

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

1.1. Product identifier

Product form	: Mixture
Product name	: QUANTUM® Brake Fluid DOT4
Product code	: T9501
Type of product	: brake fluids
Synonyms	: Brake Fluid
Product group	: Blend

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

1.2.1. Relevant identified uses

Intended for general public	
Main use category	: Consumer use, Professional use
Industrial/Professional use spec	: Distribution Formulation & (re)packing of substances and mixtures Used in closed systems Functional Fluids
Use of the substance/mixture	: brake fluids

1.2.2. Uses advised against

Restrictions on use	: Comply with instructions for use (refer to technical sheet)
---------------------	---

1.3. Details of the supplier of the safety data sheet

QUANTUM LUBRICANTS
G. Karamichalis & CO EE
35 D. Gounari Str.
165 62 Glyfada - Greece
T + 30 210 963 85 10
quantum@quantum-oils.com - <http://www.quantum-oils.com>

1.4. Emergency telephone number

Emergency number	: Unified emergency number: +30 210 7793777
------------------	---

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Serious eye damage/eye irritation, Category 1 H318
Hazardous to the aquatic environment - Chronic Hazard Not classified
Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

Causes serious eye damage. May cause an allergic skin reaction.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

Signal word (CLP)	: Danger
Hazardous ingredients	: 2- [2- (2-butoxyethoxy) ethoxy] ethanol
Hazard statements (CLP)	: H318 - Causes serious eye damage
Precautionary statements (CLP)	: 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 P280 - Wear eye protection, protective gloves

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

	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 P310 - Immediately call a POISON CENTER or doctor P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation
EUH-statements	: EUH208 - Contains Reaction mass of 2-tert-butyl-4,6-dimethylphenol and 4-tert-butyl-2,5-dimethylphenol(-), Ethanol, 2,2'-[[[(methyl-1H-benzotriazole-1-yl) methyl] imino] bis-(9CI)(80584-88-9). May produce an allergic reaction EUH210 - Safety data sheet available on request
Security closing plug for children	: Not applicable
Tactile warning	: Not applicable

2.3. Other hazards

PBT: not relevant – no registration required
vPvB: not relevant – no registration required

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2- [2- (2-butoxyethoxy) ethoxy] ethanol	(CAS-No.) 143-22-6 (EC-No.) 205-592-6 (REACH-no) 01-2119475107-38	60 - 100	Eye Dam. 1, H318
2,2'-oxybisethanol	(CAS-No.) 111-46-6 (EC-No.) 203-872-2 (REACH-no) 01-2119457857-21	1 - 5	Acute Tox. 4 (Oral), H302
2,6-di-tert-butyl-p-cresol	(CAS-No.) 128-37-0 (EC-No.) 204-881-4 (REACH-no) 01-2119565113-46	< 1	Aquatic Chronic 1, H410

Comments : Not available REACH number or substance is not currently required for registration under REACH

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a poison center or a doctor if you feel unwell. Never give anything by mouth to an unconscious person.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. Get immediate medical advice/attention.
First-aid measures after skin contact	: Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Get immediate medical advice/attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Symptoms of ingestion include drowsiness, weakness, headache, dizziness, nausea, vomiting. For further assistance, contact a local hospital or Department of Health.

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

Symptoms/effects	: May be fatal if swallowed and enters airways.
Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause headache, nausea and irritation of respiratory tract.
Symptoms/effects after skin contact	: Causes mild skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: Causes serious eye damage. redness, itching, tears. Serious damage to eyes.
Symptoms/effects after ingestion	: May cause drowsiness and loss of coordination. May cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Prompt treatment is essential to minimize damage.

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

Treat symptomatically.

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In case of fire and/or explosion do not breathe fumes.
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Precautionary measures fire : Evacuate area. Eliminate all ignition sources if safe to do so.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information : On exposure to high temperature, may decompose, releasing toxic gases.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Do not breathe vapours, mist. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Ventilate area. Stop release. Cover spill with non combustible material, e.g.: sand/earth. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Avoid breathing vapours, mist. Avoid contact with skin and eyes.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.
Incompatible products : Oxidizing agent.
Incompatible materials : Sources of ignition.

7.3. Specific end use(s)

Product information.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2,2'-oxybisethanol (111-46-6)		
EU	IOELV TWA (mg/m ³)	101 mg/m ³
EU	IOELV TWA (ppm)	23 ppm
2,6-di-tert-butyl-p-cresol (128-37-0)		
EU	IOELV TWA (mg/m ³)	10 mg/m ³ Chronic (long-term) health effects may result from repeated overexposure

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

DNEL/DMEL (Workers)

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2- [2- (2-butoxyethoxy) ethoxy] ethanol (143-22-6)	
Long-term - systemic effects, dermal	50 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	195 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	2.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	25 mg/m ³
Long-term - systemic effects, dermal	117 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	1.5 mg/l
PNEC aqua (marine water)	0.15 mg/l
PNEC aqua (intermittent, freshwater)	200 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	5.77 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.13 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	0.45 mg/l
2,2'-oxybisethanol (111-46-6)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	106 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	60 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	12 mg/m ³
Long-term - systemic effects, dermal	53 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	10 mg/l
PNEC aqua (marine water)	1 mg/l
PNEC aqua (intermittent, freshwater)	199.5 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	20.9 mg/kg dwt
PNEC (Soil)	
PNEC soil	1.53 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protective equipment:

Gloves. Protective clothing. Protective goggles.

Hand protection:

Protective gloves. protective gloves: neoprene gloves, PVA. Chemical resistant PVC gloves (to European standard EN 374 or equivalent). EN 420

Eye protection:

Safety glasses. EN 166. EN 168

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. EN 405



Environmental exposure controls:

Avoid release to the environment.

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Yellow.
Odour	: slight. characteristic.
Odour threshold	: No data available
pH	: 7 - 11.5
pH solution	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: -45 °C
Boiling point	: > 230 °C
Flash point	: > 140 °C
Auto-ignition temperature	: > 300 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: < 5 hPa(a) @20°C
Relative vapour density at 20 °C	: > 1
Relative density	: No data available
Density	: 1.02 - 1.07 g/ml @20°C
Solubility	: Water miscible.
Log Pow	: No data available
Viscosity, kinematic	: 2.2 cSt @100°C
Viscosity, dynamic	: No data available
Explosive properties	: Not applicable.
Oxidising properties	: Not applicable.
Explosive limits	: No data available

9.2. Other information

Other properties : Material is hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing agent. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

2- [2- (2-butoxyethoxy) ethoxy] ethanol (143-22-6)	
LD50 oral rat	5170 mg/kg (OECD 401 method)
LD50 dermal rat	3540 mg/kg (OECD 401 method)
2,2'-oxybisethanol (111-46-6)	
LD50 oral rat	19600 mg/kg (OECD 401 method)

Skin corrosion/irritation : Not classified
pH: 7 - 11.5 @ 50%

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Serious eye damage/irritation	: Causes serious eye damage. pH: 7 - 11.5 @ 50%
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)

2,2'-oxybisethanol (111-46-6)

NOAEL (chronic, oral, animal/male, 2 years)	2200 mg/kg bodyweight
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified
Additional information	: There are potential chronic health effects to consider Enlargement/affection of the liver Thyroid enlargement/affection

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

NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight/day (calculated value)
NOAEL (dermal, rat/rabbit, 90 days)	> 1000 mg/kg bodyweight/day

2,2'-oxybisethanol (111-46-6)

NOAEL (oral, rat, 90 days)	100 mg/kg bodyweight/day
Aspiration hazard	: Not classified

Brake Fluid DOT4

Viscosity, kinematic	2.2 mm ² /s @100°C
----------------------	-------------------------------

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
-------------------	---

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

LC50 fish 1	2200 mg/l (OECD 203 method)
EC50 Daphnia 1	2210 mg/l (OECD 202 method)
EC50 72h algae (1)	336.8 mg/l (OECD 201 method)
NOEC chronic algae	62.5 mg/l

2,2'-oxybisethanol (111-46-6)

LC50 fish 1	75200 mg/l (OECD 203 method)
EC50 Daphnia 1	10000 mg/l (OECD 202 method)
NOEC (chronic)	> 100 mg/l (calculated value)

2,6-di-tert-butyl-p-cresol (128-37-0)

LC50 fish 1	> 0.57 mg/l
EC50 Daphnia 1	0.48 mg/l
EC50 72h algae (1)	> 0.4 mg/l
NOEC (acute)	0.15 mg/l

12.2. Persistence and degradability

Brake Fluid DOT4

Persistence and degradability	Readily biodegradable.
Biodegradation	> 85 % 28 days

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

Persistence and degradability	Readily biodegradable.
BOD (% of ThOD)	> 85 % ThOD

2,2'-oxybisethanol (111-46-6)

Persistence and degradability	Readily biodegradable.
Biodegradation	> 90 % (OECD 301A method)

12.3. Bioaccumulative potential

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

Log Pow	0.51 @25°C
Bioaccumulative potential	not bioaccumulable.

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2,2'-oxybisethanol (111-46-6)	
Log Pow	-1.98 @25°C
Log Kow	1
Bioaccumulative potential	not bioaccumulable.

2,6-di-tert-butyl-p-cresol (128-37-0)	
BCF fish 1	2 - 17

12.4. Mobility in soil

2- [2- (2-butoxyethoxy) ethoxy] ethanol (143-22-6)	
Surface tension	61.2 mN/m

12.5. Results of PBT and vPvB assessment

Brake Fluid DOT4	
PBT: not relevant – no registration required	
vPvB: not relevant – no registration required	
Component	
2- [2- (2-butoxyethoxy) ethoxy] ethanol (143-22-6)	PBT: not relevant – no registration required vPvB: not relevant – no registration required
2,2'-oxybisethanol (111-46-6)	PBT: not relevant – no registration required vPvB: not relevant – no registration required
2,6-di-tert-butyl-p-cresol (128-37-0)	PBT: not relevant – no registration required vPvB: not relevant – no registration required

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Empty containers should be taken for recycling, recovery or waste in accordance with local regulation. Dispose of contents/container in accordance with licensed collector's sorting instructions.
Ecology - waste materials	: Avoid release to the environment.
European List of Waste (LoW) code	: 16 01 13* - brake fluids

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	: Not regulated
UN-No. (IMDG)	: Not regulated
UN-No. (IATA)	: Not regulated
UN-No. (ADN)	: Not regulated
UN-No. (RID)	: Not regulated

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: Not regulated
Proper Shipping Name (IMDG)	: Not regulated
Proper Shipping Name (IATA)	: Not regulated
Proper Shipping Name (ADN)	: Not regulated
Proper Shipping Name (RID)	: Not regulated

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: Not regulated
----------------------------------	-----------------

IMDG

Transport hazard class(es) (IMDG)	: Not regulated
-----------------------------------	-----------------

IATA

Transport hazard class(es) (IATA)	: Not regulated
-----------------------------------	-----------------

ADN

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Transport hazard class(es) (ADN) : Not regulated

RID

Transport hazard class(es) (RID) : Not regulated

14.4. Packing group

Packing group (ADR) : Not regulated

Packing group (IMDG) : Not regulated

Packing group (IATA) : Not regulated

Packing group (ADN) : Not regulated

Packing group (RID) : Not regulated

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Not regulated

- Transport by sea

Not regulated

- Air transport

Not regulated

- Inland waterway transport

Not regulated

- Rail transport

Not regulated

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association

Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Other information : None.

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Aquatic Chronic Not classified	Hazardous to the aquatic environment - Chronic Hazard Not classified
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
EUH208	Contains . May produce an allergic reaction
EUH210	Safety data sheet available on request

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product