

SAFETY DATA SHEET



Opteon™ SF80 Specialty Fluid

Version 2.0 Revision Date: 2021/02/19 SDS Number: 3580630-00012 Date of last issue: 2020/08/18
Date of first issue: 2018/11/16

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Opteon™ SF80 Specialty Fluid

SDS-Identcode : 130000144304

Manufacturer or supplier's details

Company : The Chemours (Thailand) Company Limited

Address : Unit 1502, 15th Floor, GPF Witthayu Tower A, 93/1 Wireless Road, Lumpini, Pathumwan, Bangkok 10330, Thailand

Telephone : 0 2026 1818 (INT +66 2026 1818)

Emergency telephone number : 1800-010-157

Recommended use of the chemical and restrictions on use

Recommended use : Cleaning agent

Restrictions on use : For use in industrial installations only.
Do not use product for anything outside of the above specified uses

2. HAZARDS IDENTIFICATION

GHS Classification

Skin corrosion/irritation : Category 3


Serious eye damage/eye irritation : Category 2B

Specific target organ toxicity - single exposure : Category 3

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : H316 Causes mild skin irritation.

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H320 Causes eye irritation.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response:

P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

In use, may form flammable/explosive vapour-air mixture.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.
Rapid evaporation of the product may cause frostbite.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Trans-Dichloroethylene	156-60-5	>= 90 -<= 100
Methoxytridecafluoroheptene isomers	Not Assigned	>= 2.5 -< 10

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.

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- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with 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 if symptoms occur.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause cardiac arrhythmia.
Causes mild skin irritation.
Causes eye irritation.
May cause drowsiness or dizziness.
- 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 (see section 8).
- Notes to physician : Because of possible disturbances of cardiac rhythm, cate-
cholamine drugs, such as epinephrine, that may be used in
situations of emergency life support should be used with spe-
cial caution.
-

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire-fighting : Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Chlorine compounds
Hydrogen fluoride
carbonyl fluoride
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local cir-
cumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do

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so.
Evacuate area.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment. 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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7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation. If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing. Avoid breathing mist or vapours. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Keep away from heat and sources of ignition.
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Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Do not expose drums to direct heat or temperature above 46°C (115°F) to avoid pressurizing and possibly distorting the drums.
Material should not be dispensed by pouring from pail/drum shipping containers containing 5 gallons or more. The use of a drum pump is recommended for dispensing from pail/drum shipping containers with 5 gallons or more, except for smaller containers where adequate ventilation can be used to manage the exposure.
Keep in properly labelled containers.
Store locked up.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Materials to avoid : No special restrictions on storage with other products.

Recommended storage temperature : < 46 °C

Further information on storage stability : Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Trans-Dichloroethylene	156-60-5	TWA	200 ppm	ACGIH

Engineering measures : Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Self-contained breathing apparatus

Hand protection

Material : Chemical-resistant gloves

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Remarks	: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product may be flammable in use, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.
Eye protection	: Wear the following personal protective equipment: Safety goggles
Skin and body protection	: Wear the following personal protective equipment: If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Hygiene measures	: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: clear, colourless
Odour	: slight
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: 47 °C
Flash point	: does not flash
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: Not applicable

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Upper explosion limit / Upper flammability limit : Upper flammability limit 15.25 %(V)

Lower explosion limit / Lower flammability limit : Lower flammability limit 7.25 %(V)

Vapour pressure : 447 hPa

Relative vapour density : 1.71

Density : 1.29 g/cm³

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : Not applicable

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, kinematic : 0.42 mm²/s

Explosive properties : In use may form flammable/explosive vapour-air mixture.

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Particle size : Not applicable

10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Vapours may form flammable mixture with air
In use may form flammable/explosive vapour-air mixture.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products : No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

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Acute toxicity

Not classified based on available information.

Components:**Trans-Dichloroethylene:**

Acute oral toxicity : LD50 (Rat): 7,902 mg/kg
 Method: OECD Test Guideline 420

Acute inhalation toxicity : LC50 (Rat): 95.5 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: OECD Test Guideline 403

Lowest observed adverse effect concentration (Dog): 250000 ppm
 Test atmosphere: gas

Cardiac sensitisation threshold limit (Dog): 991,309 mg/m³
 Test atmosphere: gas

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
 Method: OECD Test Guideline 402

Methoxytridecafluoroheptene isomers:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
 Method: OECD Test Guideline 420

Acute inhalation toxicity : LC50 (Rat): > 222.15 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
 Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes mild skin irritation.

Components:**Trans-Dichloroethylene:**

Species : Rabbit
 Method : OECD Test Guideline 404
 Result : Mild skin irritation

Methoxytridecafluoroheptene isomers:

Species : Rabbit
 Method : OECD Test Guideline 404
 Result : No skin irritation

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Serious eye damage/eye irritation

Causes eye irritation.

Components:**Trans-Dichloroethylene:**

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 7 days
Method	:	OECD Test Guideline 405

Methoxytridecafluoroheptene isomers:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:**Methoxytridecafluoroheptene isomers:**

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	negative

Germ cell mutagenicity

Not classified based on available information.

Components:**Trans-Dichloroethylene:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
		Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
		Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Ingestion

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Method: OECD Test Guideline 474
 Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Methoxytridecafluoroheptene isomers:

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

Test Type: Chromosome aberration test in vitro
 Method: OECD Test Guideline 473
 Result: negative

Test Type: In vitro mammalian cell gene mutation test
 Method: OECD Test Guideline 476
 Result: negative

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

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
 Species: Rat
 Application Route: Inhalation
 Method: OECD Test Guideline 474
 Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:**Trans-Dichloroethylene:**

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

Methoxytridecafluoroheptene isomers:

Effects on foetal development : Test Type: Prenatal development toxicity study (teratogenicity)

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||| ment

Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

STOT - single exposure

May cause drowsiness or dizziness.

Components:**||| Trans-Dichloroethylene:**

||| Assessment : May cause drowsiness or dizziness.

||| Methoxytridecafluoroheptene isomers:

||| Exposure routes : Ingestion
||| Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

||| Exposure routes : Skin contact
||| Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

||| Exposure routes : inhalation (vapour)
||| Assessment : No significant health effects observed in animals at concentrations of 20 mg/l/4h or less

STOT - repeated exposure

Not classified based on available information.

Components:**||| Trans-Dichloroethylene:**

||| Exposure routes : Inhalation
||| Assessment : No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

||| Exposure routes : Ingestion
||| Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

||| Methoxytridecafluoroheptene isomers:

||| Exposure routes : Ingestion
||| Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

||| Exposure routes : inhalation (vapour)
||| Assessment : No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

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Repeated dose toxicity**Components:****Trans-Dichloroethylene:**

Species : Rat, male and female
 NOAEL : 4000 ppm
 LOAEL : > 4000 ppm
 Application Route : Inhalation
 Exposure time : 90 Days
 Method : OECD Test Guideline 413

Species : Rat, male and female
 NOAEL : 3,210 mg/kg
 LOAEL : > 3,210 mg/kg
 Application Route : Ingestion
 Exposure time : 98 Days
 Method : OECD Test Guideline 408

Methoxytridecafluoroheptene isomers:

Species : Rat, male and female
 NOAEL : 1,000 mg/kg
 LOAEL : > 1,000 mg/kg
 Application Route : Ingestion
 Exposure time : 90 d
 Method : OECD Test Guideline 408

Species : Rat, male and female
 NOAEL : 37.025 mg/l
 LOAEL : 75.531 mg/l
 Application Route : inhalation (vapour)
 Exposure time : 28 d
 Method : OECD Test Guideline 412

Aspiration toxicity

Not classified based on available information.

Components:**Methoxytridecafluoroheptene isomers:**

No aspiration toxicity classification

12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****Trans-Dichloroethylene:**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 135 mg/l
 Exposure time: 96 h
 Remarks: Based on data from similar materials

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 220 mg/l
Exposure time: 48 h
Method: EPA-660/3-75-009

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 36.36 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 201

Methoxytridecafluoroheptene isomers:

Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): > 0.096 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.157 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.000477 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.000477 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.107 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: No toxicity at the limit of solubility

Ecotoxicology Assessment

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

Persistence and degradability

Components:

Trans-Dichloroethylene:

Biodegradability : Result: not rapidly degradable
Method: OECD Test Guideline 301D

Methoxytridecafluoroheptene isomers:

Biodegradability : Result: Not inherently biodegradable.
Method: OECD Test Guideline 302C

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Bioaccumulative potential

Components:

Trans-Dichloroethylene:

Partition coefficient: n-octanol/water : log Pow: 2.06

Methoxytridecafluoroheptene isomers:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 1,990
Method: OECD Test Guideline 305

Mobility in soil

Components:

Methoxytridecafluoroheptene isomers:

Distribution among environmental compartments : log Koc: 4.5
Remarks: immobile

Other adverse effects

No data available

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.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

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.

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15. REGULATORY INFORMATION

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

Hazardous Substance Act : Conditions of restriction for the following entries should be considered:
Not applicable

Emergency Decree on Controlling the Use of Volatile Substances : Not applicable

16. OTHER INFORMATION

Other information : Opteon™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.
Chemours™ and the Chemours Logo are trademarks of The Chemours Company.
Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

Further information

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

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; 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; 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 Or-

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ganisation 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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