NU-22B® (R-422B)



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SECTION 1. IDENTIFICATION

Product name : NU-22B® (R-422B)

SDS-Identcode : 130000144665

Manufacturer or supplier's details

Company name of supplier : ICOR International

Address : 10640 E 59th St

Indianapolis, IN 46236 United States of America (USA)

Telephone : 1-800-497-6805 (Monday – Friday, 7:30 am – 4:30 pm ET)

Emergency telephone : CHEMTREC 1-800-424-9300 (24 Hours/Day, 7 Days/Week)

Recommended use of the chemical and restrictions on use

Recommended use : Refrigerant

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 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.

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

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Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Pentafluoroethane*	354-33-6	55
1,1,1,2-Tetrafluoroethane*	811-97-2	42
Isobutane	75-28-5	3

^{*} Voluntarily-disclosed non-hazardous substance

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 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

Other symptoms potentially related to misuse or inhalation

abuse are

Cardiac sensitization Anaesthetic effects Light-headedness

Dizziness confusion

Lack of coordination

Drowsiness Unconsciousness

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 : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray

Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing : None known.

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media

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 Hydrogen fluoride carbonyl fluoride

Specific extinguishing meth-

ods

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

SO.

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 and personal protective

equipment recommendations.

Environmental precautions : 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.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Do not breathe gas.

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

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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 hazardous 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

prevent 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. 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 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

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Further information on stor-

age stability

Keep container tightly closed in a dry and well-ventilated

place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis
		(Form of	ters / Permissible	
		exposure)	concentration	
Pentafluoroethane	354-33-6	TWA	1,000 ppm	US WEEL
1,1,1,2-Tetrafluoroethane	811-97-2	TWA	1,000 ppm	US WEEL
Isobutane	75-28-5	TWA	800 ppm	NIOSH REL
			1,900 mg/m ³	
		STEL	1,000 ppm	ACGIH

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

Remarks : Take note that the product is extremely cold, 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:

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 : 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.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquefied gas

Color : colorless

Odor : slight, ether-like

Odor Threshold : No data available

pH : 7

Melting point/freezing point : No data available

Initial boiling point and boiling

range

-32.6 °F / -35.9 °C

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : No data available

Upper explosion limit / Upper

flammability limit

Upper flammability limit

No data available

Lower explosion limit / Lower

flammability limit

Lower flammability limit

No data available

Vapor pressure : 8,300 hPa (68 °F / 20 °C)

23,460 hPa (140 °F / 60 °C)

Relative vapor density : No data available

Relative density : No data available

Density : 0.0058 g/cm³

(as liquid)

Solubility(ies)

Water solubility : No data available

Partition coefficient: n-

octanol/water

: Not applicable

Autoignition temperature : > 1022 °F / > 550 °C

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

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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 : Heat, flames and sparks.

Incompatible materials : Oxidizing agents

Hazardous decomposition

products

No hazardous decomposition products are known.

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 : LC0 (Rat): > 800000 ppm

Exposure time: 4 h Test atmosphere: gas

Method: OECD Test Guideline 403

1,1,1,2-Tetrafluoroethane:

Acute inhalation toxicity : LC50 (Rat): > 567000 ppm

Exposure time: 4 h Test atmosphere: gas

No observed adverse effect concentration (Dog): 40000 ppm

Test atmosphere: gas

Symptoms: Cardiac sensitization

Lowest observed adverse effect concentration (Dog): 80000

ppm

Test atmosphere: gas

Symptoms: Cardiac sensitization

Cardiac sensitisation threshold limit (Dog): 334,000 mg/m³

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Test atmosphere: gas

Symptoms: Cardiac sensitization

Isobutane:

Acute inhalation toxicity : LC50 (Rat): 570000 ppm

Exposure time: 15 min Test atmosphere: gas

Skin corrosion/irritation

Not classified based on available information.

Components:

1,1,1,2-Tetrafluoroethane:

Species : Rabbit

Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

1,1,1,2-Tetrafluoroethane:

Species : Rabbit

Result : No eye irritation

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

1,1,1,2-Tetrafluoroethane:

Routes of exposure : Skin contact Species : Guinea pig Result : negative

Species : Rat Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Pentafluoroethane:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

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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

1,1,1,2-Tetrafluoroethane:

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

Isobutane:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

Remarks: Based on data from similar materials

Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 474

Result: negative

Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

1,1,1,2-Tetrafluoroethane:

Carcinogenicity - Assess-

ment

Weight of evidence does not support classification as a car-

cinogen

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.

OSHANo 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.

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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

1,1,1,2-Tetrafluoroethane:

Reproductive toxicity - As-

sessment

Weight of evidence does not support classification for

reproductive toxicity

Isobutane:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 422

Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 422

Result: negative

STOT-single exposure

Not classified based on available information.

Components:

Isobutane:

Assessment : May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

Components:

1,1,1,2-Tetrafluoroethane:

Assessment : No significant health effects observed in animals at concentra-

tions of 250 ppmV/6h/d or less.

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Repeated dose toxicity

Components:

Pentafluoroethane:

Species : Rat

NOAEL : >= 50000 ppm
Application Route : inhalation (gas)
Exposure time : 13 Weeks

Method : OECD Test Guideline 413

1,1,1,2-Tetrafluoroethane:

 Species
 : Rat

 NOAEL
 : 50000 ppm

 LOAEL
 : > 50000 ppm

 Application Route
 : inhalation (gas)

Exposure time : 90 d

Method : OECD Test Guideline 413

Remarks : No significant adverse effects were reported

Isobutane:

Species : Rat

NOAEL : >= 9000 ppm
Application Route : inhalation (gas)

Exposure time : 6 Weeks

Method : OECD Test Guideline 422

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Pentafluoroethane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 450 mg/l

Exposure time: 96 h

Method: Directive 67/548/EEC, Annex V, C.1. Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 980 mg/l

Exposure time: 48 h

Method: Directive 67/548/EEC, Annex V, C.2. Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 114

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

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NOEC (Pseudokirchneriella subcapitata (green algae)): 13.2

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

1,1,1,2-Tetrafluoroethane:

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)): 450 mg/l

Exposure time: 96 h

aquatic invertebrates

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 980 mg/l

Exposure time: 48 h

Toxicity to algae : ErC50 (algae): 142 mg/l

Exposure time: 96 h

Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): 13.2

mg/l

Exposure time: 72 h

Remarks: Based on data from similar materials

Persistence and degradability

Components:

Pentafluoroethane:

Biodegradability : Result: Not readily biodegradable.

> Biodegradation: 5 % Exposure time: 28 d

Method: OECD Test Guideline 301D

1,1,1,2-Tetrafluoroethane:

Biodegradability Result: Not readily biodegradable.

Isobutane:

Biodegradability Result: Readily biodegradable.

Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Pentafluoroethane:

Partition coefficient: n-

: Pow: 1.48 (77 °F / 25 °C)

octanol/water

1,1,1,2-Tetrafluoroethane:

Partition coefficient: n-

octanol/water

: log Pow: 1.06

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Isobutane:

Partition coefficient: n-

octanol/water

: log Pow: 2.8

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, 1,1,1,2-Tetrafluoroethane)

Class : 2.2

Packing group : Not assigned by regulation

Labels : 2.2

IATA-DGR

UN/ID No. : UN 3163

Proper shipping name : Liquefied gas, n.o.s.

(Pentafluoroethane, 1,1,1,2-Tetrafluoroethane)

Class : 2.2

Packing group : Not assigned by regulation
Labels : Non-flammable, non-toxic Gas

Packing instruction (cargo : 200

aircraft)

Packing instruction (passen- : 200

ger aircraft)

IMDG-Code

UN number : UN 3163

Proper shipping name : LIQUEFIED GAS, N.O.S.

(Pentafluoroethane, 1,1,1,2-Tetrafluoroethane)

Class : 2.2

Packing group : Not assigned by regulation

Labels : 2.2
EmS Code : F-C, S-V
Marine pollutant : no

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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, 1,1,1,2-Tetrafluoroethane)

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

EPCRA - Emergency Planning and Community Right-to-Know

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

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 354-33-6 1,1,1,2-Tetrafluoroethane 811-97-2 Isobutane 75-28-5

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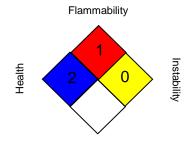


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SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



Special hazard.

HMIS® IV:

HEALTH	/	0
FLAMMABILITY		1
PHYSICAL HAZARD	3	

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.

Before use read Chemours safety information.

For further information contact the local Chemours office or nominated distributors. All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)

ACGIH / STEL : Short-term exposure limit

NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour

workday during a 40-hour workweek

US WEEL / TWA : 8-hr TWA

AICS - Australian Inventory of Chemical Substances; 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 Substances 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)

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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 : 10/16/2018

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

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.

US / Z8