



Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

**SECTION 1. IDENTIFICATION** 

Product name

: Freon™ 507 (R-507) Refrigerant

Product code

D10362243

SDS-Identcode

130000050989

Manufacturer or supplier's details

Company name of supplier

The Chemours Company FC, LLC

Address

1007 Market Street

Wilmington, DE 19801 United States of America (USA)

Telephone

1-844-773-CHEM (outside the U.S. 1-302-773-1000)

Emergency telephone

Medical emergency: 1-866-595-1473 (outside the U.S. 1-302-773-2000): Transport emergency: +1.800.434, 0300 (outside

773-2000); Transport emergency: +1-800-424-9300 (outside

the U.S. +1-703-527-3887)

Recommended use of the chemical and restrictions on use

Recommended use

Refrigerant

Restrictions on use

For professional users only.

### **SECTION 2. HAZARDS IDENTIFICATION**

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Gases under pressure

Liquefied gas

Simple Asphyxiant

**GHS** label elements

Hazard pictograms

Signal Word

Warning

**Hazard Statements** 

H280 Contains gas under pressure; may explode if heated.

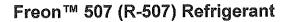
May displace oxygen and cause rapid suffocation.

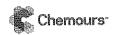
**Precautionary Statements** 

Storage:

P410 + P403 Protect from sunlight. Store in a well-ventilated

place.





Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

### Other hazards

Vapors 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.

# SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Pentafluoroethane#	354-33-6	50
1,1,1-Trifluoroethane#	420-46-2	50

<sup>#</sup> Voluntarily-disclosed non-hazardous substance

## **SECTION 4. FIRST AID MEASURES**

General advice

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

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

Thaw frosted parts with lukewarm water. Do not rub affected

area.

Get medical attention immediately.

In case of eye contact

Get medical attention immediately.

If swallowed

Ingestion is not considered a potential route of exposure.

Most important symptoms and effects, both acute and delayed

Inhalation of high concentration may cause

Cardiac sensitization Anaesthetic effects Light-headedness

Dizziness confusion

Lack of coordination

Drowsiness Unconsciousness

May cause cardiac arrhythmia.

Contact with liquid or refrigerated gas can cause cold burns

and frostbite.

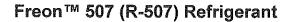
Protection of first-aiders

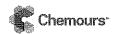
No special precautions are necessary for first aid responders.

Notes to physician

Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with spe-

cial caution.





Version 8.4

Revision Date:

SDS Number: 10/10/2020 1336414-00042 Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Not applicable

Will not burn

Unsuitable extinguishing

media

Not applicable

Will not burn

Specific hazards during fire

fighting

Exposure to combustion products may be a hazard to health. If the temperature rises there is danger of the vessels bursting

due to the high vapor pressure.

Hazardous combustion prod-

ucts

Fluorine compounds

Carbon oxides

Specific extinguishing meth-

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment. Fight fire remotely due to the risk of explosion. Use water spray to cool unopened containers.

Remove undamaged containers from fire area if it is safe to do

Evacuate area.

Special protective equipment

for fire-fighters

Wear self-contained breathing apparatus for firefighting if

necessary.

Use personal protective equipment.

## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protec- :

tive equipment and emer-

gency procedures

Evacuate personnel to safe areas.

Avoid skin contact with leaking liquid (danger of frostbite).

Ventilate the area.

Follow safe handling advice (see section 7) and personal pro-

tective equipment recommendations (see section 8).

Environmental precautions

Avoid release to the environment.

Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.

Methods and materials for containment and cleaning up Ventilate the area.

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

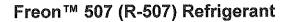
certain local or national requirements.

### SECTION 7. HANDLING AND STORAGE

Technical measures

Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. Close valve after each use and

when empty.





Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

Local/Total ventilation

Use only with adequate ventilation.

Advice on safe handling

Avoid breathing gas.

Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment

Wear cold insulating gloves/ face shield/ eye protection. Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point.

Use a check valve or trap in the discharge line to prevent ha-

zardous back flow into the cylinder. Prevent backflow into the gas tank.

Use a pressure reducing regulator when connecting cylinder

to lower pressure (<3000 psig) piping or systems.

Close valve after each use and when empty. Do NOT change

or force fit connections.

Prevent the intrusion of water into the gas tank.

Never attempt to lift cylinder by its cap. Do not drag, slide or roll cylinders.

Use a suitable hand truck for cylinder movement. Keep away from heat and sources of ignition.

Take precautionary measures against static discharges.

Take care to prevent spills, waste and minimize release to the

environment.

Conditions for safe storage

Cylinders should be stored upright and firmly secured to pre-

vent falling or being knocked over.

Separate full containers from empty containers.

Do not store near combustible materials.

Avoid area where salt or other corrosive materials are present.

Keep in properly labeled containers. Keep in a cool, well-ventilated place. Keep away from direct sunlight.

Store in accordance with the particular national regulations.

Materials to avoid

Do not store with the following product types:

Self-reactive substances and mixtures

Organic peroxides
Oxidizing agents
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids

Self-heating substances and mixtures

Substances and mixtures which in contact with water emit

flammable gases

**Explosives** 

Acutely toxic substances and mixtures

Substances and mixtures with chronic toxicity

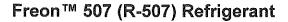
Recommended storage tem-

perature

< 126 °F / < 52 °C

Storage period

> 10 y





Version 8.4

Revision Date: 10/10/2020

SDS Number:

Date of last issue: 02/27/2020

1336414-00042

Date of first issue: 02/27/2017

Further information on stor-

age stability

The product has an indefinite shelf life when stored properly.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parame- ters / Permissible	Basis
		exposure)	concentration	
Pentafluoroethane	354-33-6	TWA	1,000 ppm	US WEEL
1,1,1-Trifluoroethane	420-46-2	TWA	1,000 ppm	US WEEL

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

### Personal protective equipment

Respiratory protection

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910,134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection Material

Low temperature resistant gloves

Remarks

Choose gloves to protect hands against chemicals depending on the concentration 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. Breakthrough time is not determined for the pro-

duct. Change gloves often!

Eye protection

Wear the following personal protective equipment:

Chemical resistant goggles must be worn.

Face-shield

Skin and body protection

Skin should be washed after contact.

Protective measures

Wear cold insulating gloves/ face shield/ eye protection.

Hygiene measures

If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the wor-



# Freon™ 507 (R-507) Refrigerant

Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

king place.

When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance

: Liquefied gas

Color

colorless

Odor

slight, ether-like

Odor Threshold

No data available

рΗ

No data available

Melting point/freezing point

No data available

Initial boiling point and boiling

range

-52.1 °F / -46.7 °C

(1,013.25 hPa)

Flash point

Not applicable

Evaporation rate

> 1

(CCL4=1.0)

Flammability (solid, gas)

Will not burn

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.

Vapor pressure

12,826 hPa (77 °F / 25 °C)

Relative vapor density

3.5

(Air = 1.0)

Relative density

1.05 (77 °F / 25 °C)

Density

1.05 g/cm³ (77 °F / 25 °C)

(as liquid)

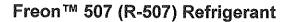
Solubility(ies)

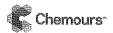
Water solubility

No data available

Partition coefficient: n-

Not applicable





Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

octanol/water

Autoignition temperature

No data available

Decomposition temperature

No data available

Viscosity

Viscosity, kinematic

Not applicable

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 if used as directed. Follow precautionary advice and

avoid incompatible materials and conditions.

Possibility of hazardous reac-

tions

Can react with strong oxidizing agents.

Conditions to avoid

This substance is not flammable in air at temperatures up to 100 °C (212 °F) at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. This substance can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing this substance and air, or this substance in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, this substance should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example this substance should NOT be mixed with air under pressure for leak testing or other purposes.

Heat, flames and sparks.

Incompatible materials

Oxidizing agents

Hazardous decomposition

products

No hazardous decomposition products are known.

# Freon™ 507 (R-507) Refrigerant



Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

### **SECTION 11. TOXICOLOGICAL INFORMATION**

## Information on likely routes of exposure

Inhalation Skin contact Eye contact

## **Acute toxicity**

Not classified based on available information.

#### Components:

#### Pentafluoroethane:

Acute inhalation toxicity

: LC50 (Rat): > 800000 ppm

Exposure time: 4 h
Test atmosphere: gas

Method: OECD Test Guideline 403

No observed adverse effect concentration (Dog): 75000 ppm

Remarks: Cardiac sensitization

Cardiac sensitisation threshold limit (Dog): 368.159 mg/m³

Remarks: Cardiac sensitization

## 1,1,1-Trifluoroethane:

Acute inhalation toxicity

LC0 (Rat): > 591000 ppm

Exposure time: 4 h
Test atmosphere: gas

#### Skin corrosion/irritation

Not classified based on available information.

## Serious eye damage/eye irritation

Not classified based on available information.

## Respiratory or skin sensitization

## Skin sensitization

Not classified based on available information.

## Respiratory sensitization

Not classified based on available information.

### Germ cell mutagenicity

Not classified based on available information.

### Components:

### Pentafluoroethane:

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

Result: negative



# Freon™ 507 (R-507) Refrigerant

Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

Remarks: Based on data from similar materials

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: inhalation (gas) Method: OECD Test Guideline 474

Result: negative

1,1,1-Trifluoroethane:

Genotoxicity in vitro

Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vivo

Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: inhalation (gas)

Result: negative

Carcinogenicity

Not classified based on available information.

Components:

1,1,1-Trifluoroethane:

**Species** 

Rat

Application Route

Ingestion

Exposure time

72 weeks

Result

negative

**IARC** 

No ingredient of this product present at levels greater than or equal to 0.1% is

identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** 

No component of this product present at levels greater than or equal to 0.1% is

on OSHA's list of regulated carcinogens.

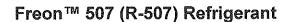
NTP

No ingredient of this product present at levels greater than or equal to 0.1% is

identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.





Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

### Components:

Pentafluoroethane:

Effects on fertility

Test Type: One-generation reproduction toxicity study

Species: Rat

Application Route: inhalation (vapor)

Result: negative

Remarks: Based on data from similar materials

Effects on fetal development :

Test Type: Embryo-fetal development

Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 414

Result: negative

1,1,1-Trifluoroethane:

Effects on fertility

Test Type: Three-generation reproduction toxicity study

Species: Rat

Application Route: inhalation (gas)

Result: negative

Remarks: Based on data from similar materials

Effects on fetal development :

Test Type: Embryo-fetal development

Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 414

Result: negative

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

Pentafluoroethane:

Species

: Rat

NOAEL

: >= 50000 ppm : inhalation (gas)

Application Route

iniaiation (ya

Exposure time

13 Weeks

Method

OECD Test Guideline 413

1,1,1-Trifluoroethane:

Species

: Rat

NOAEL

: > 40000 ppm : inhalation (gas)

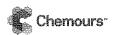
Application Route Exposure time

13 Weeks

Method

: OECD Test Guideline 413

# Freon™ 507 (R-507) Refrigerant



Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

### **Aspiration toxicity**

Not classified based on available information.

#### **SECTION 12. ECOLOGICAL INFORMATION**

### **Ecotoxicity**

## Components:

Pentafluoroethane:

Toxicity to fish

: LC50 (Oncorhynchus mykiss (rainbow trout)); > 100 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)): > 100 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 1

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

1,1,1-Trifluoroethane:

Toxicity to fish

LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC0 (Pseudokirchneriella subcapitata (green algae)): > 44

mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

Toxicity to microorganisms

EC0 (Pseudomonas putida): > 730 mg/l

Exposure time: 6 h

## Persistence and degradability

### Components:

### Pentafluoroethane:

Biodegradability

: Result: Not readily biodegradable.



# Freon™ 507 (R-507) Refrigerant

Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

Biodegradation: 5 % Exposure time: 28 d

Method: OECD Test Guideline 301D

1,1,1-Trifluoroethane:

Biodegradability

Result: Not inherently biodegradable.

Biodegradation: 3 % Exposure time: 28 d

Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Pentafluoroethane:

Partition coefficient: n-

octanol/water

Pow: 1.48

Method: OECD Test Guideline 107

1,1,1-Trifluoroethane:

Partition coefficient: n-

octanol/water

: log Pow: 1.06 - < 1.35

Remarks: Based on data from similar materials

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.

Empty pressure vessels should be returned to the supplier. If not otherwise specified: Dispose of as unused product.

**SECTION 14. TRANSPORT INFORMATION** 

International Regulations

UNRTDG

UN number

UN 3163

Proper shipping name

LIQUEFIED GAS, N.O.S.

(Pentafluoroethane, 1,1,1-Trifluoroethane)

Class

2.2

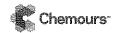
Packing group

Not assigned by regulation

Labels

2.2

IATA-DGR



# Freon<sup>™</sup> 507 (R-507) Refrigerant

Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042 Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

UN/ID No.

: UN 3163

Proper shipping name

Liquefied gas, n.o.s.

(Pentafluoroethane, 1,1,1-Trifluoroethane)

Class

Packing group Labels

Not assigned by regulation Non-flammable, non-toxic Gas

Packing instruction (cargo

aircraft)

200

Packing instruction (passen- : 200

ger aircraft)

**IMDG-Code** 

UN number

UN 3163

Proper shipping name

LIQUEFIED GAS, N.O.S.

(Pentafluoroethane, 1,1,1-Trifluoroethane)

Class

2.2

Packing group

Not assigned by regulation

Labels

2.2 F-C, S-V

EmS Code Marine pollutant

no

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

Not applicable for product as supplied.

### Domestic regulation

**49 CFR** 

UN/ID/NA number

UN 3163

Proper shipping name

Liquefied gas, n.o.s.

(Pentafluoroethane, 1,1,1-Trifluoroethane)

Class

2.2

Packing group

: Not assigned by regulation

Labels

NON-FLAMMABLE GAS

ERG Code

126

Marine pollutant

no

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

### **SECTION 15. REGULATORY INFORMATION**

### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

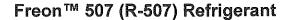
## SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

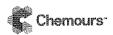
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards

Gases under pressure

Simple Asphyxiant





Version 8.4

Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

**SARA 313** 

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**US State Regulations** 

Pennsylvania Right To Know

Pentafluoroethane 1,1,1-Trifluoroethane

354-33-6 420-46-2

International Regulations

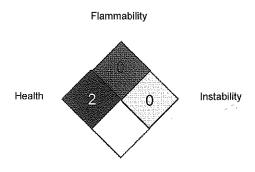
Montreal Protocol

Pentafluoroethane 1,1,1-Trifluoroethane

#### **SECTION 16. OTHER INFORMATION**

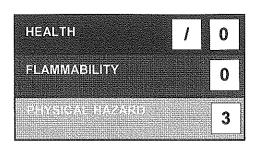
### **Further information**

## NFPA 704:



Special hazard

## HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Freon™ and any associated logos are trademarks or copyrights of The Chemours Company FC,

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.

## Full text of other abbreviations

**US WEEL** 

: USA. Workplace Environmental Exposure Levels (WEEL)

US WEEL / TWA

8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Sub-



# Freon™ 507 (R-507) Refrigerant

Version 8.4 Revision Date: 10/10/2020

SDS Number: 1336414-00042

Date of last issue: 02/27/2020 Date of first issue: 02/27/2017

stances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate, 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity: SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance 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

Sources of key data used to compile the Material Safety

Data Sheet

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

cy, http://echa.europa.eu/

Revision Date

: 10/10/2020

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