



Brake Fluid DOT 4

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 4-3-2020 Revision date: 21-5-2021 Supersedes: 20-10-2020 version: 6.8

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

1.1. Product identifier

Product name : Brake Fluid DOT 4
UFI : 69YR-4M9J-KU10-QSX3
Product code : 20000
Product group : Blend

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

1.2.1. Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Hydraulic fluids and additives

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

MPM International Oil Company
Cyclotronweg 1
2629 HN Delft Delft - Nederland
T +31 (0)15 2514030 - F +31 (0)15 2514031
msds@mpmoil.nl - www.mpmoil.nl

1.4. Emergency telephone number

Emergency number : +31 (0)15 2514030 (08.00 - 17.00 GMT+1)

Country	Official advisory body	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

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 2 H319
Reproductive toxicity, Category 2 H361d
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

The product is not expected to be harmful to the environment.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

GHS08

CLP Signal word : Warning
Hazard statements (CLP) : H319 - Causes serious eye irritation.
H361d - Suspected of damaging the unborn child.
Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, eye protection.
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

No additional information available

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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]
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	(CAS-No.) 30989-05-0 (EC-No.) 250-418-4 (EC Index-No.) 250-418-4 (REACH-no) 2119462824-33	≥ 20 – ≤ 30	Repr. 2, H361d
2-[2-(2-butoxyethoxy)ethoxy] ethanol	(CAS-No.) 143-22-6 (EC-No.) 205-592-6 (EC Index-No.) 603-183-00-0 (REACH-no) 01-2119475107-38	≥ 20 – ≤ 29,9	Eye Dam. 1, H318
Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydroxy- (CAS# 9004-77-7)	(CAS-No.) 9004-77-7 (EC-No.) 500-012-0 (EC Index-No.) 500-012-0 (REACH-no) 2119475115-41	≥ 5 – ≤ 10	Eye Irrit. 2, H319
Diethylene glycol	(CAS-No.) 111-46-6 (EC-No.) 203-872-2 (EC Index-No.) 603-140-00-6 (REACH-no) 01-2119457857-21	≥ 0,1 – ≤ 9,9	Acute Tox. 4 (Oral), H302
2-(2-Butoxyethoxy)ethanol	(CAS-No.) 112-34-5 (EC-No.) 203-961-6 (EC Index-No.) 603-096-00-8 (REACH-no) 01-2119475104-44	≥ 0,1 – ≤ 2,99	Eye Irrit. 2, H319
2-(2-Methoxyethoxy)ethanol	(CAS-No.) 111-77-3 (EC-No.) 203-906-6 (EC Index-No.) 603-107-00-6 (REACH-no) 01-2119475100-52	≥ 0,1 – ≤ 2,99	Repr. 2, H361d

Specific concentration limits:

Name	Product identifier	Specific concentration limits
2-[2-(2-butoxyethoxy)ethoxy] ethanol	(CAS-No.) 143-22-6 (EC-No.) 205-592-6 (EC Index-No.) 603-183-00-0 (REACH-no) 01-2119475107-38	(20 ≤C < 30) Eye Irrit. 2, H319 (30 ≤C < 100) Eye Dam. 1, H318
Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydroxy- (CAS# 9004-77-7)	(CAS-No.) 9004-77-7 (EC-No.) 500-012-0 (EC Index-No.) 500-012-0 (REACH-no) 2119475115-41	(20 ≤C < 100) Eye Irrit. 2, H319

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

After inhalation	: Get medical advice/attention if you feel unwell. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
After skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. If skin irritation occurs: Get medical advice/attention.
After eye contact	: In case of eye contact, immediately rinse with clean water for 10-15 minutes. Obtain medical attention if pain, blinking or redness persists.
After ingestion	: Do NOT induce vomiting. If the person is fully conscious, make him/her drink plenty of water. Never give an unconscious person anything to drink. Get immediate medical advice/attention.

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

After skin contact	: Contact during a long period may cause light irritation.
After eye contact	: May cause severe irritation.

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

In case of repeated or prolonged exposure : Immediately get medical attention.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Dry chemical, CO₂, dry sand, or alcohol-resistant foam. Water spray.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Hazardous decomposition products in case of fire : When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide and dioxide, smoke, nitrogen oxides (NO_x).

5.3. Advice for firefighters

- Protection during firefighting : Use self-contained breathing apparatus and chemically protective clothing.
- Other information : Use a water spray to cool exposed surfaces and to protect fire-fighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with skin and eyes. Do not breathe dusts or mists.

6.1.1. For non-emergency personnel

- Protective equipment : Wear suitable protective clothing and gloves. Do not get in eyes, on skin, or on clothing.

6.1.2. For emergency responders

- Protective equipment : Wear suitable protective clothing and gloves. Safety glasses.

6.2. Environmental precautions

- Avoid release to the environment. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.

6.4. Reference to other sections

- For further information refer to section 13. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : 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

- Technical measures : Keep in a cool, well-ventilated place away from heat.
- Storage conditions : Keep container tightly closed.
- Storage area : Keep in a cool, well-ventilated place. Store in a closed container.

7.3. Specific end use(s)

- No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Diethylene glycol (111-46-6)		
EU	IOELV TWA (mg/m ³)	101 mg/m ³
Germany	Notes	
Ireland	Local name	Diethylene glycol [2,2'-Oxydiethanol]
Ireland	OEL (8 hours ref) (mg/m ³)	100 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	23 ppm
Ireland	Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom	Local name	2,2'-Oxydiethanol
United Kingdom	WEL TWA (mg/m ³)	101 mg/m ³
United Kingdom	WEL TWA (ppm)	23 ppm
United Kingdom	Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

2-(2-Butoxyethoxy)ethanol (112-34-5)

EU	Local name	2-(2-Butoxyethoxy)ethanol
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2-(2-Butoxyethoxy)ethanol (112-34-5)

EU	IOELV TWA (mg/m³)	67,5 mg/m³
EU	IOELV TWA (ppm)	10 ppm
EU	IOELV STEL (mg/m³)	101,2 mg/m³
EU	IOELV STEL (ppm)	15 ppm
EU	Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Germany	Notes	
Ireland	Local name	2-(2-Butoxyethoxy)ethanol
Ireland	OEL (8 hours ref) (mg/m³)	67,5 mg/m³
Ireland	OEL (8 hours ref) (ppm)	10 ppm
Ireland	OEL (15 min ref) (mg/m³)	101,2 mg/m³
Ireland	OEL (15 min ref) (ppm)	15 ppm
Ireland	Notes (IE)	IOELV (Indicative Occupational Exposure Limit Values)
Ireland	Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom	Local name	2-(2-Butoxyethoxy)ethanol
United Kingdom	WEL TWA (mg/m³)	67,5 mg/m³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	WEL STEL (mg/m³)	101,2 mg/m³
United Kingdom	WEL STEL (OEL STEL) [ppm]	15 ppm
United Kingdom	Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

2-(2-Methoxyethoxy)ethanol (111-77-3)

EU	Local name	2-(2-Methoxyethoxy)ethanol
EU	IOELV TWA (mg/m³)	50,1 mg/m³
EU	IOELV TWA (ppm)	10 ppm
EU	Notes	Skin
EU	Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Germany	Notes	
Ireland	Local name	2-(2-Methoxyethoxy)ethanol
Ireland	OEL (8 hours ref) (mg/m³)	50,1 mg/m³
Ireland	OEL (8 hours ref) (ppm)	10 ppm
Ireland	Notes (IE)	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values)
Ireland	Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom	Local name	2-(2-Methoxyethoxy) ethanol
United Kingdom	WEL TWA (mg/m³)	50,1 mg/m³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.2. Exposure controls

Technical measures:

Ensure good ventilation of the work station.

Personal protective equipment:

Gloves. Safety glasses.

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Hand protection:

Wear suitable gloves resistant to chemical penetration

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR), Butyl rubber, Natural rubber, Polyvinylchloride (PVC)	6 (> 480 minutes)			

Eye protection:

Safety goggles

Type	Field of application	Characteristics	Standard
Safety goggles, Safety glasses			EN 166

Skin and body protection:

Wear suitable protective clothing, gloves and eye/face protection

Respiratory protection:

Provide local exhaust or general room ventilation

Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: clear.
Colour	: Yellow.
Odour	: slight.
Odour threshold	: No data available
pH	: No data available
pH solution	: 7 – 11,5
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: < -50 °C
Freezing point	: No data available
Boiling point	: > 260 °C
Flash point	: > 100 °C CC
Auto-ignition temperature	: > 300 °C
Decomposition temperature	: > 300 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: > 2 mbar 20C
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1046 (1,01 – 1,07) g/l 20C
Solubility	: No data available
Log Pow	: < 2
Viscosity, kinematic	: 5 – 10 mm²/s 20C
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

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9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid formation of vapours.

10.5. Incompatible materials

Acids and bases. Oxidizing agent.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Additional information	: Probably harmless when inhaled because of the low vapor pressure of the substance at ambient temperature. May be harmful if swallowed

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

LD50 oral rat	> 5000 mg/kg bodyweight
LD50 dermal rabbit	3540 mg/kg bodyweight

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)

LD50 oral rat	> 2000 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight

Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydroxy- (CAS# 9004-77-7) (9004-77-7)

LD50 oral rat	> 2000 mg/kg bodyweight
LD50 dermal rabbit	3540 mg/kg bodyweight

2-(2-Butoxyethoxy)ethanol (112-34-5)

LD50 dermal rabbit	2764 mg/kg bodyweight OECD 402
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2-(2-Methoxyethoxy)ethanol (111-77-3)

LD50 dermal rabbit	9404 mg/kg bodyweight OECD 402
Skin corrosion/irritation	: Not classified
Additional information	: Repeated exposure may cause skin dryness or cracking.
Serious eye damage/irritation	: Causes serious eye irritation.
Additional information	: Causes eye irritation
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Diethylene glycol (111-46-6)

NOAEL (chronic, oral, animal/male, 2 years)	1210 mg/kg bodyweight
NOAEL (chronic, oral, animal/female, 2 years)	1160 mg/kg bodyweight

Reproductive toxicity	: Suspected of damaging the unborn child.
STOT-single exposure	: Not classified

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STOT-repeated exposure : Not classified

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

LOAEL (oral, rat, 90 days)	1200 mg/kg bodyweight OECD 408 (
NOAEL (oral, rat, 90 days)	400 mg/kg bodyweight OECD 408
NOAEL (dermal, rat/rabbit, 90 days)	4000 mg/kg bodyweight

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)

NOAEL (oral, rat, 90 days)	≥ 1000 mg/kg bodyweight
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Diethylene glycol (111-46-6)

LOAEL (oral, rat, 90 days)	40000 mg/kg bodyweight OECD 407
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Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydroxy- (CAS# 9004-77-7) (9004-77-7)

LOAEL (oral, rat, 90 days)	1200 mg/kg bodyweight
NOAEL (oral, rat, 90 days)	400 mg/kg bodyweight

2-(2-Butoxyethoxy)ethanol (112-34-5)

NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight OECD 408
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2-(2-Methoxyethoxy)ethanol (111-77-3)

NOAEL (oral, rat, 90 days)	900 mg/kg bodyweight OECD 407
NOAEC (inhalation, rat, vapour, 90 days)	> 1,06 mg/l air OECD 413

Aspiration hazard : Not classified

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Viscosity, kinematic	5 – 10 mm²/s 20C
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SECTION 12: Ecological information

12.1. Toxicity

General	: The product is not expected to be harmful to the environment. The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. That does not mean that large or frequent spills can have on the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

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LC50 fish 1	> 100 mg/l
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2-[2-(2-butoxyethoxy)ethoxy] ethanol (143-22-6)

LC50 fish 1	2400 mg/l Pimephales promelas
LC50 fish 2	2200 – 4600 mg/l Leuciscus idus
EC50 72h - Algae [1]	1589 mg/l Pseudokirchneriella subcapitata
EC50 72h - Algae [2]	3211 mg/l Pseudokirchneriella subcapitata

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)

LC50 fish 1	> 222,2 mg/l
LC50 fish 2	> 1010 mg/l
EC50 Daphnia 1	> 211,2 mg/l

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EC50 Daphnia 2	> 960 mg/l
EC50 72h - Algae [1]	> 224,4 mg/l
EC50 72h - Algae [2]	> 1020 mg/l

Diethylene glycol (111-46-6)

LC50 fish 1	75200 mg/l Pimephales promelas
EC50 96h - Algae [1]	6500 – 13000 mg/l Pseudokirchneriella subcapitata
EC50 96h - Algae [2]	9362 mg/l green algae
NOEC (chronic)	≥ 1000 mg/l Americamysis bahia @23d

Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydroxy- (CAS# 9004-77-7) (9004-77-7)

LC50 fish 1	> 1800 mg/l
EC50 Daphnia 1	> 3200 mg/l
EC50 72h - Algae [1]	391 mg/l

2-(2-Butoxyethoxy)ethanol (112-34-5)

LC50 fish 1	1300 mg/l
EC50 Daphnia 1	> 100 mg/l
EC50 96h - Algae [1]	> 100 mg/l

2-(2-Methoxyethoxy)ethanol (111-77-3)

LC50 fish 1	5741 mg/l Pimephales promelas
EC50 Daphnia 1	1192 mg/l Daphnia magna
EC50 96h - Algae [1]	> 1000 mg/l Pseudokirchneriella subcapitata

12.2. Persistence and degradability

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Biodegradation	100 % @21d (Zahn Wellans/EMPA)
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12.3. Bioaccumulative potential

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Log Pow	< 2
Bioaccumulative potential	not bioaccumulable.

12.4. Mobility in soil

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Soil	In water, material soluble.
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12.5. Results of PBT and vPvB assessment

No additional information available

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.
Product/Packaging disposal recommendations	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
European List of Waste (LoW) code	: 16 01 13* - brake fluids

SECTION 14: Transport information

In accordance with ADR / IMDG

ADR	IMDG
14.1. UN number	
Not applicable	Not applicable

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14.2. UN proper shipping name

Not applicable	Not applicable
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14.3. Transport hazard class(es)

Not applicable	Not applicable
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14.4. Packing group

Not applicable	Not applicable
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14.5. Environmental hazards

Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No
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No supplementary information available

14.6. Special precautions for user

Overland transport

No data available

Transport by sea

No data available

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

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes:

Section	Changed item	Change	Comments
	Supersedes	Modified	
	Revision date	Modified	
2.2	Precautionary statements (CLP)	Modified	
3	Composition/information on ingredients	Modified	

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Repr. 2	Reproductive toxicity, Category 2
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

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H361d	Suspected of damaging the unborn child.
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SDS MPM REACH

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.