

# SAFETY DATA SHEET



## Opteon™ XP30 (R-514A) Refrigerant

Version	Revision Date:	SDS Number:	Date of last issue: 2023/09/25
9.0	2023/10/25	4345916-00016	Date of first issue: 2019/06/12

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### 1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Opteon™ XP30 (R-514A) Refrigerant

SDS-Identcode : 130000144003

#### Supplier's company name, address and phone number

Company name of supplier : Chemours-Mitsui Fluoroproducts Co., Ltd

Address : Kamiyacho Prime Place, 4-1-17, Toranomom, Minato-ku, Tokyo, Japan

Telephone : 050-3823-0650

Emergency telephone number : Occupational Health, Safety & Environmental Management (054-334-4827) (Holiday, Night-time 054-335-5507)

Prepared by :

#### Recommended use of the chemical and restrictions on use

Recommended use : Refrigerant  
Heat transfer fluids

Restrictions on use : For professional and industrial installation and use only.

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### 2. HAZARDS IDENTIFICATION

#### GHS classification of chemical product

Serious eye damage/eye irritation : Category 2B

Specific target organ toxicity - single exposure : Category 3

Short-term (acute) aquatic hazard : Category 3

#### GHS label elements

Hazard pictograms :



Signal word : Warning

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Hazard statements : H320 Causes eye irritation.  
H336 May cause drowsiness or dizziness.  
H402 Harmful to aquatic life.

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 person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor 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.  
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

Important symptoms and out- : Vapours are heavier than air and can cause suffocation by  
lines of the emergency as- reducing oxygen available for breathing.  
sumed 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)	ENCS No.
(Z)-1,1,1,4,4,4-Hexafluoro-2-butene#	692-49-9	75.1	2-4174
Trans-Dichloroethylene	156-60-5	24.9	2-103

# Voluntarily-disclosed substance

## 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical ad-

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- vice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- 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.  
Other symptoms potentially related to misuse or inhalation abuse are  
Cardiac sensitisation  
Anaesthetic effects  
Light-headedness  
Dizziness  
confusion  
Lack of coordination  
Drowsiness  
Unconsciousness  
Skin contact may provoke the following symptoms:  
Irritation  
Swelling of tissue  
Itching  
Discomfort  
Redness  
Eye contact may provoke the following symptoms  
tearing  
Redness  
Discomfort  
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

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situations of emergency life support should be used with special caution.

### 5. FIREFIGHTING MEASURES

- |   |   |
|---|---|
| Suitable extinguishing media                  | : Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media                | : None known.   |
| Specific hazards during fire-fighting         | : Exposure to combustion products may be a hazard to health.  |
| Hazardous combustion products                 | : Hydrogen fluoride<br>carbonyl fluoride<br>Carbon oxides<br>Chlorine compounds   |
| Specific extinguishing methods                | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |
| Special protective equipment for firefighters | : In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment.  |

### 6. ACCIDENTAL RELEASE MEASURES

- |   |  |
|---|--|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).   |
| Environmental precautions   | : Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Prevent spreading over a wide area (e.g. by containment or oil barriers).<br>Retain and dispose of contaminated wash water.<br>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.<br>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.<br>Clean up remaining materials from spill with suitable absorbent.<br>Local or national regulations may apply to releases and dis- |

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posal 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.

### 7. HANDLING AND STORAGE

#### Handling

- |                         |   |  |
|-------------------------|---|--|
| Technical measures      | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.  |
| Local/Total ventilation | : | If sufficient ventilation is unavailable, use with local exhaust ventilation.  |
| Advice on safe handling | : | Do not get on skin or clothing.<br>Avoid breathing mist or vapours.<br>Do not swallow.<br>Do not get in eyes.<br>Wash skin thoroughly after handling.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Take care to prevent spills, waste and minimize release to the environment. |
| Avoidance of contact    | : | None.  |
| Hygiene measures        | : | If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.<br>When using do not eat, drink or smoke.<br>Wash contaminated clothing before re-use.   |

#### Storage

- |                             |   |  |
|-----------------------------|---|--|
| 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.<br>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.<br>Keep in properly labelled containers.<br>Store locked up.<br>Keep in a cool, well-ventilated place.<br>Store in accordance with the particular national regulations. |
| Materials to avoid          | : | No special restrictions on storage with other products.  |

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Recommended storage temperature : < 40 °C

Storage period : > 10 yr

Further information on storage stability : The product has an indefinite shelf life when stored properly.

Keep away from direct sunlight.

Packaging material : Unsuitable material: None known.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Reference concentration / Permissible concentration	Basis
Trans-Dichloroethylene	156-60-5	ACL	150 ppm	JP OEL ISHL
		TWA	200 ppm	ACGIH

**Engineering measures** : Minimize workplace exposure concentrations.  
If sufficient ventilation is unavailable, use with local 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 : Organic gas and low boiling vapour type

Hand protection

Material : Chemical-resistant gloves

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. Wash hands before breaks and at the end of workday.

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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.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Colour	: clear
Odour	: slight, ether-like
Odour Threshold	: No data available
Melting point/freezing point	: No data available
Boiling point, initial boiling point and boiling range	: 29.1 °C
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: No data available
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit / Upper flammability limit	: Upper flammability limit Method: ASTM E681 None.
Lower explosion limit / Lower flammability limit	: Lower flammability limit Method: ASTM E681 None.
Flash point	: Method: ASTM D 56 does not flash
Decomposition temperature	: No data available
pH	: 7
Evaporation rate	: No data available
Auto-ignition temperature	: No data available

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Viscosity		
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Vapour pressure	:	871.4 hPa (25 °C)
Density and / or relative density		
Relative density	:	1.31 (25 °C)
Density	:	1.308 g/cm <sup>3</sup> (25 °C)
Relative vapour density	:	5.01 (Air = 1.0)
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle characteristics		
Particle size	:	Not applicable

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### 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	None known.
Incompatible materials	:	None.
Hazardous decomposition products	:	No hazardous decomposition products are known.

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### 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:

#### **(Z)-1,1,1,4,4,4-Hexafluoro-2-butene:**

Acute inhalation toxicity	: LC50 (Rat): > 690.413 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403
	No observed adverse effect concentration (Dog): 12500 ppm Test atmosphere: gas
	Lowest observed adverse effect concentration (Dog): 25000 ppm Test atmosphere: gas
	Cardiac sensitisation threshold limit (Dog): 1,677,740 mg/m3 Test atmosphere: gas

#### **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

### Skin corrosion/irritation

Not classified based on available information.

### Components:

#### **(Z)-1,1,1,4,4,4-Hexafluoro-2-butene:**

Result	: No skin irritation
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#### **Trans-Dichloroethylene:**

Species	: Rabbit
Method	: OECD Test Guideline 404

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||Result : Mild skin irritation

### Serious eye damage/eye irritation

Causes eye irritation.

### Components:

#### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

||Result : No eye irritation

#### Trans-Dichloroethylene:

||Species : Rabbit  
||Result : Irritation to eyes, reversing within 7 days  
||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:

#### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

||Exposure routes : Skin contact  
||Result : negative

### Germ cell mutagenicity

Not classified based on available information.

### Components:

#### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

||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: inhalation (vapour)

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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.

### 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 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:

#### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

Effects on fertility	: Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapour) Method: OECD Test Guideline 416 Result: negative
Effects on foetal development	: Test Type: Embryo-foetal development Species: Rat Application Route: inhalation (vapour) Method: OECD Test Guideline 414 Result: negative
Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity, No effects on or via lactation

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**Trans-Dichloroethylene:**

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

May cause drowsiness or dizziness.

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

Assessment	:	May cause drowsiness or dizziness.
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**STOT - repeated exposure**

Not classified based on available information.

**Components:****(Z)-1,1,1,4,4,4-Hexafluoro-2-butene:**

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

**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.

**Repeated dose toxicity****Components:****(Z)-1,1,1,4,4,4-Hexafluoro-2-butene:**

Species	:	Rat, male and female
NOAEL	:	33.5 mg/l
LOAEL	:	50.3 mg/l
Application Route	:	inhalation (vapour)
Exposure time	:	90 d
Method	:	OECD Test Guideline 413

**Trans-Dichloroethylene:**

Species	:	Rat, male and female
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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

### Aspiration toxicity

Not classified based on available information.

### Components:

#### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

|| No aspiration toxicity classification

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

Toxicity to fish	: LC50 (Oryzias latipes (Japanese medaka)): 76.1 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 22.5 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 23.7 mg/l Exposure time: 72 h Method: OECD Test Guideline 201  NOEC (Pseudokirchneriella subcapitata (green algae)): 6.92 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	: NOEC (Gobiocypris rarus (rare gudgeon)): 10 mg/l Exposure time: 32 d Method: OECD Test Guideline 210
Toxicity to daphnia and other	: NOEC (Daphnia magna (Water flea)): 10 mg/l

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aquatic invertebrates (Chronic toxicity)

Exposure time: 21 d  
Method: OECD Test Guideline 211

### Trans-Dichloroethylene:

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

### Persistence and degradability

#### Components:

##### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

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

##### Trans-Dichloroethylene:

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

### Bioaccumulative potential

#### Components:

##### (Z)-1,1,1,4,4,4-Hexafluoro-2-butene:

Partition coefficient: n-octanol/water : log Pow: 2.3

##### Trans-Dichloroethylene:

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

### Mobility in soil

No data available

### Hazardous to the ozone layer

Not applicable

### Other adverse effects

No data available

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#### Disposal methods

- Waste from residues : Do not discharge the gas into atmosphere unnecessarily and dispose of in accordance with the following regulations: High Pressure Gas Safety Act and Act on Rational Use and Proper Management of Fluorocarbons (in case of the fluorochemical substance). When consigning for disposal, remove to a industrial waste disposer approved by the local regulations. Do not dispose of waste into sewer.
- 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

- UN number : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable

##### IATA-DGR

- UN/ID No. : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable  
Packing instruction (cargo aircraft) : Not applicable  
Packing instruction (passenger aircraft) : Not applicable

##### IMDG-Code

- UN number : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable  
EmS Code : Not applicable  
Marine pollutant : Not applicable

#### 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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### National Regulations

Refer to section 15 for specific national regulation.

### Special precautions for user

Not applicable

ERG Code : 171

## 15. REGULATORY INFORMATION

### Related Regulations

#### Fire Service Law

Not applicable to dangerous materials / designated flammables.

#### Chemical Substance Control Law

Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

#### Industrial Safety and Health Law

#### Harmful Substances Prohibited from Manufacture

Not applicable

#### Harmful Substances Required Permission for Manufacture

Not applicable

#### Substances Prevented From Impairment of Health

Not applicable

#### Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity

Not applicable

#### Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

#### Substances Subject to be Notified Names

Article 57-2 (Enforcement Order Table 9)

Chemical name	Concentration (%)	Remarks
Dichloroethylene	$\geq 20$ - $< 30$	-

#### Substances Subject to be Indicated Names

Article 57 (Enforcement Order Article 18)

Chemical name	Remarks
Dichloroethylene	-

#### Carcinogenic Substances (Article 577-2 of the Occupational Health and Safety Regulations)

Not applicable



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### Ordinance on Prevention of Hazards Due to Specified Chemical Substances

Not applicable

### Ordinance on Prevention of Lead Poisoning

Not applicable

### Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

### Ordinance on Prevention of Organic Solvent Poisoning

Organic Solvents Class 1

### Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Not applicable

### Poisonous and Deleterious Substances Control Law

Not applicable

### Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

### Class I Designated Chemical Substances

Chemical name	Administration number	Concentration (%)
1,2-Dichloroethylene	632	25

### High Pressure Gas Safety Act

Not applicable

### Explosive Control Law

Not applicable

### Vessel Safety Law

Not regulated as a dangerous good

### Aviation Law

Not regulated as a dangerous good

### Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation : Not classified as noxious liquid substance

Pack transportation : Not classified as marine pollutant

### Narcotics and Psychotropics Control Act

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

### Waste Disposal and Public Cleansing Law

Industrial waste

# SAFETY DATA SHEET



## Opteon™ XP30 (R-514A) Refrigerant

Version	Revision Date:	SDS Number:	Date of last issue: 2023/09/25
9.0	2023/10/25	4345916-00016	Date of first issue: 2019/06/12

### 16. OTHER INFORMATION

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#### 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)  
JP OEL ISHL : Japan. Administrative Control Levels

ACGIH / TWA : 8-hour, time-weighted average  
JP OEL ISHL / ACL : Administrative Control level

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 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,

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tion, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; 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

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