Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Code: **411 00 13500-2721-250 ml**
411 00 13800-2724-5 L
411 00 14665-2745-1 L

Product name **DOT 4**

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

Intended use **Brake fluid**

1.3. Details of the supplier of the safety data sheet

Name **Meccanocar Italia S.r.l.**
Full address **Via San Francesco, 22**
District and Country **56033 Capannoli (PI)**
Italy

Tel. +39 0587 609433

Fax +39 0587 607145

e-mail address of the competent person

responsible for the Safety Data Sheet **moreno.meini@meccanocar.it**

1.4. Emergency telephone number

For urgent inquiries refer to **National Poisons Information Service: +44 121 507 4123**

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Reproductive toxicity, category 2	H361d	Suspected of damaging the unborn child.
Eye irritation, category 2	H319	Causes serious eye irritation.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:


Signal words: Warning

Hazard statements:

H361d	Suspected of damaging the unborn child.
H319	Causes serious eye irritation.

Precautionary statements:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P264	Wash hands thoroughly after handling.
P301+P310	IF SWALLOWED: immediately call a POISON CENTER / doctor.
P337+P313	If eye irritation persists: Get medical advice / attention.
P501	Dispose of contents / container in accordance with local regulations.

Contains: TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	**x = Conc. %**	**Classification 1272/2008 (CLP)**
TRIETHYLENE GLYCOL MONOBUTYL ETHER CAS 143-22-6 EC 205-592-6 INDEX - Reg. no. 01-2119475107-38-XXXX	24 ≤ x < 25,5	Eye Dam. 1 H318
TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED CAS 30989-05-0 EC 250-418-4 INDEX - Reg. no. 01-2119462824-33-XXXX	24 ≤ x < 25,5	Repr. 2 H361
POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY		

CAS 9004-77-7	8 ≤ x < 9	Eye Dam. 1 H318
EC 500-012-0		
INDEX -		
Reg. no. 01-2119475115-41-XXXX		
DIETHYLENE GLYCOL		
CAS 111-46-6	7 ≤ x < 8	Acute Tox. 4 H302
EC 203-872-2		
INDEX 603-140-00-6		
Reg. no. 01-2119457857-21-XXXX		
DIETHYLENE GLYCOL MONOMETHYL ETHER		
CAS 111-77-3	2,5 ≤ x < 3	Repr. 2 H361d
EC 203-906-6		
INDEX 603-107-00-6		
Reg. no. 01-2119475100-52-XXXX		
2-(2-BUTOXYETHOXY)ETHANOL		
CAS 112-34-5	2,5 ≤ x < 3	Eye Irrit. 2 H319
EC 203-961-6		
INDEX 603-096-00-8		
Reg. no. 01-2119475104-44-XXXX		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

ESP	España	LÍMITES DE EXPOSICIÓN PROFESIONAL PARA AGENTES QUÍMICOS EN ESPAÑA 2019 (INSST)
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Third edition,published 2018)
ITA	Italia	DIRETTIVA (UE) 2017/164 DELLA COMMISSIONE del 31 gennaio 2017
NOR	Norge	Fastsatt av Arbeids- og sosialdepartementet 21. august 2018 med hjemmel i lov 17. juni 2005 nr. 62 om arbeidsmiljø, arbeidstid, stillingsvern mv. (arbeidsmiljøloven) § 1-3, § 1-4 og § 4-5
PRT	Portugal	Ministério da Economia e do Emprego Consolida as prescrições mínimas em matéria de protecção dos trabalhadores contra os riscos para a segurança e a saúde devido à exposição a agentes químicos no trabalho - Diário da República, 1.ª série - N.º 111 - 11 de junho de 2018
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Predicted no-effect concentration - PNEC		
Normal value in fresh water	0,211	mg/l
Normal value in marine water	0,021	mg/l
Normal value for fresh water sediment	0,76	mg/kg
Normal value for marine water sediment	0,076	mg/kg
Normal value of STP microorganisms	100	mg/l
Normal value for the terrestrial compartment	0,028	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				4,1 mg/kg bw/d				
Inhalation				7,2 mg/m3				29,1 mg/m3
Skin				4,1 mg/kg bw/d				8,3 mg/kg bw/d

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Predicted no-effect concentration - PNEC		
Normal value in fresh water	2	mg/l
Normal value in marine water	0,2	mg/l
Normal value for fresh water sediment	7,7	mg/kg
Normal value for marine water sediment	0,77	mg/kg
Normal value of STP microorganisms	200	mg/l
Normal value for the food chain (secondary poisoning)	111	mg/kg
Normal value for the terrestrial compartment	0,47	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				12,5 mg/kg bw/d				
Inhalation				117 mg/m3				195 mg/m3
Skin				125 mg/kg bw/d				208 mg/kg bw/d

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Predicted no-effect concentration - PNEC		
Normal value in fresh water	4,5	mg/l
Normal value in marine water	0,31	mg/l
Normal value for fresh water sediment	6,6	mg/kg
Normal value for marine water sediment	0,66	mg/kg
Normal value of STP microorganisms	500	mg/l
Normal value for the food chain (secondary poisoning)	111	mg/kg
Normal value for the terrestrial compartment	1,32	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				16 mg/kg bw/d				
Inhalation				149 mg/m3				245 mg/m3
Skin				160 mg/kg bw/d				265 mg/kg bw/d

DIETHYLENE GLYCOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
WEL	GBR	101	23			

Predicted no-effect concentration - PNEC		
Normal value in fresh water	10	mg/l
Normal value in marine water	1	mg/l
Normal value for fresh water sediment	20,9	mg/kg
Normal value for marine water sediment	2,09	mg/kg
Normal value of STP microorganisms	199,5	mg/l
Normal value for the terrestrial compartment	1,53	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation			12 mg/m3	12 mg/m3			60 mg/m3	44 mg/m3
Skin				21 mg/kg bw/d				43 mg/kg bw/d

2-(2-BUTOXYETHOXY)ETHANOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLA	ESP	67,5	10	101,2	15	
WEL	GBR	67,5	10	101,2	15	
VLEP	ITA	67,5	10	101,2	15	
TLV	NOR	68	10			
VLE	PRT	67,5	10	101,2	15	

OEL	EU	67,5	10	101,2	15				
TLV-ACGIH		66	10						
Predicted no-effect concentration - PNEC									
Normal value in fresh water				1,1	mg/l				
Normal value in marine water				0,11	mg/l				
Normal value for fresh water sediment				4,4	mg/kg				
Normal value for marine water sediment				0,44	mg/kg				
Normal value of STP microorganisms				200	mg/l				
Normal value for the food chain (secondary poisoning)				56	mg/kg				
Normal value for the terrestrial compartment				0,32	mg/kg				

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				5 mg/kg bw/d				
Inhalation			40,5 mg/m3	40,5 mg/m3			67,5 mg/m3	67,5 mg/m3
Skin				50 mg/kg bw/d				83 mg/kg bw/d

DIETHYLENE GLYCOL MONOMETHYL ETHER

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLA	ESP	50,1	10			SKIN
WEL	GBR	50,1	10			SKIN
VLEP	ITA	50,1	10			SKIN
TLV	NOR	50	10			SKIN
VLE	PRT	50,1	10			SKIN
OEL	EU	50,1	10			SKIN
Predicted no-effect concentration - PNEC						
Normal value in fresh water				12	mg/l	
Normal value in marine water				1,2	mg/l	
Normal value for fresh water sediment				44,4	mg/kg	
Normal value for marine water sediment				0,44	mg/kg	
Normal value of STP microorganisms				10000	mg/l	
Normal value for the food chain (secondary poisoning)				0,9	mg/kg	
Normal value for the terrestrial compartment				2,1	mg/kg	

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				7,5 mg/kg bw/d				
Inhalation				30,1 mg/m3				50,1 mg/m3
Skin				1,33 mg/kg bw/d				2,22 mg/kg bw/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Respiratory protection: if the technical controls do not keep the concentrations suspended in the air at an adequate level to protect the health of workers, select a respiratory protective equipment suitable for the specific conditions of use and compliant with the relevant legislation. Check with suppliers of respiratory protective equipment. Where air filter respirators are unsuitable (for example, concentrations in the air are high, the risk of oxygen deficiency, limited space) use an adequate positive pressure respirator. Where air filter respirators are suitable, select an appropriate combination of mask and filter. Select a suitable filter for combined organic / particulate gases and vapors [boiling point> 65 ° C (149 ° F)] conforming to EN141 (AS / NZS: 1716).
Hand protection: in case of contact of the hands with the product, the use of gloves approved according to the relevant standards (e.g. Europe: EN374, US: F739, AS / NZS: 2161) made with the following materials can provide a adequate chemical protection: Long-term protection: PVC. Neoprene rubber. Nitrile rubber. The suitability and durability of a glove depend on the use, e.g. frequency and duration of contact, chemical resistance of the glove material, thickness of the gloves, dexterity. Always consult with glove suppliers. Contaminated gloves should be replaced.
Personal hygiene is a key element for effective hand care. Gloves should only be worn on clean hands. After using gloves, hands must be washed and dried thoroughly. The application of an unscented moisturizer is recommended.
Eye protection: Chemical splash goggles (chemical monogoggles).
Protective clothing: skin protection is not normally required beyond standard work clothes. Chemical resistant gloves, gloves and apron.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Eye protection: protective glasses with side shields
Hand protection: gloves in butyl rubber, Neoprene ™ rubber or nitrile rubber.
Body protection: neoprene ™ apron. Rubber boots.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Eye protection: protective glasses with side shields
Hand protection: gloves in butyl rubber, Neoprene ™ rubber or nitrile rubber.
Body protection: neoprene ™ apron. Rubber boots.

2-(2-BUTOXYETHOXY)ETHANOL

Gloves in butyl rubber, Neoprene ™ rubber or nitrile rubber.

DIETHYLENE GLYCOL MONOMETHYL ETHER

Respiratory protection: Use a positive pressure respiratory mask if concentrations in the air could exceed occupational exposure standards
Eye protection: protective glasses with side shields
Hand protection: gloves in butyl rubber, Neoprene ™ rubber, Viton ™ or nitrile rubber.
Body protection: neoprene ™ apron. Rubber boots.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	amber
Odour	delicate
Odour threshold	Not available
pH	7-10,5
Melting point / freezing point	< -50 °C
Initial boiling point	> 260 °C
Boiling range	100 °C
Flash point	> 280 °C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	Not available

Solubility	soluble in water
Partition coefficient: n-octanol/water	1,50
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	5-10 cTs
Explosive properties	Not available
Oxidising properties	Not available

9.2. Other information

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Stable under normal conditions of use. Prevent the entry of water.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Stable under normal conditions. May form peroxides upon prolonged exposure to air and light.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Stable under normal conditions. May form peroxides upon prolonged exposure to air and light.

2-(2-BUTOXYETHOXY)ETHANOL

May form peroxides upon prolonged exposure to air and light.

DIETHYLENE GLYCOL MONOMETHYL ETHER

Stable under normal conditions. May form peroxides upon prolonged exposure to air and light.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

2-(2-BUTOXYETHOXY)ETHANOL

May react with: oxidising substances.May form peroxides with: oxygen.Develops hydrogen on contact with: aluminium.May form explosive mixtures with: air.

DIETHYLENE GLYCOL MONOMETHYL ETHER

Reacts violently developing heat on contact with: alkaline metals,strong acids,strong oxidants,oleum.Fire hazard.Develops flammable gas on contact with: calcium hypochlorite.Develops hydrogen on contact with: aluminium.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

High temperature.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

High temperature. Prolonged exposure to air / oxygen and light.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

High temperature. Prolonged exposure to air / oxygen and light.

2-(2-BUTOXYETHOXY)ETHANOL

Avoid exposure to: air.

High temperatures and sources of ignition. Prolonged exposure to air / oxygen and light.

DIETHYLENE GLYCOL MONOMETHYL ETHER

High temperatures and sources of ignition. Prolonged exposure to air / oxygen and light.

10.5. Incompatible materials

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Strong oxidizing agents. Strong acids. Strong bases.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Oxidizing agents.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Oxidizing agents.

2-(2-BUTOXYETHOXY)ETHANOL

Incompatible with: oxidising substances,strong acids,alkaline metals.

Oxidizing agents.

DIETHYLENE GLYCOL MONOMETHYL ETHER

Oxidizing agents.

10.6. Hazardous decomposition products

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Thermal decomposition is highly dependent on conditions. A complex mixture of solids, liquids and gases dispersed in the air, including carbon monoxide, carbon dioxide and other organic compounds, will evolve when this material undergoes combustion or thermal or oxidative degradation.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Carbon oxides on combustion.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Carbon oxides on combustion.

2-(2-BUTOXYETHOXY)ETHANOL

May develop: hydrogen.

Carbon oxides on combustion.

DIETHYLENE GLYCOL MONOMETHYL ETHER

When heated to decomposition releases: harsh fumes,zinc alloys.

Carbon oxides on combustion.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

2-(2-BUTOXYETHOXY)ETHANOL

WORKERS: inhalation; contact with the skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

2-(2-BUTOXYETHOXY)ETHANOL

May be absorbed by inhalation, ingestion and skin contact; is irritating for the skin and especially for the eyes. May cause damage to the spleen. At room temperature the danger of inhalation is unlikely, due to the low vapour pressure of the substance.

Interactive effects

Information not available

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:
Not classified (no significant component)
LD50 (Oral) of the mixture:
>2000 mg/kg
LD50 (Dermal) of the mixture:
Not classified (no significant component)

DIETHYLENE GLYCOL

LD50 (Oral) 12565 mg/kg Rat

LD50 (Dermal) 11890 mg/kg Rabbit

DIETHYLENE GLYCOL MONOMETHYL ETHER

LD50 (Oral) 5500 mg/kg Rat

2-(2-BUTOXYETHOXY)ETHANOL

LD50 (Oral) 3384 mg/kg Rat

LD50 (Dermal) 2700 mg/kg Rabbit

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 401
Reliability: 1
Species: Rat (Wistar; male / female)
Route of exposure: Oral
Results: LD50> 2000 mg / kg bw
Method: OECD 402
Reliability: 1
Species: Rat (Wistar; male / female)
Route of exposure: Dermal
Results: LD50> 2000 mg / kg bw

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Method: Estimate of the approximate LD50 value according to the internal BASF standard
Reliability: 2
Species: Rat (US; male / female)
Route of exposure: Oral
Results: Not classified
Method: Not indicated
Reliability: 2
Species: Rabbit (New Zealand White; male)
Route of exposure: Dermal
Results: LD50 = 3540 mg / kg bw
Bibliographic reference: Range finding toxicity data: List VI, Smyth HF, Carpenter CP, Weil CS, Pozzani UC, Striegel BS, (1962)

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Method: OECD 401
Reliability: 1
Species: Rat (Sprague-Dawley; male / female)
Route of exposure: Oral
Results: LD50> 2000 mg / kg bw
Method: Not indicated
Reliability: 2
Species: Rabbit (New Zealand White; male)
Route of exposure: Dermal
Results: LD50 = 3540 mg / kg bw
Bibliographic reference: Range finding toxicity data: List VI, Smyth HF, Carpenter CP, Weil CS, Pozzani UC, Striegel BS, (1962)

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 401
Reliability: 1
Species: Mouse (CD-1; male)
Route of exposure: Oral
Results: LD50 = 7128 mg / kg bw
Method: OECD 403
Reliability: 2
Species: Mouse (Wistar; male / female)
Route of exposure: Inhalation
Results: Not classified
Method: Equivalent or similar to OECD 402
Reliability: 1
Species: Rabbit (New Zealand White; male)
Route of exposure: Dermal
Results: LD50 = 9404 mg / kg bw

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 404
Reliability: 1
Species: Rabbit (New Zealand White)
Route of exposure: Dermal
Results: Not classified

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Method: Not indicated
Reliability: 2
Species: Rabbit (Vienna White)
Route of exposure: Dermal
Results: Not irritating

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Method: OECD 404
Reliability: 1
Species: Rabbit (New Zealand White)
Route of exposure: Dermal
Results: Not irritating

2-(2-BUTOXYETHOXY)ETHANOL

Method: OECD 404
Reliability: 2
Species: Rabbit (Small white Russian, Chbb-SPF)
Route of exposure: Dermal
Results: Slightly irritating

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 404
Reliability: 2
Species: Rabbit (New Zealand White)
Route of exposure: Dermal
Results: Not irritating

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 405
Reliability: 1
Species: Rabbit (New Zealand White)
Route of exposure: Ocular
Results: Not classified

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 405
Reliability: 2
Species: Rabbit (New Zealand White)
Route of exposure: Ocular

Results: Not irritating

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

Skin sensitization
TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 406
Reliability: 1
Species: guinea pig (Dunkin-Hartley; male / female)
Route of exposure: Dermal
Results: Not classified

2-(2-BUTOXYETHOXY)ETHANOL

Method: Equivalent or similar to OECD 406
Reliability: 2
Species: guinea pig
Route of exposure: Dermal
Results: Not sensitizing

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: OECD 406
Reliability: 1
Species: guinea pig (Pirbright-White; female)
Route of exposure: Dermal
Results: Not sensitizing

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 471 in vitro test
Reliability: 1
Species: S. typhimurium
Results: Negative with and without metabolic activation

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Method: OECD 471-Read across-Test in vitro
Reliability: 2
Species: S. typhimurium
Results: Negative with and without metabolic activation

DIETHYLENE GLYCOL

Method: OECD Guideline 471-in vitro test
Reliability: 1
Species: S. typhimurium
Results: negative with and without metabolic activation
Method: OECD Guideline 474-test in vivo
Reliability: 1
Species: mouse (NMRI; male)
Route of exposure: intraperitoneal

Results: negative

2-(2-BUTOXYETHOXY)ETHANOL

Method: Equivalent or similar to OECD 471 in vitro test
Reliability: 2
Species: S. typhimurium
Results: Negative with and without metabolic activation
Method: Equivalent or similar to OECD 475 in vivo test
Reliability: 2
Species: Mouse (CD-1; male / female)
Route of exposure: Oral
Results: Negative

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: OECD 471 in vitro test
Reliability: 1
Species: S. typhimurium, E. Coli
Results: Negative with and without metabolic activation

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Suspected of damaging the unborn child

DIETHYLENE GLYCOL

Reliability: 2
Species: mouse (CD-1; male / female)
Route of exposure: oral
Results: NOAEL 3 060 mg / kg bw / day
Method: equivalent or similar to OECD Guideline 414
Reliability: 2
Species: rat (Sprague-Dawley)
Route of exposure: Oral
Results: NOEL 1

Adverse effects on sexual function and fertility
DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 416
Reliability: 1
Species: Mouse (CD-1; male / female)
Route of exposure: Oral
Results: NOAEL (fertility) = 1.25%

Adverse effects on development of the offspring
TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 414
Reliability: 1
Species: Rabbit (New Zealand White)
Route of exposure: Oral
Results: NOAEL (development) = 250 mg / kg bw / day

2-(2-BUTOXYETHOXY)ETHANOL

Method: Equivalent or similar to OECD 414
Reliability: 2
Species: Rabbit (New Zealand White)
Route of exposure: Dermal
Results: NOAEL 1 000 mg / kg bw / day

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 414
Reliability: 2
Species: Rabbit (New Zealand White)
Route of exposure: Dermal
Results: NOAEL (development) = 250 mg / kg bw / day

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Based on available data and through expert judgment, the substance is not classified in the target exposure prgani toxicity class for single exposure.

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for single exposure.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for single exposure.

DIETHYLENE GLYCOL

On the available basis and through expert judgment, the substance is not classified in the target organ toxicity class for single exposure.

2-(2-BUTOXYETHOXY)ETHANOL

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for single exposure.

DIETHYLENE GLYCOL MONOMETHYL ETHER

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for single exposure.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED

Method: OECD 408
Reliability: 2
Species: Rat (Wistar; male / female)
Route of exposure: Oral
Results: NOAEL = 1000 mg / kg bw / day

TRIETHYLENE GLYCOL MONOBUTYL ETHER

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for prolonged or repeated exposure.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY

Based on available data and through expert judgment, the substance is not classified in the target organ toxicity class for prolonged or repeated exposure.

DIETHYLENE GLYCOL

Method: OECD Guideline 410
Reliability: 1
Species: Dog (Beagle; male)
Route of exposure: Dermal
Results: NOAEL 2 220 mg / kg bw / day

2-(2-BUTOXYETHOXY)ETHANOL

Method: OECD 408
Reliability: 2
Species: Rat (Fischer 344; male / female)
Route of exposure: Oral
Results: NOAEL 250 mg / kg bw / day
Method: OECD 413
Reliability: 1
Species: Rat (Wistar; male / female)
Route of exposure: Inhalation
Results: NOAEL 14 ppm
Method: Equivalent or similar to OECD 411
Reliability: 2
Species: Rat (Sprague-Dawley; male / female)
Route of exposure: Dermal
Results: NOAEL
<200 mg / kg bw / day

DIETHYLENE GLYCOL MONOMETHYL ETHER

Method: Equivalent or similar to OECD 407
Reliability: 2
Species: Rat (Albino; male)
Route of exposure: Oral
Results: NOAEL = 900 mg / kg bw / day
Method: Equivalent or similar to OECD 413
Reliability: 2
Species: Rat (Fischer 344; male / female)
Route of exposure: Inhalation (vapors)
Results: NOAEC> 1060 mg / m3 air
Method: Equivalent or similar to OECD 411
Reliability: 2
Species: guinea pig (Hartley; male)
Route of exposure: Dermal
Results: NOAEL = 40 mg / kg bw / day

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

SECTION 12. Ecological information

12.1. Toxicity

TRIETHYLENE GLYCOL MONOBUTYL ETHER	
LC50 - for Fish	2400 mg/l/96h
EC50 - for Crustacea	2210 mg/l/48h
EC50 - for Algae / Aquatic Plants	840 mg/l/72h
EC10 for Algae / Aquatic Plants	190 mg/l/72h
Chronic NOEC for Algae / Aquatic Plants	190 mg/l

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED	
LC50 - for Fish	222,2 mg/l/96h
EC50 - for Crustacea	211,2 mg/l/48h
EC50 - for Algae / Aquatic Plants	224,4 mg/l/72h
EC10 for Algae / Aquatic Plants	224,4 mg/l/72h
Chronic NOEC for Algae / Aquatic Plants	224,4 mg/l

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY	
LC50 - for Fish	1800 mg/l/96h

12.2. Persistence and degradability

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED
Easily degradable in water, 95% in 3 days.
TRIETHYLENE GLYCOL MONOBUTYL ETHER
Easily degradable in water, 85% in 28 days.
POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY
Easily degradable in water, 76% in 28 days.
2-(2-BUTOXYETHOXY)ETHANOL
Quickly biodegradable, 92% in 28 days.
DIETHYLENE GLYCOL MONOMETHYL ETHER
Easily degradable in water, 68% in 28 days.

DIETHYLENE GLYCOL	
Solubility in water	1000 - 10000 mg/l
Rapidly degradable	

DIETHYLENE GLYCOL MONOMETHYL ETHER	
Solubility in water	1000 - 10000 mg/l
Rapidly degradable	

2-(2-BUTOXYETHOXY)ETHANOL	
Solubility in water	1000 - 10000 mg/l
Rapidly degradable	

12.3. Bioaccumulative potential

DIETHYLENE GLYCOL	
Partition coefficient: n-octanol/water	-1,98
BCF	100
DIETHYLENE GLYCOL MONOMETHYL ETHER	
Partition coefficient: n-octanol/water	-0,47
2-(2-BUTOXYETHOXY)ETHANOL	
Partition coefficient: n-octanol/water	1

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

TRIS [2- [2- (2-METOXYETHOXY) ETHOXY] ETHYL ORTHORBORATED
Recover or recycle if possible. Waste resulting from spilling or cleaning the tank must be disposed of in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor must be established in advance. Remove all packaging for recovery or disposal of waste.

TRIETHYLENE GLYCOL MONOBUTYL ETHER
Dispose of as hazardous waste. Recover or recycle if possible. Otherwise incineration. Dispose of in accordance with all local regulations.

POLI (OSSI-1,2-ETHANIOL), A-BUTYL-Ω-HYDROXY
Dispose of as hazardous waste. Recover or recycle if possible. Otherwise incineration. Dispose of in accordance with all local regulations.

2-(2-BUTOXYETHOXY)ETHANOL
Product disposal: dispose of as hazardous waste. Recover or recycle if possible. Otherwise incineration. Dispose according to local regulations.
Disposal of the container: empty the container completely. After emptying, vent to a safe place. Send to drum recovery or metal recovery.

DIETHYLENE GLYCOL MONOMETHYL ETHER
Dispose of as hazardous waste. Recover or recycle if possible. Otherwise incineration. Dispose of in accordance with all local regulations.

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point	3

Contained substance

Point	54	DIETHYLENE GLYCOL MONOMETHYL ETHER Reg. no.: 01-2119475100-52-XXXX

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Repr. 2	Reproductive toxicity, category 2
Acute Tox. 4	Acute toxicity, category 4

Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
H361	Suspected of damaging fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
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2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
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7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
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15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition

- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.
Product`s classification is based on the calculation methods set out in Annex I of the CLP Regulation, unless otherwise indicated in sections 11 and 12.
The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:
The following sections were modified:
02 / 03 / 08 / 09 / 10 / 11 / 12 / 13 / 15 / 16.