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Reviewed on 09/15/2016

* **Identification**

1.1 Product identifier

Trade name: NEOFLON FEP NP-20

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

DAIKIN AMERICA, INC.

20 Olympic Drive, Orangeburg, New York 10962

Phone: +1-800-365-9570

Information department: +81-6-6373-4349, +49-211-179 225 0, +1-845-365-9500

1.4 Emergency telephone number:

Japan: +81-6-6349-7521

China: +86-512-5-232-0949, +86-21-34151689

South Korea: +82-2-568-1722

Americas: +1-256-306-5000

Europe: +49-211-179 225-0

* **Hazard(s) identification**

Classification according to Regulation (EC) No 1272/2008

The substance is not classified according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC Not applicable.

Information concerning particular hazards for human and environment: Not applicable.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labeled according to the Globally Harmonized System (GHS).

Signal word Void

Hazard statements Void

NFPA ratings (scale 0 - 4)



Health = 1

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 1

Fire = 0

Reactivity = 0

2.3 Other hazards

The fluoropolymer contained in this product in its raw form is nearly inert. Processing above 205C, may cause hydrogen fluoride and other toxic fluorinated compounds. Inhalation of these compounds may result in serious lung irritation. Inhalation of vapors and fumes may cause flu-like symptoms (e.g., chills, fever, cough) that may not occur until several hours after exposure and typically pass within about 36 to 48 hours. Contact with molten material will cause burns.

Excessive airborne concentrations of the powder may cause reduced visibility.

* **Composition/information on ingredients**

Additional information:

Tetrafluoroethylene

Hexafluoropropylene Copolymer 25067-11-2 100%

* **First-aid measures**

4.1 Description of first aid measures

General information: Seek medical treatment.

After inhalation:

Leave the contaminated area and seek fresh air. If breathing is difficult, contact a physician.

In case of inhaling decomposed gases: supply fresh air and consult a doctor in case of complaints.

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Trade name: NEOFLON FEP NP-20**After skin contact:**

If you come in contact with molten material, do not attempt to remove it. Immediately flush affected area with cold water and cover with a clean dressing. Consult a physician to remove molten material.

Immediately wash with water and soap and rinse thoroughly.

After contact with the molten product, cool rapidly with cold water.

Do not pull solidified product away from the skin.

Consult a doctor in case of complaints.

After eye contact:

Flush with large amounts of water for 10 to 15 minutes. Consult a physician if needed.

Rinse opened eye for several minutes under running water.

Consult an ophthalmologist in case of complaints.

After swallowing: If symptoms persist consult doctor.

4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

*** Fire-fighting measures****5.1 Extinguishing media****Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire fighting measures that suit the environment.

For safety reasons unsuitable extinguishing agents: No further information available.

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters**Protective equipment:**

Use NIOSH/MSHA approved SCBA and bunker gear. Evolution of acidic gases may require complete wash down of protective clothing prior to removal.

Mouth respiratory protective device.

Do not inhale explosion gases or combustion gases.

Additional information

HAZARDOUS COMBUSTION PRODUCTS: In case of fire or if processing at high temperatures, toxic gases including hydrofluoric acid, perfluorisobutylene, and carbonyl fluoride may be formed.

FEP is a non-combustible dust.

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

Spilled material is a slipping hazard

Ensure adequate ventilation

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:

Do not allow to enter sewers/ surface or ground water.

Do not allow product to reach sewage system or any water course.

6.3 Methods and material for containment and cleaning up:

Collect spilled material in a container and seal.

Pick up mechanically.

6.4 Reference to other sections

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

*** Handling and storage****7.1 Precautions for safe handling**

Use product only for intended purposes

Close containers after each use

Wash hands after handling

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If smoking tobacco becomes contaminated by this material, exposure to toxic gases through inhalation can occur. Therefore, do not smoke in the work areas and wash hands and face after handling in order to avoid transfer of material onto tobacco.

Do not allow material to be exposed to excessive heat (e.g., from use of torch, welding, etc.).

Provide good room ventilation

Ensure good ventilation/exhaustion at the workplace.

Extractors are required on all machines used for thermal processing or splinter removal processes.

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

Information about protection against explosions and fires: Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Keep away from heat, steam, or sunlight

Store in tightly closed containers

Store in a cool location.

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 receptacle in a well ventilated area.

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

* **Exposure controls/personal protection**

Additional information about design of technical systems: No further data; see item 7.

8.1 Control parameters No further information available.

Components with limit values that require monitoring at the workplace:

Particulates, not otherwise regulated.

OSHA PEL: 15 mg/m³

ACGIH TLV: 10 mg/m³

NIOSH REL: 10 mg/m³

Additional information:

Excessive exposure to thermal degradation products could result in delayed pulmonary edema in some cases, and on very high exposure, damage to the liver and kidneys. These substances may include: perfluoroisobutylene (TLV = 10 ppb), carbonyl fluoride (TLV = 2 ppm TWA, 5 ppm STEL), hydrogen fluoride (TLV = 2 ppm Ceiling, 0.5 ppm TWA)

8.2 Exposure controls

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.

Keep away from tobacco products.

Breathing equipment:

Normally not necessary. If material is heated above 205C, use a respirator for acidic gases. Respirator for nuisance dusts is required if airborne levels exceed the established Occupational Exposure Limits.

Use local exhaust ventilation if material is heated above 205C or if molding or curing.

Dust respirator, simplified dust respirator

Protection of hands:

Appropriate gloves and clean room clothing. Thermal burn resistant gloves when handling extrudate.



Protective gloves

Material of gloves Rubber gloves

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Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Safety glasses with side shields or goggles
Eyewash station and safety shower



Safety glasses

Body protection:

Eyewash station and safety shower
Protective work clothing

* **Physical and chemical properties**

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Solid
Color:	Whitish
Odor:	Odorless
Odor threshold:	Not determined.
pH-value:	No further information available.
Melting point/Melting range:	245 °C (473 °F)
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Product is not flammable.
Decomposition temperature:	279 °C (534 °F) (1 ppb TGA)
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	No further information available.
Density at 20 °C (68 °F):	2.15 g/cm ³ (17.942 lbs/gal) Not determined.
Relative density at 25 °C (77 °F)	2.12 ~ 2.17
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water:	No further information available.
Partition coefficient (n-octanol/water):	No further information available.
Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
9.2 Other information	No further relevant information available.

* **Stability and reactivity**

10.1 Reactivity No further relevant information available.

10.2 Chemical stability Stable

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Trade name: **NEOFLON FEP NP-20****Thermal decomposition / conditions to be avoided:**

Decomposition or by-products and toxic by-products including hydrofluoric acid, perfluoroisobutylene, and carbonyl fluoride may be formed at very high temperatures.

To avoid thermal decomposition do not overheat.

10.3 Possibility of hazardous reactions**HAZARDOUS POLYMERIZATION:**

Should not occur

No dangerous reactions known under normal conditions of use.

10.4 Conditions to avoid

Heat, sparks and open flame - material will decompose

Keep away from heat, sparks, flame, high temperature.

10.5 Incompatible materials:

May react with metals such as sodium, magnesium, aluminum, at elevated temperatures above 425 °C; may react upon prolonged exposure to fluorine or in oxygen-fluorine mixtures at high temperature and pressures. Contact with incompatible materials may result in fire or explosion.

Metal powder (e.g. Al, Mg) and fluorine oxidizer. There is a danger of chemical reactions that could cause fire or explosion when the product is heated with them.

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.

*** Toxicological information****11.1 Information on toxicological effects****Acute toxicity:**

Ingestion: Harmful if swallowed. Small amounts (tablespoonfuls) during normal handling are not likely to cause injury. Larger amounts may cause injury.

Eye Contact: May cause eye irritation

Skin Contact: May cause slight irritation

Inhalation: When thermally decomposed, this material can cause polymer fume fever. Airborne concentrations of the powder in excess of Occupational Exposure Limits may cause irritation to the upper respiratory tract and may aggravate pre-existing respiratory conditions.

LD/LC50 values that are relevant for classification: No further information available.

on the skin:

No further information available.

No further information available.

on the eye:

No further information available.

No further information available.

Sensitization: Based on available data, the classification criteria are not met.

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

Subacute to chronic toxicity: No further information available.

Additional toxicological information:

General effects:

Fumes generated during burning may cause "polymer fume fever" (flu-like symptoms such as fever, chill, cough).

This may last for a whole day and night.

Fumes are not absorbed in skin. No sensitizing effect known.

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

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

Carcinogenic categories**IARC (International Agency for Research on Cancer)**

Substance is not listed.

NTP (National Toxicology Program)

Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

*** Ecological information****12.1 Toxicity**

ECOTOXICITY: No data. Expected to be low due to the near-zero water solubility of the polymer. Material is considered inert and not expected to be biodegradable or toxic.

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability The product is thought to be non-biodegradable.

Other information: The product is insoluble in water and the biodegradation and ecotoxicity is expected to be low.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Ecotoxicological effects: no data

12.5 Results of PBT and vPvB assessment

PBT: No further relevant information available.

vPvB: No further relevant information available.

12.6 Other adverse effects No further relevant information available.

*** Disposal considerations****13.1 Waste treatment methods**

Comply with Federal, State and Local regulations concerning health and environment when disposing of materials. Regulations may also apply to empty containers, liners, or rinsate. **DO NOT INCINERATE** unless incinerator is capable of scrubbing hydrogen fluoride and other acidic combustion products.

Recommendation:

Landfill disposal is recommended.

In case of incineration, the temperature must be higher than 800 °C.

Treat exhaust gas such as HF in a suitable way.

Disposal must be made according to official regulations.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

*** Transport information****14.1 UN-Number**

DOT, ADR, ADN, IMDG, IATA not regulated

14.2 UN proper shipping name

DOT, ADR, ADN, IMDG, IATA not regulated

14.3 Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA
Class not regulated

14.4 Packing group

DOT, ADR, IMDG, IATA not regulated

14.5 Environmental hazards:

Marine pollutant: No

14.6 Special precautions for user Not applicable.

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14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**Transport/Additional information:**

Not applicable.

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

Take necessary measures for preventing cargo shift.
not regulated**UN "Model Regulation":****Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

SARA**Section 355 (extremely hazardous substances):**

Substance is not listed.

Section 313 (Specific toxic chemical listings):

Substance is not listed.

Proposition 65**Chemicals known to cause cancer:**

Substance is not listed.

Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

Chemicals known to cause developmental toxicity:

Substance is not listed.

Carcinogenic categories**EPA (Environmental Protection Agency)**

Substance is not listed.

TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

MAK (German Maximum Workplace Concentration)

Substance is not listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

National regulations:**TSCA INVENTORY:**All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

No further information available.

Other regulations, limitations and prohibitive regulations**REACH SVHC:** This product does not contain intentionally added (meaning deliberate use in the formulation of a product or subpart where its continued presence is desired to provide a specific characteristic, appearance or quality) materials which are listed on the REACH Substances of Very High Concern (SVHC) list.**RoHS:** This product does not intentionally contain any of the referenced chemical substances in concentrations above the specific threshold levels.**Declaration of Allergens:** Based upon the information provided by Daikin America Inc.'s suppliers, none of the constituent parts used by Daikin America Inc. in the manufacture of this product were made with peanuts, tree nuts, fish, shell fish, eggs, milk, wheat or soy (or ingredients derived from these products).

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Animals or Animal Bi-products: Based on a comprehensive investigation, no animals or animal bi-products are used in the manufacturing process. Please note that we do not investigate the contents of peripherals and/or package accessories.

Human or Human Bi-products: Based on a comprehensive investigation, no human or human bi-products are used in the manufacturing process. Please note that we do not investigate the contents of peripherals and/or package accessories.

Absence of PFOA: This product does not contain intentionally added PFOA (perfluorooctanoic acid).

Other: State and local regulations may have specific requirements for this product or components of this product; consult specific state and local regulatory requirements for additional information.

California Proposition 65: This product does not contain intentionally added (meaning deliberate use in the formulation of a product or subpart where its continued presence is desired to provide a specific characteristic, appearance or quality) materials which are listed on the California Proposition 65 list.

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15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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: DAI Safety 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)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

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