

## Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and  
GHS

Printing date 01.08.2014

Revision: 01.08.2014

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

- **1.1 Product identifier**
- **Trade name: Exo Armour - Part A**
- **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**  
Product Component  
Coating material
- **1.3 Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
The Eastwood Company  
263 Shoemaker Road  
Pottstown, PA 19464 USA  
Tel 800-345-1178 (Toll-Free), 610-718-8335 (International)
- **1.4 Emergency telephone number:**  
Chemtrec 1-800-424-9300

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**  
The following Hazard Statements are applicable only according to OSHA regulations within the United States. These Statements are not applicable for the CLP regulation (1272/2008/EC) in the EU. H227.  
H227: Combustible Liquid. (General GHS and USA only)



Acute Tox. 4 H312 Harmful in contact with skin.  
Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2 H319 Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn; Harmful

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.



Xi; Irritant

R36/38: Irritating to eyes and skin.

- **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

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The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

## 2.2 Label elements

### Labelling according to Regulation (EC) No 1272/2008

The following Hazard Statements are applicable only to the general GHS regulations and not the specific CLP regulation: H227.

H227: Combustible Liquid. (General GHS and USA only)

The product is classified and labelled according to the CLP regulation.

### Hazard pictograms



GHS07

### Signal word Warning

### Hazard-determining components of labelling:

2-butoxyethanol

### Hazard statements

H227: Combustible Liquid. (General GHS and USA only)

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

### Precautionary statements

P280 Wear protective gloves / eye protection.

P264 Wash thoroughly after handling.

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

P332+P313 If skin irritation occurs: Get medical advice/attention.

P302+P352 IF ON SKIN: Wash with plenty of water.

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

### Hazard description:

### WHMIS-symbols:

B3 - Combustible liquid

D2B - Toxic material causing other toxic effects



### NFPA ratings (scale 0 - 4)



Health = 2

Fire = 2

Reactivity = 0

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- **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	2	Fire = 2
REACTIVITY	0	Reactivity = 0

- **HMIS Long Term Health Hazard Substances**

None of the ingredients is listed.

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

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

- **Dangerous components:**

CAS: 111-76-2	2-butoxyethanol	25-50%
EINECS: 203-905-0	☒ Xn R20/21/22; ☒ Xi R36/38	
Index number: 603-014-00-0	☠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	

- **Additional information:** For the wording of the listed risk 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; consult doctor in case of complaints.
- **After skin contact:**  
Immediately rinse with water.  
If skin irritation continues, consult a doctor.
- **After eye contact:**  
Remove contact lenses if worn.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; call for medical help immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**  
Headache  
Dizziness  
Coughing  
Breathing difficulty

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Irritant to skin and mucous membranes.

Irritant to eyes.

Gastric or intestinal disorders.

Nausea

Disorientation

· **Hazards**

Vapours may cause drowsiness and dizziness.

May be harmful if inhaled.

May be harmful if swallowed.

Harmful in contact with skin.

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

If necessary oxygen respiration treatment.

## SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:**

CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:** None.

· **5.2 Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Cool endangered receptacles with water spray.

Use large quantities of foam as it is partially destroyed by the product.

## SECTION 6: Accidental release measures

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

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources.

Particular danger of slipping on leaked/spilled product.

· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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

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

Pick up mechanically.

Ensure adequate ventilation.

Send for recovery or disposal in suitable receptacles.

· **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

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## SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Use only in well ventilated areas.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:**  
Store away from foodstuffs.  
Store away from oxidizing agents.  
Do not store together with acids.
- **Further information about storage conditions:**  
Store in cool, dry conditions in well sealed receptacles.  
Keep container tightly sealed.
- **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.
- **8.1 Control parameters**

### Ingredients with limit values that require monitoring at the workplace:

#### 111-76-2 2-butoxyethanol

IOELV (EU)	Short-term value: 246 mg/m <sup>3</sup> , 50 ppm Long-term value: 98 mg/m <sup>3</sup> , 20 ppm Skin
PEL (USA)	Long-term value: 240 mg/m <sup>3</sup> , 50 ppm Skin
REL (USA)	Long-term value: 24 mg/m <sup>3</sup> , 5 ppm Skin
TLV (USA)	Long-term value: 97 mg/m <sup>3</sup> , 20 ppm BEI
EL (Canada)	Long-term value: 20 ppm
EV (Canada)	Long-term value: 20 ppm Skin

- **DNELs** No further relevant information available.
- **PNECs** No further relevant information available.

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· **Ingredients with biological limit values:**

**111-76-2 2-butoxyethanol**

BEI (USA)	200 mg/g creatinine Medium: urine Time: end of shift Parameter: Butoxyacetic acid with hydrolysis
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- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
The usual precautionary measures are to be adhered to when handling chemicals.  
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 and skin.
- **Respiratory protection:**  
Not required under normal conditions of use.  
Use suitable respiratory protective device when aerosol or mist is formed.  
For spills, respiratory protection may be advisable.  
NIOSH or EN approved organic vapor respirator equipped with a dust/mist prefilter should be used.
- **Protection of hands:**



Protective gloves

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



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**  
No further relevant information available.
- **Risk management measures**  
See Section 7 for additional information.

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No further relevant information available.

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## SECTION 9: Physical and chemical properties

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

#### · General Information

#### · Appearance:

Form: Liquid  
Colour: Colourless

· Odour: Alcohol-like

· Odour threshold: Not determined.

· pH-value: Not determined.

#### · Change in condition

Melting point/Melting range: Not Determined.

Boiling point/Boiling range: Undetermined.

· Flash point: 149 °F / 65 °C

· Flammability (solid, gaseous): Not applicable.

· Auto/Self-ignition temperature: 240 °C

· Decomposition temperature: Not determined.

· Self-igniting: Product is not self-igniting.

· Danger of explosion: Product does not present an explosion hazard.

#### · Explosion limits:

Lower: 1,1 Vol %

Upper: 10,6 Vol %

· Vapour pressure at 20 °C: 23 hPa

· Density at 20 °C: 0,95 g/cm<sup>3</sup>

· Relative density: Not determined.

· Vapour density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with  
water: Fully miscible.

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

#### · Viscosity:

Dynamic: Not determined.

Kinematic: Not determined.

· 9.2 Other information: No further relevant information available.

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## SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**  
Combustible liquid.  
Toxic fumes may be released if heated above the decomposition point.  
Reacts with strong oxidizing agents.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide

## SECTION 11: Toxicological information

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

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

### 111-76-2 2-butoxyethanol

Oral	LD50	1480 mg/kg (rat)
Dermal	LD50	400 mg/kg (rab)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing 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  
Inhalation of concentrated vapours as well as oral intake will lead to anaesthesia-like conditions and headache, dizziness, etc.
- **Acute effects (acute toxicity, irritation and corrosivity):**  
Vapours have narcotic effect.  
Harmful in contact with skin.  
May be harmful if swallowed.  
May be harmful if inhaled.

## SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.

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- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Due to available data on eliminability/decomposition and bioaccumulation potential a prolonged damage of the environment is unlikely.
- **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.  
Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

## SECTION 14: Transport information

- **14.1 UN-Number**
- **DOT, ADR, ADN, IMDG, IATA** Not Regulated
- **14.2 UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA** Not Regulated
- **14.3 Transport hazard class(es)**
- **DOT, ADR, ADN, IMDG, IATA**
- **Class** Not Regulated
- **14.4 Packing group**
- **DOT, ADR, IMDG, IATA** Not Regulated
- **14.5 Environmental hazards:**
- **Marine pollutant:** No
- **14.6 Special precautions for user** Not applicable.
- **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

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· UN "Model Regulation":

-

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### SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

- Section 355 (extremely hazardous substances):

None of the ingredients is listed.

- Section 313 (Specific toxic chemical listings):

111-76-2 | 2-butoxyethanol

- TSCA (Toxic Substances Control Act):

All ingredients are listed.

- Proposition 65 (California):

- Chemicals known to cause cancer:

None of the ingredients is listed.

- Chemicals known to cause reproductive toxicity for females:

None of the ingredients are 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)

111-76-2 | 2-butoxyethanol

NL

- IARC (International Agency for Research on Cancer)

111-76-2 | 2-butoxyethanol

3

- TLV (Threshold Limit Value established by ACGIH)

111-76-2 | 2-butoxyethanol

A3

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

None of the ingredients is listed.

- Canada

- Canadian Domestic Substances List (DSL)

All ingredients are listed.

- Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

- Canadian Ingredient Disclosure list (limit 1%)

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· **Other regulations, limitations and prohibitive regulations**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

· **Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients is listed.

· **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**

H302 Harmful if swallowed.  
 H312 Harmful in contact with skin.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R36/38 Irritating to eyes and skin.

· **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  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 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)  
 WHMIS: Workplace Hazardous Materials Information System (Canada)  
 DNEL: Derived No-Effect Level (REACH)  
 PNEC: Predicted No-Effect Concentration (REACH)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 Acute Tox. 4: Acute toxicity, Hazard Category 4  
 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2  
 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2



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

- **1.1 Product identifier**
- **Trade name: Exo Armour Part B**
- **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**  
Product Component  
Coating material
- **1.3 Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
The Eastwood Company  
263 Shoemaker Road  
Pottstown, PA 19464 USA  
Tel 800-345-1178 (Toll-Free), 610-718-8335 (International)
- **1.4 Emergency telephone number:**  
Chemtrec 1-800-424-9300

## SECTION 2: Hazards identification

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



flame

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



health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT SE 2 H371 May cause damage to organs.

STOT RE 2 H373 May cause damage to the bladder through prolonged or repeated exposure. Route of exposure: Oral.



Acute Tox. 4 H332 Harmful if inhaled.

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



T; Toxic

R61:

May cause harm to the unborn child.

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 Xn; Harmful


R20/21/22-48/22-68/20/21/22: Harmful by inhalation, in contact with skin and if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

 Xi; Irritant

R36/38: Irritating to eyes and skin.

 Xi; Sensitising

R43: May cause sensitisation by skin contact.

 F; Highly flammable

R11: Highly flammable.

• **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

• **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

• **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 GHS08

• **Signal word** Danger

• **Hazard-determining components of labelling:**

trimethoxy(methyl)silane  
methanol  
trimethoxyphenylsilane  
dimethoxydimethylsilane

• **Hazard statements**

H225 Highly flammable liquid and vapour.

H332 Harmful if inhaled.

H317 May cause an allergic skin reaction.

H361 Suspected of damaging fertility or the unborn child.

H371 May cause damage to organs.

H373 May cause damage to the bladder through prolonged or repeated exposure. Route of exposure:  
Oral.

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- **Precautionary statements**

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
 P281 Use personal protective equipment as required.  
 P260 Do not breathe mist/vapours/spray.  
 P370+P378 In case of fire: Use foam, powder, or carbon dioxide for extinction.  
 P308+P313 IF exposed or concerned: Get medical advice/attention.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P302+P352 IF ON SKIN: Wash with plenty of water.  
 P403+P235 Store in a well-ventilated place. Keep cool.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Hazard description:**

- **WHMIS-symbols:**

- B2 - Flammable liquid  
 D2A - Very toxic material causing other toxic effects



- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



\* - Indicates a long term health hazard from repeated or prolonged exposures.

- **HMIS Long Term Health Hazard Substances**

67-56-1	methanol
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- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

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

## SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**

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

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


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**· Dangerous components:**

CAS: 2996-92-1 EINECS: 221-066-9	trimethoxyphenylsilane  Xn R22-48/22 R10  Flam. Liq. 3, H226  STOT RE 2, H373  Acute Tox. 4, H302	25-50%
CAS: 1185-55-3 EINECS: 214-685-0	trimethoxy(methyl)silane  Xi R43;  F R11  Flam. Liq. 2, H225  Skin Sens. 1, H317	25-50%
CAS: 17865-54-2	cyclohexyl trimethoxysilane  C R35;  Xi R41  Skin Corr. 1B, H314; Eye Dam. 1, H318	1-5%
CAS: 1112-39-6 EINECS: 214-189-4	dimethoxydimethylsilane  T Repr. Cat. 2 R61;  Xn R62;  F R11  Flam. Liq. 2, H225  Repr. 2, H361	1-5%
CAS: 67-56-1 EINECS: 200-659-6 Index number: 603-001-00-X	methanol  T R23/24/25-39/23/24/25;  F R11  Flam. Liq. 2, H225  Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331  STOT SE 1, H370	1-3%
CAS: 68920-06-9 EINECS: 272-912-9	Hydrocarbons, C7-9  Xn R65;  F R11;  N R51/53 R66-67  Flam. Liq. 2, H225  Asp. Tox. 1, H304  Aquatic Chronic 2, H411  STOT SE 3, H336	<1,0%
CAS: 18406-41-2 EINECS: 242-285-6	3,3,6,6-tetramethoxy-2,7-dioxa-3,6-disilaoctane  T+ R26  Acute Tox. 1, H330	<1,0%

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

**SECTION 4: First aid measures**

· **4.1 Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

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

Take affected persons out into the fresh air.

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.

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Provide oxygen treatment if affected person has difficulty breathing.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Do not pull solidified product off the skin.

If skin irritation continues, consult a doctor.

· **After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed**

Coughing

Dizziness

Breathing difficulty

Allergic reactions

Irritant to skin and mucous membranes.

Gastric or intestinal disorders.

Slight irritant effect on eyes.

· **Hazards**

Suspected of damaging fertility or the unborn child.

Possible risk of irreversible effects.

Harmful if inhaled.

Danger of impaired breathing.

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

Treat skin and mucous membrane with antihistamine and corticoid preparations.

Contains trimethoxy(methyl)silane. May produce an allergic reaction.

If swallowed or in case of vomiting, danger of entering the lungs.

## 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**

Formation of toxic gases is possible during heating or in case of fire.

Rags, steel wool, or waste soaked with product may spontaneously ignite if improperly handled or discarded.

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Wear fully protective suit.

· **Additional information**

Eliminate all ignition sources if safe to do so.

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Cool endangered receptacles with water fog or haze.

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## SECTION 6: Accidental release measures

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

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources.

Protect from heat.

Product forms slippery surface when combined with water.

### • 6.2 Environmental precautions: Prevent seepage into sewage system, workpits and cellars.

### • 6.3 Methods and material for containment and cleaning up:

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

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Send for recovery or disposal in suitable receptacles.

Used rags or other cleaning materials should be soaked with water and placed in a sealed container.

### • 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

Keep away from heat and direct sunlight.

Use only in well ventilated areas.

Open and handle receptacle with care.

Prevent formation of aerosols.

Avoid splashes or spray in enclosed areas.

Rags, metal wools / cuttings / shavings and waste papers soaked with product must be placed in a sealed metal container rated for flammable waste.

### • Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

### • 7.2 Conditions for safe storage, including any incompatibilities

#### • Storage:

#### • Requirements to be met by storerooms and receptacles:

Store in a cool location.

Provide ventilation for receptacles.

Avoid storage near extreme heat, ignition sources or open flame.

#### • Information about storage in one common storage facility:

Store away from foodstuffs.

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- Store away from oxidizing agents.  
Do not store together with acids.  
Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:**  
Store in cool, dry conditions in well sealed receptacles.  
Keep container tightly sealed.
  - **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.
- **8.1 Control parameters**

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

**67-56-1 methanol**

IOELV (EU)	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm Skin
PEL (USA)	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm
REL (USA)	Short-term value: 325 mg/m <sup>3</sup> , 250 ppm Long-term value: 260 mg/m <sup>3</sup> , 200 ppm Skin
TLV (USA)	Short-term value: 328 mg/m <sup>3</sup> , 250 ppm Long-term value: 262 mg/m <sup>3</sup> , 200 ppm Skin; BEI
EL (Canada)	Short-term value: 250 ppm Long-term value: 200 ppm Skin
EV (Canada)	Short-term value: 325 mg/m <sup>3</sup> , 250 ppm Long-term value: 260 mg/m <sup>3</sup> , 200 ppm Skin

- **DNELs** No further relevant information available.
- **PNECs** No further relevant information available.

• **Ingredients with biological limit values:**

**67-56-1 methanol**

BEI (USA)	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
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- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
The usual precautionary measures are to be adhered to when handling chemicals.  
Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.  
Pregnant women should strictly avoid inhalation or skin contact.

- **Respiratory protection:**

Not required under normal conditions of use.  
Use suitable respiratory protective device in case of insufficient ventilation.  
Use suitable respiratory protective device when aerosol or mist is formed.  
For spills, respiratory protection may be advisable.  
NIOSH or EN approved organic vapor respirator equipped with a dust/mist prefilter should be used.

- **Protection of hands:**



Protective gloves

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



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**  
No further relevant information available.
- **Risk management measures**  
See Section 7 for additional information.  
No further relevant information available.

## SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Liquid
<b>Colour:</b>	Clear

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- **Odour:** Like alcohol
- **Odour threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - Melting point/Melting range:** Not Determined.
  - Boiling point/Boiling range:** Undetermined.
- **Flash point:** 47 ° F / 8 °C
- **Flammability (solid, gaseous):** Not applicable.
- **Auto/Self-ignition temperature:** Not determined.
- **Decomposition temperature:** Not determined.
- **Self-igniting:** Product is not self-igniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
- **Explosion limits:**
  - Lower:** Not determined.
  - Upper:** Not determined.
- **Vapour pressure:** Not determined.
- **Density at 20 °C:** 0,96 g/cm<sup>3</sup>
- **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.
- **9.2 Other information** No further relevant information available.

### SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Keep away from heat and direct sunlight.
- **10.3 Possibility of hazardous reactions**
  - Flammable.
  - Reacts with strong acids.
  - Reacts with strong alkali.
  - Reacts with oxidizing agents.
  - Used empty containers may contain product gases which form explosive mixtures with air.

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Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomised.  
Toxic fumes may be released if heated above the decomposition point.

- **10.4 Conditions to avoid**

Keep away from heat and direct sunlight.  
Keep ignition sources away - Do not smoke.  
Store away from oxidizing agents.

- **10.5 Incompatible materials:** No further relevant information available.

- **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide

## SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**

- **Acute toxicity:**

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

**2996-92-1 trimethoxyphenylsilane**

Oral	LD50	1049 mg/kg (rat)
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**67-56-1 methanol**

Oral	LD50	5628 mg/kg (rat)
Dermal	LD50	15800 mg/kg (rabbit)
Inhalative	LC50/4h	130,7 mg/l (rat)

**18406-41-2 3,3,6,6-tetramethoxy-2,7-dioxa-3,6-disilaoctane**

Inhalative	LC50/4h	2 ppm (rat) (4h) Remarks: Lungs, Thorax, or Respiration: Structural or functional change in trachea or bronchi. Gastrointestinal: Changes in structure or function of salivary glands.
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- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **Sensitization:** Sensitization possible through skin contact.

- **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

Danger through skin adsorption.

Toxic and/or corrosive effects may be delayed up to 12 hours.

Suspected of damaging fertility or the unborn child.

- **Acute effects (acute toxicity, irritation and corrosivity):**

Harmful if inhaled.

Vapours have narcotic effect.

- **Sensitisation:** Sensitization possible by skin contact.

- **Repeated dose toxicity:**

May cause damage to organs through prolonged or repeated exposure.

Repeated exposures may result in skin and/or respiratory sensitivity.

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- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):**  
Repr. 2

## 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:**  
At present there are no ecotoxicological assessments.  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
- **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.  
Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

## SECTION 14: Transport information

- **14.1 UN-Number**
- **DOT, ADR, IMDG, IATA** UN1993
- **14.2 UN proper shipping name**
- **DOT** Flammable liquids, n.o.s. (trimethoxyphenylsilane, trimethoxy(methyl)silane)
- **ADR** 1993 FLAMMABLE LIQUID, N.O.S. (trimethoxyphenylsilane, trimethoxy(methyl)silane)

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· **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (trimethoxyphenylsilane,  
trimethoxy(methyl)silane)

· **14.3 Transport hazard class(es)**

· **DOT**



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

· **ADR**



· **Class** 3 (F1) Flammable liquids.  
· **Label** 3

· **IMDG, IATA**



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

· **14.4 Packing group**

· **DOT, ADR, IMDG, IATA** III

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user** Warning: Flammable liquids.

· **Danger code (Kemler):** 33

· **EMS Number:** F-E, S-E

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

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)** 5L

· **Excepted quantities (EQ)** Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **Transport category** 3

· **Tunnel restriction code** D/E

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## · UN "Model Regulation":

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UN1993, FLAMMABLE LIQUID, N.O.S.  
(trimethoxyphenylsilane, trimethoxy(methyl)silane), 3,  
III

## SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

## · Section 355 (extremely hazardous substances):

None of the ingredients is listed.

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

67-56-1 | methanol

## · TSCA (Toxic Substances Control Act):

All ingredients are listed.

## · Proposition 65 (California):

## · Chemicals known to cause cancer:

None of the ingredients is listed.

## · Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

## · Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

## · Chemicals known to cause developmental toxicity:

67-56-1 | methanol

## · Carcinogenic Categories

## · EPA (Environmental Protection Agency)

None of the ingredients is listed.

## · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

## · TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

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

None of the ingredients is listed.

## · Canada

## · Canadian Domestic Substances List (DSL)

All ingredients are listed.

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

None of the ingredients is listed.

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<b>· Canadian Ingredient Disclosure list (limit 1%)</b>	
1185-55-3	trimethoxy(methyl)silane
67-56-1	methanol

**· Other regulations, limitations and prohibitive regulations**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

<b>· Substances of very high concern (SVHC) according to REACH, Article 57</b>	
None of the ingredients is listed.	

**· 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.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs.
H373	May cause damage to the bladder through prolonged or repeated exposure. Route of exposure: Oral.
H411	Toxic to aquatic life with long lasting effects.
.....	
R10	Flammable.
R11	Highly flammable.
R22	Harmful if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R26	Very toxic by inhalation.
R35	Causes severe burns.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R41	Risk of serious damage to eyes.
R43	May cause sensitisation by skin contact.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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R61            May cause harm to the unborn child.  
 R62            Possible risk of impaired fertility.  
 R65            Harmful: may cause lung damage if swallowed.  
 R66            Repeated exposure may cause skin dryness or cracking.  
 R67            Vapours may cause drowsiness and 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  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 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)  
 WHMIS: Workplace Hazardous Materials Information System (Canada)  
 DNEL: Derived No-Effect Level (REACH)  
 PNEC: Predicted No-Effect Concentration (REACH)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 Flam. Liq. 2: Flammable liquids, Hazard Category 2  
 Flam. Liq. 3: Flammable liquids, Hazard Category 3  
 Acute Tox. 3: Acute toxicity, Hazard Category 3  
 Acute Tox. 4: Acute toxicity, Hazard Category 4  
 Acute Tox. 1: Acute toxicity, Hazard Category 1  
 Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B  
 Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1  
 Skin Sens. 1: Sensitisation - Skin, Hazard Category 1  
 Repr. 2: Reproductive toxicity, Hazard Category 2  
 STOT SE 1: Specific target organ toxicity - Single exposure, Hazard Category 1  
 STOT SE 2: Specific target organ toxicity - Single exposure, Hazard Category 2  
 STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3  
 STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2  
 Asp. Tox. 1: Aspiration hazard, Hazard Category 1  
 Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2