Revision Date 29.11.2010

FOMBLIN® Y HVAC

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifiers

- Product name : **FOMBLIN® Y HVAC**
- Product grade(s) : VAC 18/8; VAC 25/9; VAC 40/11; VAC 140/13
- Chemical characterization : Perfluorinated polyethers
- Structural formula : CF3-O-(C3F6-O)n-(CF2-O)m-CF3

1.2. Identified uses / Uses advised against

- Identified uses :
  - Lubricant
  - Electronic industry
  - Electrical industry
  - Chemical industry
  - For industrial use only.

1.3. Manufacturer or supplier's details

- Company : SOLVAY SOLEXIS S.p.A.
- Address : VIALE LOMBARDIA, 20
  I- 20021 BOLLATE
- Telephone : +390238351
- Fax : +390238352614
- E-mail address : sds.solexis@solvay.com

1.4. Emergency telephone number

- **Emergency telephone number** **+44(0)1235 239 670 [CareChem 24] (Europe)**

2. HAZARDS IDENTIFICATION

2.1. GHS Classification

2.1.1. European regulation (EC) 1272/2008, as amended

Not classified as hazardous according to the European regulation (EC) 1272/2008, as amended

2.1.2. European Directive 67/548/EEC or 1999/45/EC, as amended

Not classified as hazardous according to European Directive 67/548/EEC or 1999/45/EC, as amended

2.2. EC Label - According to Regulation (EC) 1272/2008, as amended

No labelling

2.3. Other hazards which do not result in classification

- Thermal decomposition can lead to release of toxic and corrosive gases.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Concentration

Substance name:	Concentration
1-Propene, 1,1,2,3,3,3-hexafluoro-, oxidized, polymd. CAS-No.: 69991-67-9 / EC-No.: - / Index-No.: -	> 99.9 %

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures

4.1.1. If inhaled

- Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
- Oxygen or artificial respiration if needed.

4.1.2. In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If eye irritation persists, consult a specialist.

4.1.3. In case of skin contact

- Wash off with soap and water.
- If symptoms persist, call a physician.

4.1.4. If swallowed

- Drink 1 or 2 glasses of water.
- Do NOT induce vomiting.
- If symptoms persist, call a physician.

4.2. Most important symptoms/effects, acute and delayed

4.2.1. Inhalation

- No known effect.

4.2.2. Skin contact

- Redness

4.2.3. Eye contact

- Contact with eyes may cause irritation.
- Redness

4.2.4. Ingestion

- Ingestion may provoke the following symptoms:
- Symptoms: Nausea, Vomiting, Diarrhoea

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Suitable extinguishing media

- Water
- powder
- Foam
- Dry chemical
- Carbon dioxide (CO_2)

5.1.2. Unsuitable extinguishing media

- None.

5.2. Specific hazards arising from the chemical

- The product is not flammable.
- Not explosive
- In case of fire hazardous decomposition products may be produced such as: Gaseous hydrogen fluoride (HF), Fluorophosgene

5.3. Special protective actions for fire-fighters

- Wear self-contained breathing apparatus and protective suit.

- When intervention in close proximity wear acid resistant over suit.
- Evacuate personnel to safe areas.
- Approach from upwind.
- Protect intervention team with a water spray as they approach the fire.
- Keep containers and surroundings cool with water spray.
- Keep product and empty container away from heat and sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.

6.1.2. Advice for emergency responders

- Ensure adequate ventilation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.
- Refer to protective measures listed in sections 7 and 8.

6.2. Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.

6.3. Methods and materials for containment and cleaning up

- Soak up with inert absorbent material.
- Suitable material for picking up
- Dry sand
- Earth
- Shovel into suitable container for disposal.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

- No special handling advice required.
- Ensure adequate ventilation.
- Use personal protective equipment.
- Keep away from heat and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Take measures to prevent the build up of electrostatic charge.
- Clean and dry piping circuits and equipment before any operations.
- Ensure all equipment is electrically grounded before beginning transfer operations.

7.2. Conditions for storage, including incompatibilities

7.2.1. Storage

- No special storage conditions required.
- Keep away from heat and sources of ignition.
- Keep in properly labelled containers.
- Keep away from combustible material.
- Keep away from incompatible products
- Provide tight electrical equipment well protected against corrosion.
- Refer to protective measures listed in sections 7 and 8.

7.2.2. Packaging material

7.2.2.1. Suitable material

- Plastic material PP, PE, PVDF, PTFE, PFA.

7.3. Specific use(s)

- For further information, please contact: Supplier

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Exposure Limit Values

Remarks:

- Threshold limit values of by-products from thermal decomposition

Hydrogen fluoride anhydrous

- UK. EH40 Workplace Exposure Limits (WELs) 2007
  time weighted average = 1.8 ppm
  time weighted average = 1.5 mg/m3
  Remarks: as F
- UK. EH40 Workplace Exposure Limits (WELs) 2007
  Short term exposure limit = 3 ppm
  Short term exposure limit = 2.5 mg/m3
  Remarks: as F
- US. ACGIH Threshold Limit Values 2009
  time weighted average = 0.5 ppm
  Remarks: as F
- US. ACGIH Threshold Limit Values 2009
  Ceiling Limit Value = 2 ppm
  Remarks: as F
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 12 2009
  time weighted average = 1.8 ppm
  time weighted average = 1.5 mg/m3
  Remarks: Indicative
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 12 2009
  Short term exposure limit = 3 ppm
  Short term exposure limit = 2.5 mg/m3
  Remarks: Indicative
- US. ACGIH Threshold Limit Values 2009
  Remarks: as F, Can be absorbed through skin.

Carbonyl difluoride

- US. ACGIH Threshold Limit Values 2009
  time weighted average = 2 ppm
- US. ACGIH Threshold Limit Values 2009
  Short term exposure limit = 5 ppm
- UK. EH40 Workplace Exposure Limits (WELs) 2007
  time weighted average = 2.5 mg/m3
  Remarks: as F
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 12 2009
  time weighted average = 2.5 mg/m3
  Remarks: Indicative

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

8.2.2. Individual protection measures

8.2.2.1. Respiratory protection

- No personal respiratory protective equipment normally required.
- Use respirator when performing operations involving potential exposure to vapour of the product.
- Use only respiratory protection that conforms to international/ national standards.

8.2.2.2. Hand protection

- Rubber or plastic gloves
- Latex gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

8.2.2.3. Eye protection
- Tightly fitting safety goggles

8.2.2.4. Skin and body protection
- Lab coat
- Long sleeved clothing

8.2.2.5. Hygiene measures
- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

8.2.3. Environmental exposure controls
- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Physical and chemical properties

9.1.1. General Information

Appearance	liquid
Colour	colourless
Odour	odourless
Molecular Weight	Range of values: 2,500 - 6,500

9.1.2. Important health safety and environmental information

pH	No data
pKa	No data
Melting point/freezing point	not applicable
Boiling point/boiling range	> 270 °C
Flash point	The product is not flammable.
Evaporation rate	No data
Flammability (solid, gas)	No data
Flammability	The product is not flammable.
Explosive properties	Not explosive
Vapour pressure	< 0.0000001 hPa, at 20 °C
Vapour density	No data
Density	1.89 - 1.92 g/cm3
Relative density	No data
Bulk density	No data
Solubility(ies)	insoluble, Water soluble, fluorinated solvents
Solubility/qualitative	No data
Partition coefficient: n-octanol/water	No data
Autoignition temperature	No data
Decomposition temperature	> 290 °C
Viscosity	283.5 - 3,264 mPa.s
Oxidizing properties	Non oxidizer

10. STABILITY AND REACTIVITY

10.1. Reactivity

- No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

- Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

- To avoid thermal decomposition, do not overheat.
- Keep away from flames and sparks.

10.5. Materials to avoid

- Combustible material, Flammable materials, non-aqueous alkalis, Lewis acids (Friedel-Crafts) above 100°C, Aluminum and magnesium in powder form above 200°C, metals promote and lower decomposition temperature

10.6. Hazardous decomposition products

- Gaseous hydrogen fluoride (HF)., Fluorophosgene

11. TOXICOLOGICAL INFORMATION

11.1. Acute toxicity

11.1.1. Acute oral toxicity

- LD50, rat, > 15,000 mg/kg

11.1.2. Acute inhalation toxicity

- no data available

11.1.3. Acute dermal toxicity

- LD50, rat, > 5,000 mg/kg

11.2. Skin corrosion/irritation

- rabbit, No skin irritation
- rabbit, No skin irritation, 14 days

11.3. Serious eye damage/eye irritation

- rabbit, No eye irritation

11.4. Respiratory or skin sensitization

- guinea pig, Did not cause sensitization on laboratory animals., Skin

11.5. Mutagenicity

- Not mutagenic in Ames Test.
- negative , Chromosome aberration test in vitro

11.6. Carcinogenicity

- no data available

11.7. Toxicity for reproduction

- no data available

11.8. Specific target organ toxicity - single exposure

- Remarks: no data available

11.9. Specific target organ toxicity - repeated exposure

- Remarks: no data available

11.10. Aspiration hazard

- no data available

11.11. Other information

- Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.
- The product is biologically inert.
- Thermal decomposition can lead to release of toxic and corrosive gases.
- Exposure to decomposition products

- Causes severe irritation of eyes, skin and mucous membranes.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

- Fishes, Brachydanio rerio, LC50, 96 h, > 360 mg/l, 200 ppm, saturated aqueous solution
- Daphnia magna (Water flea), EC50, 48 h, > 360 mg/l, saturated aqueous solution

12.2. Persistence and degradability

12.2.1. Abiotic degradation

- Result: no data available

12.2.2. Biodegradation

- no data available

12.3. Bioaccumulative potential

- Result: no data available

12.4. Mobility

- no data available

12.5. Other adverse effects

- Ecological injuries are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

13.1. Waste disposal methods

- Can be incinerated, when in compliance with local regulations.
- The incinerator must be equipped with a system for the neutralisation or recovery of HF.
- In accordance with local and national regulations.

13.2. Contaminated packaging

- Empty containers can be landfilled, when in accordance with the local regulations.

14. TRANSPORT INFORMATION

14.1. International transport regulations

- Sea (IMO/IMDG)
- not regulated
- Air (ICAO/IATA)
- not regulated
- European Road/Rail (ADR/RID)
- not regulated
- Inland waterway transport
- not regulated

15. REGULATORY INFORMATION

15.1. Applicable Laws or Regulations

- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, as amended
- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended
- European Waste Catalogue
- Waste codes should be assigned by the user based on the application for which the product was used.

15.2. Notification status

Inventory Information	Status
Toxic Substance Control Act list (TSCA)	- In compliance with inventory
Australian Inventory of Chemical Substances (AICS)	- In compliance with inventory
Canadian Domestic Substances List (DSL)	- In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	- In compliance with inventory
Korean Existing Chemicals Inventory (KECI (KR))	- In compliance with inventory
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	- In compliance with inventory

Inventory Information	Status
New Zealand Inventory (in preparation) (NZ)	- In compliance with inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	- In compliance with inventory
EU list of existing chemical substances (EINECS)	- not applicable - Product falls under the EU-polymer definition.

16. OTHER INFORMATION

16.1. Other information

- New (MSDS)
- Distribute new edition to clients

This SDS is only intended for the indicated country to which it is applicable. The European SDS format compliant with the applicable European legislation is not intended for use nor distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request. The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

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