

BRAKE FLUID DOT 4 - 5L

Version 1.0 Revision Date: 27.06.2019 SDS Number: 4564582-00001 Date of last issue: -
Date of first issue: 27.06.2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BRAKE FLUID DOT 4 - 5L

Product code : 0892 009 5

Manufacturer or supplier's details

Company : Wurth Australia Pty Ltd

Address : 2/1 Healey Road
Dandenong South, Victoria, 3175

Telephone : +61 3 8788 1111

Emergency telephone number : 1300 657 765. Advisory office in case of poisoning - National Poisons Centre: 131 126

E-mail address : prodsafe@wuerth.com

Recommended use of the chemical and restrictions on use

Recommended use : Hydraulic fluid
Brake fluid

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Serious eye damage/eye irritation : Category 2A

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements :

Prevention:

P264 Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.

Response:

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/ at-

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tention.

Other hazards which do not result in classification

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	>= 10 -< 20
3,6,9,12-Tetraoxahexadecan-1-ol	1559-34-8	< 10
Diethylene glycol	111-46-6	< 10
Diethylene glycol methyl ether	111-77-3	< 3

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
 Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
 Remove contaminated clothing and shoes.
 Get medical attention.
 Wash clothing before reuse.
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
 If easy to do, remove contact lens, if worn.
 Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.
 Get medical attention.
 Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Causes serious eye irritation.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- Notes to physician : Treat symptomatically and supportively.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

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SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Avoid inhalation of vapour or mist.
Do not swallow.
Do not get in eyes.
Avoid prolonged or repeated contact with skin.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
- Conditions for safe storage : Keep in properly labelled containers.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
- Recommended storage temperature : 10 - 30 °C
- Storage period : 24 Months

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diethylene glycol	111-46-6	TWA	23 ppm 100 mg/m ³	AU OEL

- Engineering measures** : Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

- Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

- Filter type : Organic vapour type

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Hand protection	
Material	: butyl-rubber
Break through time	: > 480 min
Glove thickness	: 0.4 mm
Directive	: DIN EN 374
Protective index	: Class 6
Material	: Natural Rubber
Break through time	: > 480 min
Glove thickness	: 0.4 mm
Directive	: DIN EN 374
Protective index	: Class 6
Material	: Nitrile rubber
Break through time	: > 480 min
Glove thickness	: 0.4 mm
Directive	: DIN EN 374
Protective index	: Class 6
Material	: PVC
Break through time	: > 480 min
Glove thickness	: 0.4 mm
Directive	: DIN EN 374
Protective index	: Class 6
Remarks	: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Eye protection	: Wear the following personal protective equipment: Safety goggles
Skin and body protection	: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: clear, amber
Odour	: pleasant
Odour Threshold	: No data available
pH	: 7 - 10.5

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Melting point/freezing point	:	< -50 °C
Initial boiling point and boiling range	:	> 260 °C
Flash point	:	> 120 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Ignitable (see flash point)
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	< 2 hPa (20 °C)
Relative vapour density	:	No data available
Density	:	1.030 - 1.090 g/cm ³ (20 °C)
Solubility(ies)	:	
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	log Pow: < 2 (20 °C)
Auto-ignition temperature	:	> 300 °C
Decomposition temperature	:	> 300 °C
Viscosity	:	
Viscosity, kinematic	:	5 - 10 mm ² /s
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.

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Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Acute oral toxicity : LD50 (Rat): 5,170 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 3,540 mg/kg

3,6,9,12-Tetraoxahexadecan-1-ol:

Acute oral toxicity : LD50 (Rat): 2,630 mg/kg
Remarks: Based on data from similar materials

Diethylene glycol:

Acute oral toxicity : Acute toxicity estimate (Humans): 1,120 mg/kg
Method: Expert judgement

Diethylene glycol methyl ether:

Acute oral toxicity : LD50 (Rat): 7,128 mg/kg

Acute inhalation toxicity : LC0 (Rat): > 1.2 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): 9,404 mg/kg

Skin corrosion/irritation

Not classified based on available information.

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Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species : Rabbit
Result : No skin irritation

3,6,9,12-Tetraoxahexadecan-1-ol:

Species : Rabbit
Result : No skin irritation

Diethylene glycol:

Species : Rabbit
Result : No skin irritation

Diethylene glycol methyl ether:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days
Method : OECD Test Guideline 405

Diethylene glycol:

Species : Rabbit
Result : No eye irritation

Diethylene glycol methyl ether:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

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Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

Diethylene glycol:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : Directive 67/548/EEC, Annex V, B.6.
Result : negative

Diethylene glycol methyl ether:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Chronic toxicity**Germ cell mutagenicity**

Not classified based on available information.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

3,6,9,12-Tetraoxahexadecan-1-ol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Diethylene glycol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471

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Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Test Type: In vitro sister chromatid exchange assay in mam-
malian cells
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Diethylene glycol methyl ether:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Carcinogenicity

Not classified based on available information.

Components:**Diethylene glycol:**

Species : Rat
Application Route : Ingestion
Exposure time : 108 weeks
Result : negative

Reproductive toxicity

Not classified based on available information.

Components:**2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on foetal develop- : Test Type: Embryo-foetal development
ment : Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Diethylene glycol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse

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Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rabbit
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Diethylene glycol methyl ether:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: positive
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Species : Rat
NOAEL : 250 mg/kg
Application Route : Ingestion
Exposure time : 90 Days
Method : OECD Test Guideline 408
Remarks : Based on data from similar materials

Diethylene glycol:

Species : Rat
NOAEL : 300 mg/kg
Application Route : Ingestion
Exposure time : 98 Days

Species : Dog
NOAEL : 2,220 mg/kg
Application Route : Skin contact
Exposure time : 4 Weeks

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Method : OECD Test Guideline 410
Remarks : Based on data from similar materials

Diethylene glycol methyl ether:

Species : Rat
NOAEL : 900 mg/kg
Application Route : Ingestion
Exposure time : 6 Weeks

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 2,200 - 4,600 mg/l
Exposure time: 96 h
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2,210 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 612.6 mg/l
Exposure time: 72 h

EC10 (Desmodesmus subspicatus (green algae)): 612.6 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC10: > 1,995 mg/l
Exposure time: 30 min

3,6,9,12-Tetraoxahexadecan-1-ol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Scenedesmus capricornutum (fresh water algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

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Diethylene glycol:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 24 h
Method: DIN 38412
- Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): > 1 mg/l
Exposure time: 7 d
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 1 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

Diethylene glycol methyl ether:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 5,741 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,192 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

Persistence and degradability**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

- Biodegradability : Result: Not readily biodegradable.
Biodegradation: 85 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

3,6,9,12-Tetraoxahexadecan-1-ol:

- Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

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Diethylene glycol:

Biodegradability : Result: Readily biodegradable.

Diethylene glycol methyl ether:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Bioaccumulative potential**Components:****2-[2-(2-Butoxyethoxy)ethoxy]ethanol:**

Partition coefficient: n-octanol/water : log Pow: 0.51

3,6,9,12-Tetraoxahexadecan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 0.25

Diethylene glycol:

Partition coefficient: n-octanol/water : log Pow: -1.98
Remarks: Calculation

Diethylene glycol methyl ether:

Partition coefficient: n-octanol/water : log Pow: -0.47

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION**International Regulations**

UNRTDG

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Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**ADG**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Standard for the Uniform : Schedule 6
Scheduling of Medicines and
Poisons

Prohibition/Licensing Requirements : There is no applicable prohibition or notification/licensing requirements, including for carcinogens under Commonwealth, State or Territory legislation.

The components of this product are reported in the following inventories:

AICS : All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION**Further information**

Revision Date : 27.06.2019

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD
compile the Safety Data eChem Portal search results and European Chemicals Agen-
Sheet cy, <http://echa.europa.eu/>

Date format : dd.mm.yyyy

Full text of other abbreviations

AU OEL : Australia. Workplace Exposure Standards for Airborne Con-
taminants.

AU OEL / TWA : Exposure standard - time weighted average

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AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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