 04.08.2016

Nombre comercial: **Graphite Conductive Adhesive 154**

( se continua en página 7 )

|   |   |
|---|---|
| · <b>Stowage Category</b>   | B   |
| · <b>14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC</b> | No aplicable.   |
| · <b>Transporte/datos adicionales:</b>  |   |
| · <b>ADR</b>  |   |
| · <b>Cantidades limitadas (LQ)</b>  | 1L  |
| · <b>Cantidades exceptuadas (EQ)</b>  | Código: E2<br>Cantidad neta máxima por envase interior: 30 ml<br>Cantidad neta máxima por embalaje exterior: 500 ml |
| · <b>Categoría de transporte</b>  | 2   |
| · <b>Código de restricción del túnel</b>  | D/E   |
| · <b>IMDG</b>   |   |
| · <b>Limited quantities (LQ)</b>  | 1L  |
| · <b>Excepted quantities (EQ)</b>   | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml     |
| · <b>"Reglamentación Modelo" de la UNECE:</b>   | UN 1993 LÍQUIDO INFLAMABLE, N.E.P.<br>(ISOPROPANOL (ALCOHOL ISOPROPÍLICO)), 3, II                                   |

### SECCIÓN 15: Información reglamentaria

- **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**
- **Directiva 2012/18/UE**
- **Sustancias peligrosas nominadas - ANEXO I** ninguno de los componentes está incluido en una lista
- **Categoría Seveso P5c LÍQUIDOS INFLAMABLES**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior** 5.000 t
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior** 50.000 t
- **REGLAMENTO (CE) n° 1907/2006 ANEXO XVII Restricciones:** 3
- **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

### SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

#### · Frases relevantes

H225 Líquido y vapores muy inflamables.

H226 Líquidos y vapores inflamables.

H302 Nocivo en caso de ingestión.

H312 Nocivo en contacto con la piel.

H315 Provoca irritación cutánea.

H318 Provoca lesiones oculares graves.

H319 Provoca irritación ocular grave.

H332 Nocivo en caso de inhalación.

H335 Puede irritar las vías respiratorias.

H336 Puede provocar somnolencia o vértigo.

#### · Abreviaturas y acrónimos:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

( se continua en página 9 )

**Ficha de datos de seguridad**  
**según 1907/2006/CE, Artículo 31**

fecha de impresión 04.08.2016

Revisión: 04.08.2016

**Nombre comercial: Graphite Conductive Adhesive 154**

( se continua en página 8 )

*IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 2: Líquidos inflamables – Categoría 2**Flam. Liq. 3: Líquidos inflamables – Categoría 3**Acute Tox. 4: Toxicidad aguda – Categoría 4**Skin Irrit. 2: Corrosión o irritación cutáneas – Categoría 2**Eye Dam. 1: Lesiones oculares graves o irritación ocular – Categoría 1**Eye Irrit. 2: Lesiones oculares graves o irritación ocular – Categoría 2**STOT SE 3: Toxicidad específica en determinados órganos ( exposición única) – Categoría 3*

ES

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### การระบุสาร/ การทำ/ และของบริษัท / บริษัทที่เข้าถือครอง

- 1.1 ลักษณะเฉพาะของผลิตภัณฑ์
- ชื่อทางการค้า **Graphite Conductive Adhesive 154**
- เลขที่รายชื่อ 12691-30, 12691-30-sp, 12691
- 1.2 สารหรือสารผสมที่เกี่ยวข้องที่ระบุให้ใช้และที่ไม่ควรถูกใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- การประยุกต์ใช้สาร/ การทำ เคมีภัณฑ์ห้องทดลอง
- 1.3 รายละเอียดของผู้จัดหาข้อมูลด้านความปลอดภัย
- ผู้ผลิต/ ผู้จัดหา  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: sgkcck@aol.com  
www.emsdiasum.com
- ข้อมูลรายละเอียดเพิ่มเติมหาได้จาก Product safety department
- 1.4 หมายเลขโทรศัพท์ฉุกเฉิน:  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### การระบุสิ่งที่เป็นอันตราย

- 2.1 การจำแนกประเภทของสารหรือสารผสม
- การแบ่งประเภทตามข้อบังคับ (จีซี) เลขที่ 1272/2008



เปลวไฟ

Flam. Liq. 2 H225 ของเหลวและไอที่ไวไฟสูง



Skin Irrit. 2 H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง  
Eye Irrit. 2 H319 เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา  
STOT SE 3 H336 อาจเป็นสาเหตุให้เชื่องซึมหรือหน้ามืดเวียนศีรษะ

- 2.2 องค์ประกอบของฉลาก
- ฉลากตามระเบียบ (EC) เลขที่ 1272/2008 ผลิตภัณฑ์ได้รับการจัดประเภทและติดฉลากตามข้อบังคับของ CLP
- ภาพสัญลักษณ์สิ่งที่เป็นอันตราย



GHS02 GHS07

- สัญลักษณ์ อันตราย
- ส่วนประกอบที่ระบุอันตรายบนฉลาก  
propan-2-ol
- ประกาศสิ่งที่เป็นอันตราย  
H225 ของเหลวและไอที่ไวไฟสูง  
H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง  
H319 เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา  
H336 อาจเป็นสาเหตุให้เชื่องซึมหรือหน้ามืดเวียนศีรษะ

(ต่อที่หน้า 2)



# แผนข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อที่หน้า 1)

#### · ประกาศการป้องกันระดับร้ายแรง

- P210 เก็บให้ห่างจากความร้อน/ ประกายไฟ/เปลวไฟ/ ผิวที่ร้อน - ห้ามสูบบุหรี่
- P261 หลีกเลี่ยงการสูดหายใจเอาฝุ่น/ ไอสาร/ แก๊ส/ หมอก/ไอ/ ละอองฟุ้ง
- P303+P361+P353 หากสัมผัสผิวหนัง (หรือเส้นผม) ถอดเสื้อผ้าที่เปื้อนทั้งหมดทันที ล้างผิวด้วยน้ำ/อาบน้ำ
- P305+P351+P338 หากเข้าตา : ชะด้วยน้ำอย่างระมัดระวังเป็นเวลาหลายๆนาทีถอดคอนแทกซ์เลนส์ถ้ายังอยู่ที่เดิมและสะดวกที่จะทำก็ให้ชะล้างต่อไป
- P405 เก็บในที่ปลอดภัย
- P501 ทิ้งสิ่งที่บรรจุ/ภาชนะที่บรรจุตามกฎหมายของท้องถิ่น/แคว้น/ในประเทศ/ระหว่างประเทศ

#### · 2.3 อันตรายอื่นๆ

#### · ผลของ PBT และการประเมิน vPvB

- PBT: ไม่สามารถใช้ได้
- vPvB: ไม่สามารถใช้ได้

### ส่วนประกอบ/ ข้อมูลรายละเอียดของส่วนผสมต่างๆ

#### · 3.2 คุณลักษณะทางเคมี: ส่วนผสม

- คำอธิบาย ส่วนผสมของสารในรายการข้างล่างพร้อมสารเติมแต่งที่ไม่เป็นอันตราย

#### · ส่วนประกอบที่มีอันตราย

|                                     |  |         |
|-------------------------------------|--|---------|
| CAS: 67-63-0<br>EINECS: 200-661-7   | propan-2-ol<br>Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336   | 50-100% |
| CAS: 7782-42-5<br>EINECS: 231-955-3 | Graphite<br>Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315                            | 10-25%  |
| CAS: 71-36-3<br>EINECS: 200-751-6   | n-Butyl Alcohol<br>Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336 | 2.5-10% |
| CAS: 107-41-5<br>EINECS: 203-489-0  | 2-methylpentane-2,4-diol<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319  | 2.5-10% |
| CAS: 107-98-2<br>EINECS: 203-539-1  | 1-methoxy-2-propanol<br>Flam. Liq. 3, H226; STOT SE 3, H336  | 2.5-10% |

- ข้อมูลรายละเอียดเสริม สำหรับข้อความที่ระบุในรายการวลีความเสี่ยงที่อ้างอิงถึงในส่วนที่ 16

### มาตรการการปฐมพยาบาลเบื้องต้น

#### · 4.1 คำอธิบายถึงมาตรการปฐมพยาบาล

#### · ข้อมูลรายละเอียดทั่วไป

อาการจากพิษอาจเกิดขึ้นหลังจากนั้นหลายชั่วโมงดังนั้นจะต้องเฝ้าติดตามดูอาการทางการแพทย์อย่างน้อย 48 ชั่วโมงหลังจากอุบัติเหตุ

#### · หลังจากการสูดหายใจเข้าไป

หาบริเวณที่มีอากาศบริสุทธิ์หากจำเป็นให้ใช้เครื่องช่วยหายใจให้คนไข้ช้อนอุ่นปรึกษาแพทย์หากอาการยังไม่บรรเทา

ในกรณีที่คนไข้ไม่รู้สึกรู้ตัวให้ขนย้ายคนไข้อย่างมั่นคงในท่าตะแคงด้านข้าง

#### · หลังจากการสัมผัสผิวหนัง

โดยทั่วๆไปผลิตภัณฑ์ไม่ก่อความระคายเคืองต่อผิวหนัง

#### · หลังจากการสัมผัสสูดดม

ชะตาที่เปิดอยู่ใต้น้ำที่กำลั้งไหลเป็นเวลาหลายนาทีถ้าอาการไม่ดีขึ้นให้ปรึกษาแพทย์

#### · หลังจากการกลืนเข้าไป:

ถ้าอาการยังไม่บรรเทาให้ปรึกษาแพทย์

#### · 4.2 อาการสำคัญส่วนใหญ่และผลกระทบ ทั้งชนิดเฉียบพลันและค่อยๆ แสดงอาการ

ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

(ต่อที่หน้า 3)

TH

# แผนข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อที่หน้า 2)

- 4.3 ข้อบ่งชี้ของอาการที่ต้องเข้ารับการรักษาจากแพทย์ทันทีและการบำบัดพิเศษที่จำเป็น ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

### มาตรการการดับเพลิง

- 5.1 สารที่ใช้ดับเพลิง
- สารดับเพลิงที่เหมาะสม คาร์บอนไดออกไซด์ทรายผงดับไฟอย่าใช้น้ำ
- สารดับเพลิงที่ไม่ควรใช้ด้วยเหตุผลด้านความปลอดภัย น้ำฉีดพ่นเป็นลำ
- 5.2 อันตรายเฉพาะอย่างที่เกิดจากสารหรือส่วนผสม ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 5.3 คำแนะนำสำหรับพนักงานดับเพลิง
- อุปกรณ์ป้องกันภัย อุปกรณ์ป้องกันซึ่งเหมาะสำหรับการหายใจทางปาก

### มาตรการลดอุบัติเหตุ

- 6.1 การป้องกันส่วนบุคคล อุปกรณ์ป้องกัน และขั้นตอนดำเนินการเมื่อเกิดกรณีฉุกเฉิน สวมอุปกรณ์ป้องกันภัยกันคนที่ไม่ใช้อุปกรณ์ป้องกันออกไป
- 6.2 การให้ความคุ้มครองสิ่งแวดล้อมสงวนหน้า: ป้องกันการซึมเข้าในระบบระบายน้ำหลุมทำงานและห้องใต้ดิน
- 6.3 วิธีดำเนินการและวัสดุสำหรับการบรรจุและการทำความสะอาด: ดูดซับด้วยวัสดุที่สามารถยึดของเหลวไว้ ( ทรายไดอะโตไมท์ตัวยึดเกาะกรดตัวยึดต่างๆไปซื้อ) ทิ้งวัสดุที่ปนเปื้อนเป็นของเสียตามรายการในบัญชี 13 ตรวจสอบให้แน่ใจว่ามีการระบายอากาศที่ดีพอ อย่านัดด้วยน้ำหรือน้ำยาทำความสะอาดที่มีน้ำเป็นส่วนผสม
- 6.4 การอ้างอิงถึงส่วนอื่น ดูข้อมูลรายละเอียดเรื่องความปลอดภัยในการขนถ่ายจากส่วนที่ 7 ดูข้อมูลรายละเอียดเรื่องอุปกรณ์ป้องกันส่วนบุคคลจากส่วนที่ 8 ดูข้อมูลรายละเอียดเรื่องการจัดเก็บจากส่วนที่ 13

### การขนถ่ายและการจัดเก็บ

- 7.1 การป้องกันสงวนหน้าสำหรับการจัดการด้านความปลอดภัย ทำให้แน่ใจว่าสถานที่ทำงานมีการระบายอากาศ/ ไอเสียที่ดี ป้องกันการเกิดละอองสารฟุ้ง
- ข้อมูลรายละเอียดเกี่ยวกับการป้องกันอัคคีภัยและการระเบิด ออกจากแหล่งที่ติดไฟอย่าสูบบุหรี่ ป้องกันให้พ้นจากความร้อน ป้องกันให้พ้นจากประจุไฟฟ้าสถิตย์
- 7.2 เงื่อนไขในการเก็บรักษาอย่างปลอดภัย, รวมถึงสิ่งที่เข้ากันไม่ได้ใดๆ
- การจัดเก็บ
- ข้อกำหนดที่ต้องปฏิบัติตามสำหรับห้องเก็บและภาชนะบรรจุ เก็บในบริเวณที่เย็น
- ข้อมูลรายละเอียดด้านการจัดเก็บในสถานที่จัดเก็บรวม ไม่ได้กำหนด
- ข้อมูลรายละเอียดเพิ่มเติมด้านสภาพการจัดเก็บ เก็บโดยปิดผนึกอย่างแน่นหนา เก็บในที่เย็นสภาพแห้งในภาชนะบรรจุที่ปิดผนึกอย่างดี ป้องกันให้พ้นจากความร้อนและแสงแดดส่อง
- 7.3 การระบุถึงการสิ้นสุดการใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

-TH

(ต่อที่หน้า 4)

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อหน้า 3)

#### การควบคุมการทิ้งในลักษณะเปิด / การป้องกันภัยสำหรับบุคคล

· ข้อมูลรายละเอียดเสริมสำหรับการออกแบบสิ่งอำนวยความสะดวกทางเทคนิค ไม่มีข้อมูลนอกเหนือจากนี้ดูรายการ 7

#### · 8.1 การควบคุมตัวแปร

· ส่วนผสมพร้อมค่าขอบเขตที่ต้องเฝ้าดูในสถานที่ปฏิบัติงาน

##### 67-63-0 propan-2-ol

PEL (US) ค่าระยะยาว: 980 mg/m<sup>3</sup>, 400 ppm

REL (US) ค่าระยะสั้น: 1225 mg/m<sup>3</sup>, 500 ppm  
ค่าระยะยาว: 980 mg/m<sup>3</sup>, 400 ppm

TLV (US) ค่าระยะสั้น: 984 mg/m<sup>3</sup>, 400 ppm  
ค่าระยะยาว: 492 mg/m<sup>3</sup>, 200 ppm  
BEI

##### 71-36-3 n-Butyl Alcohol

PEL (US) ค่าระยะยาว: 300 mg/m<sup>3</sup>, 100 ppm

REL (US) Ceiling limit value: 150 mg/m<sup>3</sup>, 50 ppm  
Skin

TLV (US) ค่าระยะยาว: 61 mg/m<sup>3</sup>, 20 ppm

##### 107-41-5 2-methylpentane-2,4-diol

REL (US) Ceiling limit value: 125 mg/m<sup>3</sup>, 25 ppm

TLV (US) ค่าระยะสั้น: NIC-242\* mg/m<sup>3</sup>, NIC-50\* NIC-10\*\* ppm

ค่าระยะยาว: NIC-121\* mg/m<sup>3</sup>, NIC-25\* ppm

Ceiling limit value: (121) mg/m<sup>3</sup>, (25) ppm

\*vapor \*\*inhalable fraction, H

##### 107-98-2 1-methoxy-2-propanol

REL (US) ค่าระยะสั้น: 540 mg/m<sup>3</sup>, 150 ppm

ค่าระยะยาว: 360 mg/m<sup>3</sup>, 100 ppm

TLV (US) ค่าระยะสั้น: 369 mg/m<sup>3</sup>, 100 ppm

ค่าระยะยาว: 184 mg/m<sup>3</sup>, 50 ppm

· ข้อมูลรายละเอียดเสริม รายการถูกต้องระหว่างที่จัดทำโดยอาศัยการปฏิบัติงานเป็นหลัก

#### · 8.2 การควบคุมการสัมผัส

##### · อุปกรณ์ป้องกันภัยส่วนบุคคล

##### · มาตรการการป้องกันและสุขอนามัยทั่วไป

เก็บให้ห่างจากสิ่งของที่เป็นอาหาร เครื่องดื่ม และอาหารสัตว์

ให้ถอดเสื้อผ้าที่เปื้อนและเจือปนออกทันที

ล้างมือก่อนที่จะหยุดพักและเมื่อสิ้นสุดเวลาทำงาน

หลีกเลี่ยงการสัมผัสถูกตา

หลีกเลี่ยงการสัมผัสถูกตาและผิวหนัง

##### · การป้องกันการสูดหายใจเข้าไป

ในกรณีที่อยู่เป็นเวลาสั้นหรืออากาศเป็นพิษระดับต่ำ ใช้หน้ากากกรองเพื่อช่วยหายใจในกร

ณที่มีความเข้มข้นสูงหรืออยู่เป็นเวลานาน ให้ใช้เครื่องป้องกันที่มีอุปกรณ์ช่วยหายใจใน

ตัว

##### · การป้องกันมือ

วัสดุของถุงมือจะต้องไม่ให้อากาศผ่านเข้าออกและทนทานต่อผลิตภัณฑ์/ สาร/ การผลิต

เนื่องจากขาดการทดสอบจึงไม่มีคำแนะนำสำหรับวัสดุที่ใช้ทำถุงมือสำหรับผลิตภัณฑ์ / การผลิต /

ของผสมเคมี

เลือกวัสดุสำหรับถุงมือโดยพิจารณาจากเวลาที่ใช้ในการซึมผ่านอัตราการแพร่และการเสื่อม

(ต่อหน้า 5)

TH

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อหน้า 4)

#### · วัสดุที่ใช้ทำถุงมือ

การเลือกใช้ถุงมือที่เหมาะสมไม่เพียงแต่ขึ้นอยู่กับวัสดุแต่ยังขึ้นกับมาตรฐานด้านคุณภาพ และข้อแตกต่างระหว่างผู้ผลิตแต่ละแห่งโดยที่ผลิตภัณฑ์เตรียมมาจากสารหลายชนิดความทนทานของวัสดุถุงมือไม่สามารถที่จะคำนวณล่วงหน้าดังนั้นจึงต้องตรวจสอบกับการใช้งาน

#### · เวลาที่ใช้ในการทะลุผ่านวัสดุที่ใช้ทำถุงมือ

ผู้ผลิตถุงมือป้องกันจะต้องทดสอบหาเวลาแน่นอนที่ใช้ในการทะลุผ่านและจะต้องมีการตรวจสอบติดตาม

#### · การป้องกันตา



แว่นตาที่ขอบปิดสนิท

### คุณสมบัติทางกายภาพและเคมี

#### · 9.1 ข้อมูลคุณสมบัติพื้นฐานทางกายภาพและเคมี

##### · ข้อมูลรายละเอียดทั่วไป

##### · ลักษณะ :

รูปสีฐาน  
สี

ของเหลว  
สีดำ

##### · กลิ่น

คล้ายแอลกอฮอล์

##### · เกณฑ์กลิ่น :

ไม่ได้กำหนดไว้.

##### · ค่า pH

ไม่ได้กำหนดไว้.

##### · การเปลี่ยนสภาวะ

จุดหลอมเหลว/ ขอบเขตการหลอมละลาย  
จุดเดือด/ ขอบเขตการเดือด

ไม่ได้กำหนด  
ไม่ได้กำหนด

##### · จุดวาบไฟ

13 °C

##### · ความสามารถติดไฟ (ของแข็งแกลส)

ไม่สามารถใช้ได้

##### · อุณหภูมิจุดระเบิด

425 °C

##### · อุณหภูมิละลายตัว

ไม่ได้กำหนดไว้.

##### · การเผาไหม้ด้วยตัวเอง

ผลิตภัณฑ์ไม่เป็นสารจุดไฟติดด้วยตัวเอง

##### · อันตรัยจากการระเบิด

ผลิตภัณฑ์ไม่ได้เป็นสารระเบิดอย่างไรก็ตามอาจเป็นไปได้ที่การผสมของอากาศ/ ไอจะทำให้เกิดการ

##### · ขอบเขตการระเบิด

ขั้นต่ำ  
ขั้นสูง

2.0 Vol %  
12.0 Vol %

##### · ความดันไอ ที่ 20 °C

43 hPa

##### · ความหนาแน่น

ไม่ได้กำหนด

##### · ความหนาแน่นสัมพัทธ์

ไม่ได้กำหนดไว้.

##### · ความหนาแน่นของไอ

ไม่ได้กำหนดไว้.

##### · อัตราการระเหย

ไม่ได้กำหนดไว้.

##### · ความสามารถในการละลายใน / ความสามารถผสมเป็นสารละลายเนื้อเดียวทุกส่วนผสมกับน้ำ

ไม่สามารถผสมกันได้หรือยากที่จะผสม

##### · สัมประสิทธิ์การแยกตัว (เอ็น-ออกทานอล/น้ำ)

ไม่ได้กำหนดไว้.

(ต่อหน้า 6)

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อที่หน้า 5)

|  |  |
|--|--|
| · ความหนืด<br>(ไดนามิค) พลศาสตร์<br>(คิเนเมติก) จลนศาสตร์      | ไม่ได้กำหนดไว้.<br>ไม่ได้กำหนดไว้.     |
| · ปริมาณส่วนประกอบตัวทำละลาย<br>ตัวทำละลายอินทรีย์<br>VOC (EC) | 76.8 %<br>76.79 %                      |
| · 9.2 ข้อมูลอื่นๆ  | ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้ |

### ความเสถียรและความสามารถในการทำปฏิกิริยา

- 10.1 ปฏิกิริยาโต้ตอบ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.2 เสถียรภาพทางเคมี
- การสลายตัวด้วยความร้อน / เงื่อนไขที่ต้องหลีกเลี่ยง ไม่มีการสลายตัวถ้าใช้ตามรายละเอียดที่ระบุไว้
- 10.3 ความเป็นไปได้ของการเกิดปฏิกิริยาอันตราย ไม่มีปฏิกิริยาเป็นอันตรายที่รู้จัก
- 10.4 เงื่อนไขเพื่อการหลีกเลี่ยง ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.5 วัสดุที่เข้ากันไม่ได้: ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.6 อันตรายจากการสลายตัวของผลิตภัณฑ์: ไม่มีสารจากการสลายตัวที่เป็นอันตรายที่รู้จัก

### ข้อมูลรายละเอียดเกี่ยวกับพิษวิทยา

- 11.1 ข้อมูลเกี่ยวกับผลกระทบทางพิษวิทยา
- ความเป็นพิษอย่างสาหัส:

- การจัดแบ่งตามค่า LD/LC50

#### 67-63-0 propan-2-ol

|                |          |                      |
|----------------|----------|----------------------|
| ทางปาก         | LD50     | 5045 mg/kg (rat)     |
| ทางผิวหนัง     | LD50     | 12800 mg/kg (rabbit) |
| ทางการสูดหายใจ | LC50/4 h | 30 mg/l (rat)        |

- อาการระคายเคืองเบื้องต้น
- บนผิวหนัง  
เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง
- ที่ดวงตา  
เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา
- การทำให้แพ้

### ข้อมูลรายละเอียดเกี่ยวกับนิเวศวิทยา

- 12.1 ความเป็นพิษ
- ความเป็นพิษที่เกี่ยวข้องกับน้ำ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.2 การคงอยู่และการย่อยสลาย ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.3 การสะสมทางชีวภาพที่อาจเกิดขึ้น ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.4 การเปลี่ยนแปลงในดิน ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- ข้อมูลรายละเอียดเสริมเกี่ยวกับนิเวศวิทยา
- หมายเหตุทั่วไป ไม่มีรายงานถึงความเป็นอันตรายต่อน้ำ
- 12.5 ผลของ PBT และการประเมิน vPvB
- PBT: ไม่สามารถใช้ได้
- vPvB: ไม่สามารถใช้ได้

(ต่อที่หน้า 7)

TH

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

- 12.6 ผลข้างเคียงอื่นๆ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

(ต่อที่หน้า 6)

### การพิจารณาการกำจัด

- 13.1 วิธีการกำจัดของเสีย
- คำแนะนำ ต้องไม่ทิ้งไปพร้อมกับขยะจากบ้านเรือนอย่าปล่อยให้ผลิตภัณฑ์เข้าถึงระบบระบายน้ำเสีย
- ภาชนะบรรจุที่ยังไม่ได้สร้างทำความสะอาด
- คำแนะนำ การกำจัดจะต้องทำตามกฎระเบียบที่เป็นทางการ

### ข้อมูลรายละเอียดในการขนส่ง

- 14.1 เลขที่ UN
- ADR, IMDG, IATA UN1993
- 14.2 ชื่อการจัดส่งสินค้าที่เหมาะสมของ UN
- ADR 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))
- IMDG, IATA FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))
- 14.3 ชั้นเรียนอันตรายจากการขนส่ง
- ADR, IMDG, IATA
- ประเภท 3 ของเหลวติดไฟได้
- ฉลากสิ่งที่เป็นอันตราย 3
- 14.4 กลุ่มของภาชนะบรรจุ
- ADR, IMDG, IATA II
- 14.5 สิ่งที่เป็นอันตรายต่อสภาพแวดล้อม ไม่สามารถใช้ได้
- 14.6 การป้องกันพิเศษสงวนสำหรับผู้ใช้ คำเตือน !: ของเหลวติดไฟได้
- รหัสความอันตราย: 33
- หมายเลข EMS F-E,S-E
- Stowage Category B
- 14.7 การขนส่งขนาดใหญ่ตามภาคผนวก 2 ของ MARPOL73/78 และรหัส IBC ไม่สามารถใช้ได้
- การขนส่ง/ข้อมูลรายละเอียดเสริม
- ADR
- ปริมาณที่จำกัด (LQ) 1L
- Excepted quantities (EQ) Code: E2
- Maximum net quantity per inner packaging: 30 ml
- Maximum net quantity per outer packaging: 500 ml
- หมวดหมู่การขนส่ง 2
- รหัสควบคุมการผ่านอุโมงค์ D/E

(ต่อที่หน้า 8)

TH

# แผ่นข้อมูลความปลอดภัย

## ตาม 1907/2006/EC, มาตรา 31

วันที่พิมพ์ 2016.08.04

การปรับปรุงใหม่ : 2016.08.04

### ชื่อทางการค้า Graphite Conductive Adhesive 154

(ต่อหน้า 7)

|                            |   |
|----------------------------|---|
| · IMDG                     |   |
| · Limited quantities (LQ)  | 1L  |
| · Excepted quantities (EQ) | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · “กฎระเบียบต้นแบบ” ของ UN | UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II                                       |

### ข้อมูลรายละเอียดของกฎระเบียบ

- 15.1 ความปลอดภัย สุขภาพและระเบียบ/กฎหมายสิ่งแวดล้อมโดยเฉพาะของสารหรือสารผสม  
ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 15.2 การประเมินความปลอดภัยของสารเคมี: ไม่ได้ดำเนินการตามการประเมินความปลอดภัยของสารเคมี

### ข้อมูลรายละเอียดอื่นๆ

ข้อมูลรายละเอียดนี้ใช้ความรู้ปัจจุบันของเราเป็นหลักอย่างไรก็ตามข้อมูลนี้ไม่ใช่การรับประกันจากสถาบันต่อคุณสมบัติเฉพาะของผลิตภัณฑ์และไม่สามารถยืนยันการบังคับใช้ตามกฎหมายที่เกี่ยวข้องกับสัญญา

#### · รหัสที่เกี่ยวข้องกับ

- H225 ของเหลวและไอที่ไวไฟสูง
- H226 ของเหลวและไอที่ไวไฟ
- H302 เป็นอันตรายหากกลืนเข้าไป
- H312 เป็นอันตรายหากสัมผัสกับผิวหนัง
- H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง
- H318 เป็นสาเหตุให้เกิดอันตรายต่อดวงตาอย่างสาหัส
- H319 เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา
- H332 ให้โทษหากสูดหายใจเข้า
- H335 อาจเป็นสาเหตุให้เกิดการระคายเคืองต่อระบบหายใจ
- H336 อาจเป็นสาเหตุให้เชื่องซึมหรือหน้ามืดเวียนศีรษะ

#### · คำย่อและชื่อย่อที่ผสมขึ้น

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 2: Flammable liquids – Category 2
- Flam. Liq. 3: Flammable liquids – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3