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Version number 1

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**\* SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name: NEOFロン FEP ND-2R****1.2 Relevant identified uses of the substance or mixture and uses advised against:****Sector of Use SU8** Manufacture of bulk, large scale chemicals (including petroleum products)**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:

OSAKA UMEDA TWIN TOWERS SOUTH, 1-13-1 Umeda, Kita-ku, Osaka-shi, Osaka, 530-0001, Japan

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**Further information obtainable from:** <http://www.daikin.com/>**1.4 Emergency telephone number:**

Japan: +81-6-6349-7521

China: +86-532-8388-9090, +86-21-34151689

South Korea: +82-2-568-1722

Americas: CHEMTREC +1-800-424-9300 (Outside US/Canada: +1-703-527-3887)

Europe: +49-211-179 225-0

**\* SECTION 2: Hazard identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Flam. Liq. 3 H226 Flammable liquid and vapour.



Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Acute Tox. 4 H332 Harmful if inhaled.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008:**

The product is classified and labelled according to the CLP regulation.

**Signal word:** Danger**Hazard-determining components of labelling:**

Cyclohexanone

Ethylbenzene

Xylene

**Precautionary statements:**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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**Additional information:**

Product contains: Reportable explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 9.

**\* SECTION 3: Composition/information on ingredients****Information on ingredients:**

Fluoropolymer	20 – 30%
CAS: 9002-83-9 Polychlorotrifluoroethylene	10 – 20%
CAS: 108-94-1 Cyclohexanone	30-40%
Flam. Liq. 3, H226 Acute Tox. 4, H332	
Reaction mass of ethylbenzene and xylene	15-25%
Flam. Liq. 3, H226 STOT RE 2, H373; Asp. Tox. 1, H304 Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 ATE: LD50 dermal: 1100 mg/kg LC50/4h inhalative: 29 ppm	
Others	1-10%

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

**SECTION 4: First aid measures****4.1 Description of first aid measures**

**General information:** Seek medical treatment.

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:**

Remove contaminated clothes immediately.

Immediately wash with water and soap and rinse thoroughly.

Consult a doctor in case of complaints.

**After eye contact:**

Immediately rinse with a lot of water for several minutes. Remove contact lenses if possible. Continue rinsing.

Consult an ophthalmologist in case of complaints.

**After swallowing:**

Rinse mouth with water. Do not induce vomiting.

Consult a doctor in case of complaints.

**4.2 Most important symptoms and effects, both acute and chronic:** No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

**Suitable extinguishing agents:**

Foam

Fire-extinguishing powder

CO<sub>2</sub>

**For safety reasons unsuitable extinguishing agents:** Water with full jet

**5.2 Special hazards arising from the substance or mixture:**

Formation of toxic gases is possible during heating or in case of fire.

Receptacle may explode when heated.

Extremely flammable; can ignite easily with heat, sparks, fire.

**5.3 Advice for firefighters:** Remove receptacles from area of fire if possible.

**Protective equipment:**

Wear self-contained breathing apparatus and protective suit.

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*Do not inhale explosion gases or combustion gases.*

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures:**

*Ensure adequate ventilation before entering the area.*

*Stay on the windward side.*

*Keep out unauthorized persons.*

*Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection).*

*Avoid contact with eyes and skin.*

*Do not swallow the product.*

**6.2 Environmental precautions:** *Prevent seepage into sewage system, workpits and cellars.*

**6.3 Methods and material for containment and cleaning up:**

*Do not flush with water or aqueous cleansing agents*

*For a small amount of leakage: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders) or collect in an empty container that can be sealed tightly.*

*For a small amount of leakage: Use clean anti-static tools when absorbing the product.*

*For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.*

*Remove ignition sources immediately.*

*Ground all equipment when the product leaks.*

*There is a danger of explosion. Prepare fire extinguisher in case of emergency.*

**6.4 Reference to other sections:**

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

**SECTION 7: Handling and storage****7.1 Precautions for safe handling:**

*Ensure good ventilation/exhaustion at the workplace.*

*Handle with care. Avoid jolting, friction and impact.*

*Do not handle until all safety precautions have been read and understood.*

**Information about fire - and explosion protection:**

*Keep ignition sources away - Do not smoke.*

*Protect against electrostatic charges.*

*Use flame proof electric/lighting devices and ventilation equipment.*

*Ground/bond container and receiving equipment.*

**7.2 Conditions for safe storage, including any incompatibilities:****Storage****Requirements to be met by storerooms and receptacles:**

*Store in a cool and dry location.*

*Provide solvent resistant, sealed floor.*

*Prevent any seepage into the ground.*

*Use only receptacles specifically permitted for this substance/product.*

*Keep containers tightly sealed.*

**Information about storage in one common storage facility:**

*See section 10 for information on incompatible materials.*

**Further information about storage conditions:**

*Protect from heat and direct sunlight.*

*Store containers in a well ventilated area.*

*Store locked up.*

**7.3 Specific end use(s):** *No further relevant information available.*

**\* SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters** *No further information available.*

**Ingredients with limit values that require monitoring at the workplace:**

**CAS: 108-94-1 Cyclohexanone**

*IOELV (EU) Short-term value: 81.6 mg/m<sup>3</sup>, 20 ppm*

*Long-term value: 40.8 mg/m<sup>3</sup>, 10 ppm*

*Skin*

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Trade name: **NEOFLON FEP ND-2R****CAS: 1330-20-7 Xylene**IOELV (EU) Short-term value: 442 mg/m<sup>3</sup>, 100 ppmLong-term value: 221 mg/m<sup>3</sup>, 50 ppm

Skin

**Additional information:** The lists valid during the making were used as basis.**8.2 Exposure controls****Appropriate engineering controls** No further data; see item 7.**Individual protection measures, such as personal protective equipment****General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Do not eat or drink while working.

**Respiratory protection:** Use respiratory protective device with organic gas cartridge.**Hand protection**

Protective gloves

**Material of gloves:** Rubber**Eye/face protection**

Safety glasses

**Body protection:** Protective work clothing**\* SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information**

<b>Physical state</b>	Fluid
<b>Colour:</b>	Whitish
<b>Odour:</b>	Aromatic
<b>Odour threshold:</b>	Not determined.
<b>Melting point/freezing point:</b>	Undetermined.
<b>Boiling point or initial boiling point and boiling range</b>	No further information available.
<b>Flammability</b>	Not applicable.
<b>Lower and upper explosion limit</b>	
<b>Lower explosive limit:</b>	1.1 Vol % (Cyclohexanone)
<b>Upper explosive limit:</b>	9.4 Vol % (Cyclohexanone)
<b>Flash point:</b>	35 °C (SCC)
<b>Decomposition temperature:</b>	No further information available.
<b>pH</b>	Not determined.
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	Not determined.
<b>Dynamic:</b>	Not determined.
<b>Solubility</b>	
<b>water:</b>	No further information available.
<b>Partition coefficient n-octanol/water (log value)</b>	No further information available.
<b>Vapour pressure:</b>	No further information available.
<b>Density and/or relative density</b>	
<b>Density:</b>	Not determined.
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Particle characteristics</b>	Not applicable.

**9.2 Other information:****Form:** Liquid

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**Auto-ignition temperature:**

Product is not self-igniting.

**Explosive properties:**

Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

**Evaporation rate**

Not determined.

**Information with regard to physical hazard classes****Explosives**

Not applicable

**Flammable gases**

Not applicable

**Aerosols**

Not applicable

**Oxidising gases**

Not applicable

**Gases under pressure**

Not applicable

**Flammable liquids***Flammable liquid and vapour.***Flammable solids**

Not applicable

**Self-reactive substances and mixtures**

Not applicable

**Pyrophoric liquids**

Not applicable

**Pyrophoric solids**

Not applicable

**Self-heating substances and mixtures**

Not applicable

**Substances and mixtures, which emit flammable gases in contact with water**

Not applicable

**Oxidising liquids**

Not applicable

**Oxidising solids**

Not applicable

**Organic peroxides**

Not applicable

**Corrosive to metals**

Not applicable

**Desensitised explosives**

Not applicable

**SECTION 10: Stability and reactivity****10.1 Reactivity** No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.**10.3 Possibility of hazardous reactions:** No dangerous reactions known under normal conditions of use.**10.4 Conditions to avoid:** Keep away from heat, sparks, flame, high temperature.**10.5 Incompatible materials:** Oxidizing agents**10.6 Hazardous decomposition products:**

As for decomposition products, particulate matters and extremely toxic/corrosive fumes may be generated (HF, carbonyl fluoride, monomers, perfluoroisobutylene).

Decomposition products differ depending on the temperature and conditions.

**\* SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Harmful if inhaled.

**LD/LC50 values relevant for classification:****CAS: 108-94-1 Cyclohexanone**

Oral LD50 1535 mg/kg (Rat)

Dermal LD50 948 mg/kg (Rabbit)

Inhalative LC50/4h 8000 ppm (Rat)

**CAS: 1330-20-7 Xylene**

Oral LD50 4300 mg/kg (Rat)

Dermal LD50 2000 mg/kg (Rabbit)

**CAS: 100-41-4 Ethylbenzene**

Oral LD50 &gt; 3000 mg/kg (Rat)

Dermal LD50 &gt; 5000 mg/kg (Rabbit)

Inhalative LC50 17.8 mg/l (Rat)

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**Skin corrosion/irritation** No further information available.

**Serious eye damage/irritation** No further information available.

**after inhalation:** No further information available.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT-single exposure** Based on available data, the classification criteria are not met.

**STOT-repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Other information (about experimental toxicology):** No further information available.

**Subacute to chronic toxicity** No further information available.

**Additional toxicological information:**

Effects of hydrogen fluoride:

Low concentration of hydrogen fluoride may cause feeling of dyspnea, cough, irritation in eyes, nose, throat, fever, chill for 1-2 days.

After that, dyspnea, cyanosis and pulmonary edema may be seen.

High concentration of hydrogen fluoride damages liver and kidney.

Effects of carbonyl fluoride:

Skin: Irritation or eruption

Eye: Ulcer in cornea, conjunctiva

Respiratory system : Irritation

Lung: Temporary symptoms such as cough, pain, dyspnea

Persons who have experienced lung diseases are vulnerable to toxicity caused by excessive exposure to pyrolysis products

**11.2 Information on other hazards**

**Endocrine disrupting properties**

None of the ingredients is listed.

## \* SECTION 12: Ecological information

### 12.1 Toxicity

**Aquatic toxicity:**

**CAS: 100-41-4 Ethylbenzene**

LC50/96h 12.1 mg/l (Fish) (*Pimephales promelas*)

EC50/48h 1.8 – 2.4 mg/l (*Daphnia*) (*Daphnia magna*)

**12.2 Persistence and degradability:** No further relevant information available.

**12.3 Bioaccumulative potential:** No further relevant information available.

**12.4 Mobility in soil:** No further relevant information available.

**12.5 Results of PBT and vPvB assessment**

**PBT:** No further relevant information available.

**vPvB:** No further information available.

**12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.

**12.7 Other adverse effects:**

**Ecotoxicological effects:** no data

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Recommendation:** Disposal must be made according to official regulations.

**Uncleaned packaging**

**Recommendation:** Disposal must be made according to official regulations.

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**\* SECTION 14: Transport information****14.1 UN number or ID number****ADR, IMDG, IATA**

UN1263

**14.2 UN proper shipping name:****ADR, IATA**

PAINT

**14.3 Transport hazard class(es):****ADR****Class:**

3 (F1) Flammable liquids.

**Label:**

3

**IMDG, IATA****Class:**

3 Flammable liquids.

**Label:**

3

**14.4 Packing group:****ADR, IMDG, IATA**

III

**14.5 Environmental hazards:****Marine pollutant:**

No

**14.6 Special precautions for user:**

Warning: Flammable liquids.

**Hazard identification number (Kemler code):**

30

**EMS Number:**

F-E,S-E

**Stowage Category**

A

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

**Transport/Additional information:**

Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.

Take necessary measures for preventing cargo shift.

**ADR****Limited quantities (LQ):**

5L

**Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**Transport category:**

3

**Tunnel restriction code:**

D/E

**IMDG****Limited quantities (LQ)**

5L

**Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**UN "Model Regulation":**

UN 1263 PAINT, 3, III

**\* SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

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Trade name: **NEOFLON FEP ND-2R****Hazard pictograms**

GHS02 GHS07 GHS08

**Signal word** Danger**Hazard-determining components of labelling:**

Cyclohexanone

Ethylbenzene

Xylene

**Hazard statements**

H226 Flammable liquid and vapour.

H332 Harmful if inhaled.

H304 May be fatal if swallowed and enters airways.

**Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Seveso category** P5c FLAMMABLE LIQUIDS**National regulations** No further information available.**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**\* SECTION 16: Other information**

The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed application, consult us in advance.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:** EHS Department**Contact:** <http://www.daikin.com/>**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

**\* Data compared to the previous version altered.**