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

1.1 Product identifier
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF), processed with thermoplastic technologies: injection moulding, extrusion.

1.2 Relevant identified use of substance/preparation and use which is advised against
None

Relevant identified uses
Fluoropolymer for the industrial use, e. g. for laboratory equipment.

1.3 Details of the supplier of safety data sheet
Address: BOHLENDER GmbH, Waltersberg 8, D-97947 Grünsfeld
Tel./ Fax.: +49 9346 9286-0 / +49 9346 9286-51
E-Mail: info@bohlender.de
Internet: www.bohlender.de /www.bola.de / www.sicco.de

1.4 Emergency Telephone Number: +49 30-19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Regulation (EC) No. 1272/2008

Classification:
According to CLP regulation (EC) No. 1272/2008 this product is not classified as hazardous substance/ hazardous preparation.

2.2 Label elements
Regulation (EC) No. 1272/2008
Not applicable.

Additional Information:
None.

Supplemental safety advice:
The vapours caused during processing can be hazardous if inhaled.
These vapours can cause irritations in eyes, nose, throat and lung.
Avoid contamination of tobacco products with the polymer resin.
Please read the current safety data sheet before use.

2.3 Other hazards
Product can cause burns in hot condition.

SECTION 3: Composition/information on ingredients

Substance Name	CAS no..	EC no.	Concentration	Classification
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF)	9011-17-0		100 % by weight	

See section 16 for the full text of the H-Statements used in this safety data sheet.
See paragraph 2.2 for additional information on the classification of components.

See sections 8 and 12 of this data sheet for information on exposure limits, the persistent, bioaccumulative and toxic substances (PBT) respectively very persistent and very bioaccumulative (vPvB) substances and characteristics.

SECTION 4: First aid measures

4.1 Description of First aid measures

Inhalation:
Move affected person to fresh air immediately. Get medical advice in case of discomfort.

Skin contact with hot PVDF:
Wash skin immediately with cold water for at least 15 minutes. DO NOT TRY TO REMOVE THE PRODUCT. Cover the injured area with clean bandages. Get immediately medical advice/attention.

Eye contact with hot PVDF:
Rinse eyes with cold water for at least 15 minutes. DO NOT TRY TO REMOVE THE MATERIAL. Get immediately medical advice/attention.

Ingestion:
Rinse mouth. Get medical advice in case of discomfort.

4.2 Most important symptoms and effects, both acute and delayed
See paragraph 11.1 Information on toxicological effects

4.3 Indication of any immediate medical attention and special treatment needed
Not applicable.

SECTION 5: Fire fighting measures

5.1 Extinguishing media
In case of fire: use extinguishing media for combustible materials e.g. water or foam.

5.2 Special hazards arising from the substance or mixture
Thermal decomposition can occur if the product is exposed to very high temperatures. Please observe section 10 „Hazardous decomposition products“.

5.3 Advice for fire-fighters
Please observe the following protective measures in case of heavy fire and a possible complete thermal decomposition of the product: wear full protective suit and helmet, use self-contained respirator (breathing apparatus with compressed air), wear tightly sealing jacket and trousers, use protectors for arms, waist and legs, wear a mask and protect your head.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Evacuate surrounding, ventilate room. Please see the following sections of this safety data sheet for information on physical and health risks, respiratory protection, exhaust ventilation and personal protective clothing.

6.2 Environmental precautions
Avoid release to the environment.

6.3 Methods and material for containment and cleaning up
Collect released material. Use wet thickeners or water to avoid dust formation. Use a UN-certified container. Wipe residues. Seal the container. Dispose the colleted material.

6.4 Reference to other sections
See sections 8 and 13 for additional information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid inhalation of thermal decomposition products.
Avoid skin contact with the heated material.
The product is only determined for a use as described in the product catalogue of Bohlender GmbH.
Keep work wear separated from normal cloths, food and tobaccos.
Do not inhale dust / smoke / gas / fog / vapour / aerosol.
Do not eat, drink or smoke when using PVDF.
Do not smoke during use! Smoking while using the product could contaminate tobaccos. The tobacco smoke could contain hazardous decomposition products as listed in paragraph 10.6.

7.2 Conditions for safe storage including any incompatibilities
Do not store near heat sources (>230 °C).

7.3 Specific end uses
See paragraphs 7.1 Precautions for safe handling and 7.2 Conditions for safe storage including any incompatibilities.
See section 8 Exposure controls/personal protection.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Exposure limits
There are no exposure limit values available for the substances listed in section 3.
Exposure limits of other countries are available in the safety data sheets of the respective countries.

Biological limit values
There are no biological limit values available for the substances listed in section 3.

8.2 Exposure controls

8.2.1 Appropriate engineering controls
If the product is heated (> 230 °C) during processing, sufficient ventilation has to be provided respectively a local exhaust ventilation should be used.
If the product is overheated extremely due to inadequate use or defective equipment, a local exhaust ventilation should be used. This exhaust should be suitable to keep decomposition products below permissible limits (see also section 10 “hazardous decomposition products”). Local exhaust ventilation is required for temperatures > 230 °C.

8.2.2 Personal protective equipment

Eye / Face protection
An occupational exposure assessment should be made to determine eye/face protection.

Skin protection
Avoid skin contact.

Hand protection and other protection measures
It is not necessary to wear chemically resistant protective gloves.

Respiratory protection
If products made of PVDF are used according to regulations, respiratory protection is not required. An occupational exposure assessment can be necessary if the product is heated to high temperatures during use. If temperatures > 230 °C are reached, preferably use local exhaust ventilation or at least work with sufficient ventilation. This exhaust should be suitable to keep decomposition products below permissible limits (see also section 10 “hazardous decomposition products”). In addition to the measures described, you can use a full view hood with fresh air supply to keep away possible toxic decomposition products from the breathing area. For applications like hot gas welding it is recommended to wear full protective mask and respirator for fresh air supply.

Thermal hazards
Wear heat-insulating gloves to avoid burns.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state / form:	Solid
Appearance / odour:	White, transparent, odourless
Odour threshold:	No data available
pH	Not applicable
Boiling point:	Not applicable
Melting point:	157-170 °C (ASTM D 4894)
Flammability (solid / gas):	Not classified
Explosive properties:	Not classified
Oxidizing properties:	Not classified
Flash point:	No flash point
Auto ignition temperature:	Not applicable
Lower explosion limit (LEL):	Not applicable
Upper explosion limit (UEL):	Not applicable
Relative density:	1,2-1,9 g/cm3 (at 23°C; reference water =1)
Water solubility:	Insignificant
Solubility – without water:	No data available
N-octanol-water partition coefficient:	No data available
Evaporation rate:	Not applicable
Vapour density:	Not applicable

Decomposition temperature:	>260 °C; see Safe Handling Guide PTFE, Plastics Europe
Viscosity:	Not applicable
Density:	1,2-1,9 g/cm³ (at 23°C)

9.2 Other information

Bulk weight:	Not applicable
Volatile organic components:	Not applicable
Volatile components (%):	Not applicable
VOC less water and excluded solvents	Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
This product is expected to be not reactive under standard conditions of use.

10.2. Chemical stability.
Stable.

10.3 Possibility of hazardous reactions
Not known.

10.4 Conditions to avoid
Not known.

10.5 Incompatible materials
Not known.

10.6 Hazardous decomposition products

Substance	Condition
Carbonyl fluoride	At increased temperatures- above 230 °C
Carbon monoxide	At increased temperatures- above 230 °C
Carbon dioxide	At increased temperatures- above 230 °C
Hydrogen fluoride	At increased temperatures- above 230 °C
Perfluorisobutylene (PFIB)	At increased temperatures- above 230 °C
Toxic vapours, gas or particles	At increased temperatures- above 230 °C

Toxic decomposition products, such as hydrofluoric acid (MAC-value: 3 ml/m³; 2 mg/m³, MAC and BEL-value list 1997, DFG) and Perfluorisobutylene (PFIB) (threshold limit: 0,01 ml/m³; internally specified by 3M), can be produced if the product is exposed to high temperatures due to intentionally wrong handling or faulty equipment.

SECTION 11: Toxicological information

The following information can deviate from the substance's classification as per section 2 and/or from the classification of individual ingredients as per section 3, which had been stipulated by the responsible European authorities. The information in section 11 are in particular based on the UN-GHS calculation rules.

11.1 Information on toxicological effects
Signs and symptoms after exposure.
Based on test data and/or information about the ingredients, this product can have following effects on health:

Inhalation:
Vapours from material which has been heated over 230 °C can irritate the breathing system. Signs/symptoms can include: cough, sneezing, nasal flow, hoarseness, gasping, difficulties in breathing, throat and nose pain and coughing of blood. Further irritation can affect the eyes like eye pain and lacrimation. PVDF can have following additional effects on health (see below):

Heating:
Information on polymer fume fever: a disease with influenza-like symptoms e.g. breathlessness, tremors, fever, cough, cyanosis. It is caused by the inhalation of decomposition products of fluoropolymers. Smoking of contaminated tobacco can cause exposure to decomposition products. Symptoms normally occur after 2 hours and fade within 36-48 hours. Continuing symptoms in respiratory tract have not been observed.

Skin contact:
Heating:
Skin burns (thermal, due to contact with hot material). Signs/symptoms can include: pain due to burns, red and swollen skin and vesication.
Mechanical skin irritation: Signs/symptoms can include: itching and redness.

Eye contact:
Heating:
Thermal burns. Signs/symptoms can include: strong pain, redness, swelling and tissue injury.
Mechanical eye irritation: signs/symptoms can include: irritation, redness, scratching of cornea and lacrimation. Vapours of heated material can cause eye irritation. Symptoms can include: redness, swelling, pain, lacrimation and blurred eye sight.

Ingestion:
There are not any known effects on health.

Information on the following relevant hazard classifications
If a product listed in section 3 does not occur in following charts there are either no data available or the available data are not sufficient for a classification.

Acute toxicity

Substance	Exposure route	Species:	Value
Vinylidene fluoride / Hexafluoro-propylene Copolymer (PVDF)	Ingestion		No data available, calculated ATE >5000 mg/kg
Vinylidene fluoride / Hexafluoro-propylene Copolymer (PVDF)	Dermal		LD 50 estimated >5000 mg/kg
Vinylidene fluoride / Hexafluoro-propylene Copolymer (PVDF)	Ingestion		LD 50 estimated >5000 mg/kg

ATE = estimated acute toxicity

Skin corrosion/irritation

Substance	Species	Value
Vinylidene fluoride / Hexafluoro-propylene Copolymer (PVDF)	Rabbit	No significant corrosion/irritation

Eye damage/irritation

Substance	Species	Value
Vinylidene fluoride / Hexafluoro-propylene Copolymer (PVDF)	Rabbit	Moderate irritation

Skin sensitisation
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Sensitisation to the respiratory tract
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Germ cell mutagenicity
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Carcinogenicity
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Reproductive toxicity

Effects on reproduction and/or development
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Specific target organ toxicity

Specific target organ toxicity / single exposure
For the product/the products there are either no data available or the available data are not sufficient for a classification.

Specific target organ toxicity / repeated exposure

Substance	Exposure route	Specific target organ toxicity	Value	Species	Result	Exposure duration
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF)	ingestion	Liver	The available data are not sufficient for classification.	Rat	NOAEL 10.000 mg/kg/day	2 weeks

Aspiration hazard
For the product/the products there are either no data available or the available data are not sufficient for a classification.

For additional toxicological information please contact address or telephone number mentioned on page 1.

SECTION 12: Ecological information

Following information can differ from the classification of the product in section 2 and/or from the classification of ingredients in section 3 which have been stipulated by the European authority. All information listed in section 12 are based on the UN-GHS calculation rules.

12.1 Toxicity
There are no test data available for the product.

Substance	CAS-no.	Organism	Test method	Exposure	Final point	Result
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF)	9011-17-0		No data available or the available data are not sufficient for a classification.			

12.2 Persistence and degradability

Substance	CAS-No.	Test method	Duration	Indicator	Result	Protocol
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF))	9011-17-0	No data available or the available data are not sufficient for a classification	Not applicable	Not applicable	Not applicable	Not applicable

12.3 Bioaccumulative potential

Substance	CAS-No.	Test method	Duration	Indicator	Result	Protocol
Vinylidene fluoride / Hexafluoropropylene Copolymer (PVDF))	9011-17-0	No data available or the available data are not sufficient for a classification	Not applicable	Not applicable	Not applicable	Not applicable

12.4 Mobility in soil
Please contact producer for further details.

12.5 Results of PBT and vPvB assessment
There are no data available at the moment. Please contact producer for further details.

12.6 Other adverse effects
No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
See paragraph 11.1 Information on toxicological effects.

Disposal (recycling or removal) in accordance with local and national rules. The combustion products contain hydrogen halide (hydrogen chloride/hydrogen fluoride/hydrogen bromide)

According to the European regulation (2000/532/EC), waste numbers have to be assigned from waste producers according to industry and process.

All stated waste codes are recommendations only.

Recommended waste codes /waste names:
070213 Plastic waste

SECTION 14: Transport information

ADR / IMDG / IATA: not restricted. No dangerous goods.

SECTION 15: Regulatory information

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

Status of worldwide chemicals register
The components of this material are in accordance with the Chinese “Measures on Environmental Management of New Chemical Substance”. Certain restrictions can be existent.
The components of this material are in accordance with the regulations of the Korea Chemical Control Act. Certain restrictions can be existent.
The ingredients of this product are in accordance with the Australian “National Industrial Chemical Notification and Assessment Scheme” (NICNAS). Certain restrictions can be existent.
The components of this material are in accordance with the Japanese “Chemical Substance Control Law”. Certain restrictions can be existent.
The ingredients of this product are in accordance with the Philippine RA 6969 requirements. Certain restrictions can be existent.
The ingredients of this product are in accordance with the registration of chemicals according to CEPA.
The ingredients of this product are in accordance with the registration of chemicals according to TSCA.

Water hazard class
nhw not hazardous to water KBwS-code number 766

Technical instruction air
Not stipulated.

15.2 Material safety evaluation
Not applicable.

SECTION 16: Other information

The information given in this safety data sheet is based on our present available experience and only describes the security appearance of the product. It is up to the user to check if the product is suitable for the respective application. All questions regarding warranty and liability for this product are regulated according to our sales conditions unless legal requirements are differing.

Change index

Revision	Date:	Reason for change:	Changed paragraphs:
00	11.07.2016	Initial creation	
01	12.07.2016	New emergency telephone no.	Section 1, 1.4

	Date / Name	For questions contact:	see 1.3
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