PVDF SOLEF® 11010/0001

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The United Kingdom (UK) has left the European Union (EU) officially on 31/01/2020, however the classification and labelling regime is still based on the existing EU regulatory regime during a transition period to provide continuity for businesses. Therefore this document is still aligned on EU standards to ensure the safe use of the substance. It will be updated as the UK publishes new classification and labelling regulation diverging from the legal framework currently applied.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name PVDF SOLEF® 11010/0001

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses of the Substance/Mixture

- For industrial use only

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY SPECIALTY POLYMERS ITALY S.p.A.
VIALE LOMBARDIA, 20
20021, BOLLATE
ITALIA
Tel: +39-02-290921

E-mail address

sds.solvay@solvay.com

1.4 Emergency telephone number

+44(0)1235 239 670 [CareChem 24]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (Regulation (EC) No 1272/2008)

- Not classified as hazardous product under the regulation above.

2.2 Label elements

Regulation (EC) No 1272/2008

- Not labelled as hazardous product under the above regulation.

2.3 Other hazards which do not result in classification

- If small particles are generated during further processing, handling or by other means, may form combustible concentrations in air.
- Thermal decomposition can lead to release of toxic and corrosive gases.

SECTION 3: Composition/information on ingredients

3.1 Substance

Information on Components and Impurities

Chemical name	Identification number	Concentration [%]
1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene	CAS-No. : 9011-17-0	> 99.9

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

In case of inhalation

- negligible

Exposure to decomposition products

- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Symptoms of poisoning may develop many hours after exposure.
- Keep under medical supervision for at least 48 hours.

In case of skin contact

Exposure to decomposition products

- Wash off with soap and water.
- Immediately apply calcium gluconate gel 2.5% and massage into the "affected area using rubber gloves; continue to massage while repeatedly" applying gel until 15 minutes after pain is relieved.
- Consult a physician.

In case of eye contact

- Rinse thoroughly with plenty of water, also under the eyelids.

In case of ingestion

- negligible

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects

- Mechanical irritation from the particulates generated by the product.
- The thermal decomposition vapours of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

Symptoms

Exposure to decomposition products

- Headache
- Shortness of breath
- Cough

In case of skin contact

Symptoms

Exposure to decomposition products

- Irritation
- Redness
- Burn

In case of eye contact

Effects

- Mechanical irritation from the particulates generated by the product.

Symptoms

Exposure to decomposition products

- Irritation
- Redness
- Burn

In case of ingestion

Effects

- Low ingestion hazard.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

- Water
- powder
- Foam
- Dry chemical
- Carbon dioxide (CO2)

Unsuitable extinguishing media

- None

5.2 Special hazards arising from the substance or mixture

- 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 Advice for firefighters

Special protective equipment for firefighters

- Wear self-contained breathing apparatus and protective suit.
- When intervention in close proximity wear acid resistant over suit.

Further information

- 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

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

Advice for emergency responders

- Ensure adequate ventilation.
- Avoid dust formation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.

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

- Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Ensure adequate ventilation.
- Avoid dust formation.
- 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.

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.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep in properly labelled containers.
- Keep away from heat and sources of ignition.
- 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.

- For additional information, consult the current edition of Guide for the Safe Handling of Fluoropolymers published by PlasticsEurope, Association of Plastics Manufacturers.

Packaging material

Suitable material
- Plastic materials.

7.3 Specific end use(s)

- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
Particles not otherwise specified (PNOS)	TWA	10 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Form of exposure : Inhalable particulate matter		
Particles not otherwise specified (PNOS)	TWA	3 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Form of exposure : Respirable particulate matter		

Threshold limit values of by-products from thermal decomposition:

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
hydrogen fluoride	TWA	1.8 ppm 1.5 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
	Expressed as :Fluorine		
hydrogen fluoride	STEL	3 ppm 2.5 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
	Expressed as :Fluorine		
hydrogen fluoride	TWA	1.8 ppm 1.5 mg/m3	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
hydrogen fluoride	STEL	3 ppm 2.5 mg/m3	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
hydrogen fluoride	TWA	0.5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Danger of cutaneous absorption Expressed as :Fluorine		
hydrogen fluoride	C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Danger of cutaneous absorption Expressed as :Fluorine		

carbonyl difluoride	TWA	2.5 mg/m3	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
	Expressed as :Fluorine		
carbonyl difluoride	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
carbonyl difluoride	STEL	5 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2 Exposure controls

Control measures

Engineering measures
- 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.

Individual protection measures

Respiratory protection
- In case of insufficient ventilation, wear suitable respiratory equipment.
- In case of dust clouds, dust mask type P2.
- Respiratory protection complying with EN 143.
- In case of decomposition (see section 10), use an air breathing apparatus with face mask.
- Self-contained open-circuit compressed air breathing apparatus (EN 137)
- Self-contained closed-circuit breathing apparatus compressed (EN 145)

Hand protection
- Protective gloves complying with EN 374.

Suitable material
- Nitrile rubber
- PVC
- Neoprene gloves
- butyl-rubber

- 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).

Eye protection
- Safety goggles
- Use eye protection according to EN 166.

Skin and body protection
- Wear work overall and safety shoes.

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.

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	pellets
Colour	white
Odour	odourless
Odour Threshold	Not applicable
Melting point/freezing point	Melting point/range: 155 - 165 °C
Initial boiling point and boiling range	Boiling point/boiling range: Not applicable
Flammability (solid, gas)	The product is not flammable.
Flammability (liquids)	No data available
Flammability/Explosive limit	No data available
Flash point	The product is not flammable.
Auto-ignition temperature	No data available
Decomposition temperature	> 290 °C
pH	Not applicable
Viscosity	Viscosity, dynamic : Not applicable
Solubility	Water solubility: insoluble Solubility in other solvents: Dimethylformamide: soluble Dimethyl sulphoxide: soluble N,N-dimethylacetamide: soluble
Partition coefficient: n-octanol/water	Not applicable
Vapour pressure	Not applicable
Density	1.7 - 1.8 g/cm3
Relative density	No data available
Relative vapor density	Not applicable
Particle characteristics	Particle size: > 2,000 µm
Evaporation rate (Butylacetate = 1)	Not applicable

9.2 Other information

Oxidizing properties	Not considered as oxidizing
Self-ignition	Not applicable
Impact sensitivity	Not explosive

SECTION 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

- Under certain conditions, small dust-particles from the product may form flammable and explosive mixtures with the air.

10.4 Conditions to avoid

- To avoid thermal decomposition, do not overheat.
- The decomposition is promoted at high temperature by silica (glass fibers, etc.), boron, and titanium dioxide.
- Keep away from flames and sparks.

10.5 Incompatible materials

- Alkali metals (molten form)
- Finely divided aluminium
- silver
- Powdered metals
- Strong bases
- Esters
- Ketones
- Silica, boron, and titanium dioxide at high temperature

10.6 Hazardous decomposition products

- Gaseous hydrogen fluoride (HF).
- Fluorophosgene
- Particulates of carbon
- Carbon oxides
- Other hazardous decomposition products may be formed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	No data available
Acute inhalation toxicity	No data available
Acute dermal toxicity	No data available
Acute toxicity (other routes of administration)	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitisation	No data available

Mutagenicity

Genotoxicity in vitro	No data available
Genotoxicity in vivo	No data available
Carcinogenicity	No data available

Toxicity for reproduction and development

Toxicity to reproduction/Fertility	No data available

Developmental Toxicity/Teratogenicity	No data available
STOT	
STOT - single exposure	No data available
STOT - repeated exposure	No data available
Experience with human exposure	No data available
Aspiration toxicity	No data available
Further information	Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components. Product dust may be irritating to eyes, skin and respiratory system. The thermal decomposition vapours of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco. The exposure to decomposition products causes severe irritation of eyes, skin and mucous membranes.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish	No data available
Acute toxicity to daphnia and other aquatic invertebrates	No data available
Toxicity to aquatic plants	No data available
Toxicity to microorganisms	No data available
Chronic toxicity to fish	No data available
Chronic toxicity to daphnia and other aquatic invertebrates	No data available

12.2 Persistence and degradability

Abiotic degradation	No data available
Physical- and photo-chemical elimination	No data available
Biodegradation	No data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water	No data available
Bioconcentration factor (BCF)	No data available

12.4 Mobility in soil

Adsorption potential (Koc)	No data available
Known distribution to environmental compartments	No data available

12.5 Results of PBT and vPvB assessment	No data available
12.6 Other adverse effects	No data available
Remarks	Ecological injuries are not known or expected under normal use.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

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

Advice on cleaning and disposal of packaging

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

SECTION 14: Transport information

ADN/ADNR
not regulated

ADR
not regulated

RID
not regulated

IMDG
not regulated

IATA
not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Other 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.

Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed as active on the TSCA inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory
Australia Inventory of Chemical Substances (AICS)	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Japan. ISHL - Inventory of Chemical Substances	- Listed on Inventory

Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
New Zealand. Inventory of Chemical Substances	- Listed on Inventory
Taiwan. Chemical Substance Inventory (TCSI)	- Listed on Inventory
EU. European Registration, Evaluation, Authorization and Restriction of Chemical (REACH)	- If product is purchased from Solvay in Europe it is in compliance with REACH, if not please contact the supplier.

15.2 Chemical safety assessment

- A Chemical Safety Assessment is not required for this substance.

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

- C: Ceiling limit
- STEL: Short term exposure limit
- TWA: 8-hour, time-weighted average
- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.
- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Instructions for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- GHS/CLP/SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- STOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.