

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

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

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

- **1.1 Product identifier**
 - **Trade name: DOT 3**
- **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** Brake fluid
- **1.3 Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**

TRW Automotive Aftermarket
Stratford Road
Shirley
West Midlands
B90 4AX
United Kingdom
Tel. +44.121.506.5000
Fax +44.121.506.5001
www.trwaftermarket.com
cst.uk@trw.com
 - **Informing department:** Tel.: +49 (0) 2631 / 912 - 0
- **1.4 Emergency telephone number:**

Poison Information Center Munich
Phone: +49 (0) 89 - 19 240
Information in German and English

SECTION 2: Hazards identification

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



GHS08 health hazard

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



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

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



Xi; Irritant

R41: Risk of serious damage to eyes.

- **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 in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

(Contd. on page 2)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 1)

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



GHS07 GHS08

Signal word Warning

Hazard-determining components of labelling:

2-[2-(2-butoxyethoxy)ethoxy]ethanol

2,2'-oxybisethanol

Hazard statements

H319 Causes serious eye irritation.

H373 May cause damage to the kidneys through prolonged or repeated exposure.

Route of exposure: Oral.

Precautionary statements

P102 Keep out of reach of children.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

Additional information:

Packaging of whatever capacity that is delivered to the general public shall be fitted with a tactile warning of danger according to EN ISO 11683.

Information pertaining to particular dangers for man and environment

There are analysis results available for this product or a product with a comparable composition which show an eye irritation but not an eye corrosion. This product is classified and labelled according to the analysis results.

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 the substances listed below including additives not requiring identification.

Added are corrosion and oxidation inhibitors.

Dangerous components:

CAS: 143-22-6	2-[2-(2-butoxyethoxy)ethoxy]ethanol	30-50%
EINECS: 205-592-6	☒ Xi R41	
Reg.nr.: 01-2119475107-38-X	☒ Eye Dam. 1, H318	
CAS: 111-46-6	2,2'-oxybisethanol	10%
EINECS: 203-872-2	☒ Xn R22	
Reg.nr.: 01-2119457857-21-X	☒ STOT RE 2, H373; ☒ Acute Tox. 4, H302	

(Contd. on page 3)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 2)

CAS: 112-34-5 EINECS: 203-961-6 Reg.nr.: 01-2119475104-44-X	2-(2-butoxyethoxy)ethanol ☒ Xi R36 ☒ Eye Irrit. 2, H319	1-<2.5%
CAS: 111-77-3 EINECS: 203-906-6 Reg.nr.: 01-2119475100-52-X	2-(2-methoxyethoxy)ethanol ☒ Xn R63 Repr. Cat. 3 ☒ Repr. 2, H361d	1-<2.5%

· **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

Personal protection for the First Aider.

Instantly remove any clothing contaminated by the product.

· **After inhalation** Supply fresh air; consult doctor in case of symptoms.

· After skin contact

Wash with water and soap.

If skin irritation continues, consult a doctor.

· After eye contact

Keep eye lids open and rinse them with ample amounts of clean running water for at least 15 minutes.

In case of permanent aches and pains please go and see the doctor.

· After swallowing

Rinse out mouth and then drink plenty of water.

Call a doctor immediately.

Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage).

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

No further relevant information available.

· **Danger** Danger of kidney damage.

· 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

Extinguishing powder, foam or water jet. Fight larger fires with water jet or alcohol-resistant foam.

· **For safety reasons unsuitable extinguishing agents** Water with a full water jet.

· 5.2 Special hazards arising from the substance or mixture

Inhalation of combustion gases may cause serious health hazards.

Formation of flammable mixtures of vapours with air possible.

· 5.3 Advice for firefighters

· **Protective equipment:** Wear self-contained breathing apparatus.

· Additional information

Remove goods in stock from incendiary zone, if possible.

Use water to keep fire exposed containers cool.

GB

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 3)

SECTION 6: Accidental release measures

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

Avoid contact with the product.
Ensure adequate ventilation
Particular danger of slipping on leaked/spilled product.

- **6.2 Environmental precautions:**

Prevent from spreading (e.g. by damming-in or oil barriers).
Do not allow to enter drainage system, surface or ground water.

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

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
Dispose of contaminated material as waste according to section 13.
Complete cleaning with water.

- **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 information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**

Prevent formation of aerosols.
Keep containers tightly sealed.
Avoid contact with eyes and skin.

- **Information about protection against explosions and fires:**

The product forms flammable fumes when heated.

- **7.2 Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and containers:**

Store only in the original container.

- **Information about storage in one common storage facility:**

Store away from oxidising agents.

- **Further information about storage conditions:**

Keep container tightly sealed.
Store container in a well ventilated position.
Store under dry conditions.

- **7.3 Specific end use(s)** Brake fluid

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**

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

WEL: workplace exposure limit

IOELV: Indicative Occupational Exposure Limit Values, workplace threshold value of the European Union

111-46-6 2,2'-oxybisethanol	
WEL (Great Britain)	Long-term value: 101 mg/m ³ , 23 ppm
112-34-5 2-(2-butoxyethoxy)ethanol	
WEL (Great Britain)	Short-term value: 101.2 mg/m ³ , 15 ppm Long-term value: 67.5 mg/m ³ , 10 ppm

(Contd. on page 5)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 4)

IOELV (European Union)	Short-term value: 101.2 mg/m ³ , 15 ppm Long-term value: 67.5 mg/m ³ , 10 ppm
111-77-3 2-(2-methoxyethoxy)ethanol	
WEL (Great Britain)	Long-term value: 50.1 mg/m ³ , 10 ppm Sk
IOELV (European Union)	Long-term value: 50.1 mg/m ³ , 10 ppm Skin

- **Additional information:**
The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
 - **Personal protective equipment**
 - **General protective and hygienic measures**
Take off all contaminated clothing immediately.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes.
Do not eat or drink while working.
 - **Breathing equipment:**
Not necessary if room is well-ventilated.
Use breathing protection only when aerosol or mist is formed.
Filter A/P2.
 - **Protection of hands:** Use gloves of stable material (i.e. nitril rubber).
 - **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.
Chloroprene rubber, CR
Nitrile rubber, NBR
Recommended thickness of the material: 0.4 mm
 - **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 safety glasses.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
 - **General Information**
 - **Appearance:**
 - **Form:** Fluid
 - **Colour:** Ember coloured
 - **Odour:** Recognisable
 - **Odour threshold:** Not determined.
 - **pH-value at 20 °C:** 7 - 11.5 (SAE J 1703)
 - **Change in condition**
 - **Melting point/Melting range:** < -50 °C (SAE J 1703)
 - **Boiling point/Boiling range:** > 205 °C (SAE J 1703)
 - **Flash point:** > 80 °C (IP 35)
 - **Inflammability (solid, gaseous)** Not applicable.

(Contd. on page 6)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 5)

· Ignition temperature:	> 300 °C (ATSM D 286)
· Decomposition temperature:	Thermally in general stable.
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Critical values for explosion:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density at 20 °C	1.01 - 1.07 g/cm ³ (DIN 51757)
· Relative density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· Water:	Partly soluble
· Partition coefficient (n-octanol/water):	< 2 log POW
· Viscosity:	
· dynamic at 20 °C:	5 - 10 mPas (ASTM D 286)
· 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:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Possible formation of peroxide
Reacts with light alloys to form hydrogen
- **10.4 Conditions to avoid**
Brake fluids should never be contaminated with any other substance.
- **10.5 Incompatible materials:** Avoid contact with strong oxidizing agents.
- **10.6 Hazardous decomposition products:**
None in case of intended use and storage in compliance with instructions.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
 - **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** Irritant effect.
 - **Sensitisation:** No sensitizing effect known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Irritant

(Contd. on page 7)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 6)

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

There are analysis results available for this product or a product with a comparable composition which show an eye irritation but not an eye corrosion. This product is classified and labelled according to the analysis results.

- **Repeated dose toxicity**

Repeated oral intake can cause kidney damage.

143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol

Oral	NOAEL (90d)	250 mg/kg bw/day (rat) (OECD 408)
Dermal	NOAEL (90d)	4000 mg/kg /bw/day (rat)

Dermal	NOAEL (90d)	4000 mg/kg /bw/day (rat)
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111-46-6 2,2'-oxybisethanol

Oral	NOAEL (28d)	936 mg/kg bw/day (rat) (OECD 407)
Dermal	NOAEL (28d)	3549 mg/kg bw/day (mouse)

Dermal	NOAEL (28d)	3549 mg/kg bw/day (mouse)
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SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol

EC50 (static)	> 612.6 mg/l/72h (Desmodemus subspicatus)
	2210 mg/l/48h (Daphnia magna)
LC50	2400 mg/l/96h (Pimephales promelas)
	2200-4600 mg/l/96h (Leuciscus idus) (DIN 38412-15)

LC50	2400 mg/l/96h (Pimephales promelas)
	2200-4600 mg/l/96h (Leuciscus idus) (DIN 38412-15)

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	2200-4600 mg/l/96h (Leuciscus idus) (DIN 38412-15)
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111-46-6 2,2'-oxybisethanol

EC50 (static)	> 10000 mg/l/24h (Daphnia magna) (DIN 38412-11)
LC50 (dynamic)	75200 mg/l/96h (Pimephales promelas)

LC50 (dynamic)	75200 mg/l/96h (Pimephales promelas)
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- **12.2 Persistence and degradability** Easily biodegradable

- **Other information:** There are no data available about the preparation.

- **12.3 Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.

- **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 bodies or sewage system.

- **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 of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 8)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 7)

The waste code numbers mentioned are recommendations based on the probable use of the product.

· **European waste catalogue**

16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01 00	end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 13*	brake fluids

· **Uncleaned packagings:**

· **Recommendation:**

- Disposal must be made according to official regulations.
- Dispose of packaging according to regulations on the disposal of packagings.
- Non contaminated packagings can be used for recycling.
- Cleaned packing materials have to be admitted to local recycling circuits.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN-Number**

- **ADR, ADN, IMDG, IATA** Void

· **14.2 UN proper shipping name**

- **ADR, ADN, IMDG, IATA** Void

· **14.3 Transport hazard class(es)**

- **ADR, ADN, IMDG, IATA**
- **Class** Void

· **14.4 Packing group**

- **ADR, IMDG, IATA** Void

· **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.

· **Transport/Additional information:**

Not dangerous according to the above specifications.

· **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**

· **Labelling according to Regulation (EC) No 1272/2008**

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

(Contd. on page 9)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 8)

- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Warning

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

2-[2-(2-butoxyethoxy)ethoxy]ethanol
2,2'-oxybisethanol

- **Hazard statements**

H319 Causes serious eye irritation.

H373 May cause damage to the kidneys through prolonged or repeated exposure.

Route of exposure: Oral.

- **Precautionary statements**

P102 Keep out of reach of children.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

- **National regulations**

- **Water hazard class:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

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

None of the ingredients is contained.

- **15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they 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.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H361d Suspected of damaging the unborn child.

H373 May cause damage to the kidneys through prolonged or repeated exposure.

Route of exposure: Oral.

R22 Harmful if swallowed.

R36 Irritating to eyes.

R41 Risk of serious damage to eyes.

R63 Possible risk of harm to the unborn child.

- **Department issuing data specification sheet:**

This Material Safety Data Sheet has been drawn up in cooperation with:
DEKRA Assurance Services GmbH, Hanomagstr. 12, D-30449 Hanover, Germany,
phone: (+49) 511 42079 - 0, reach@dekra.com.

(Contd. on page 10)

GB

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

Printing date 24.03.2015

Version number 3

Revision: 24.03.2015

Trade name: DOT 3

(Contd. from page 9)

• 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)

Acute Tox. 4: Acute toxicity, Hazard Category 4

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Repr. 2: Reproductive toxicity, Hazard Category 2

STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

• * Data compared to the previous version altered.

GB