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

1.1 Product Identifier

Fluorinated elastomer (FKM), components of hot-hardened elastomers.

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

None.

Relevant identified uses

Fluoropolymer for the industrial use, e. g. for laboratory equipment.

1.3 Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Classification:

Serious eye damage/eye irritation, category 2 - Eye Irrit. 2; H319

Skin sensitisation, category 1A - Skin Sens. 1A; H317

Reproductive toxicity, category 1B - Repr. 1B; H360

Short-term (acute) aquatic hazard, category 1 - Aquatic Acute 1; H400

Long-term (chronic) aquatic hazard category 1 - Aquatic Chronic 1; H410

See section 16 for the full text of the H-Statements used in this safety data sheet.

2.2 Label elements

Regulation (EC) No. 1272/2008

Signal word: Danger, Attention

Coding / Symbol(s):

GHS07 (exclamation mark) GHS08 (health hazards)

Hazard pictogram(s)



Product identifier (contains):

Substance Name	CAS-No.	Concentration by weight
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, Reaction product with Benzene, chlorine and sulphur chloride (S ₂ Cl ₂)	921213-47-0	0-5 %
PHENOL,4,4'-[2,2,2-TRIFLUOR-1-(TRIFLUORMETHYL) ETHYLIDENE BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	126049-00-1	0-3 %
Tetrahydrothiophene-1,1-dioxide	126-33-0	0-1 %

Hazard Statements (H-Sentences):

H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H360D May damage the unborn child.

Precautionary statements (P-Sentences)**Prevention:**

P201 Obtain special instructions before use.
P280E Wear protective gloves.

Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

Additional Information:**Supplemental safety advice:**

Fire-fighting measures: Product itself does not burn without external flame.
Avoid contamination of tobacco products with the polymer.
Please read the current safety data sheet prior to use.
Heating fluoroelastomers to temperatures over 250 °C can cause vapours which are hazard if inhaled.
These vapours can cause irritations in eyes, nose, throat and lung.

10 % of the compound consists of one or more components of unknown acute dermal toxicity.
Contains 2 % of components with unknown aquatic toxicity.

References regarding classifications / labelling:

Regulation (EC) 1272/2008, Annex I, paragraph 1.3.4:

Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex, if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex.

2.3 Other hazards

Product can cause burns in hot condition.
Fumes evolved during harding can be hazard if inhaled.
These fumes can cause irritations of the eyes, throat and lung.

SECTION 3: Composition/information on ingredients

Substance Name	CAS-No.	EC No.	Concentration %	Classification
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	25190-89-0		0 - 99	
VDF/HFP Copolymer	9011-17-0		0 - 99	
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S ₂ Cl ₂)	921213-47-0	ELINCS 469-080-6	0 - 5	Eye Irrit. 2, H319; Skin Sens.1A, H317; Aquatic Acute 1, H400, M=10; Aquatic Chronic 1, H410, M=10 (self-rating)
Bis(4-chlorophenyl)sulfone	80-07-9	201-247-9	0 - 5	Aquatic Chronic 4, H413 (supplier) Eye Irrit2, H319 (self-rating)
4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene] bis[phenole]	1478-61-1	216-036-7	0 - 5	Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335; Aquatic Acute 1, H400, M=1; Aquatic Chronic 1, H410, M=1 (self-rating)
Silica acid, Calcium salt	1344-95-2	215-710-8	0 - 3	
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluor-1-(trifluor methyl)ethyliden] bis[phenol] (1:1)	75768-65-9	278-305-5	0 – 2,5	Acute Tox. 3, H301; Eye Dam. 1, H318 (self-rating)
PHENOL, 4,4'-[2,2,2-TRIFLUOR-1-(TRIFLUORMETHYL)ETHYLIDENE] BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	126049-00-1	ELINCS 468-740-0	0 - 3	Skin Sens. 1B, H317; Aquatic Chronic 2, H411 (self-rating)
Tetrahydrothiophene-1,1-dioxide	126-33-0	204-783-1	0 - 1	Acute Tox. 4, H302 (CLP) Repr. 1B, H360D (self-rating)

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 substances and characteristics.

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

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

Skin contact with hot FKM:

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 FKM:

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 section 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**

Product itself does not burn. Use appropriate agents to extinguish the fire in the vicinity.

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 equipment.

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 of the collected 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 fluoroelastomers.

Do not smoke during use! Smoking while using the product could contaminate tobaccos. The tobacco smoke could contain hazard decomposition products as listed in section 10.6.

7.2 Conditions for safe storage including any incompatibilities

Protect from sunlight. Keep away from sources of heat (>250°C). Do not store the product in the surrounding of food or pharmaceuticals.

7.3 Specific end uses

See section 7.1. Precautions for safe handling and 7.2. Conditions for safe storage including any incompatibilities.

See section 8 Exposure controls/personal protection.

Storage according to section 8 paragraph (1), (4) and (7) of ordinance on hazardous substances. Observe the requirements of TRGS 510 „Storage of hazardous substances in portable containers“.

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.

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 extremely overheated due to inadequate use or defective equipment, 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”). Provide for sufficient ventilation or local exhaust ventilation when product is heated. A high air exchange rate and/or local exhaust ventilation are necessary to ensure that the permissible exposure limits of airborne pollutants and/or dust, smoke, gas, fog, vapours and drizzle are respected. Use respiratory protection apparatus if ventilation is not sufficient. Local exhaust ventilation required for temperatures higher than 250 °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 fluoroelastomers (FKM) 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. If temperatures > 250 °C are reached, provide preferably local exhaust ventilation or at least 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.

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 to light yellowish, transparent, like rubber
Odour threshold:	No data available
pH	Not applicable
Boiling point:	Not applicable
Melting point:	Not applicable
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:	Approx. 1,8 g/cm ³ (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:	No data available
Viscosity:	Not applicable
Density:	Approx. 1,8 g/cm ³ (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 can be reactive with certain substances under certain conditions. Please observe the information in this section.

10.2. Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Not known.

10.4 Conditions to avoid

Not known.

10.5 Incompatible materials

Aluminium or magnesium, high shear forces and high temperatures.

10.6 Hazardous decomposition products**Substance**

Carbonyl fluoride
Carbon monoxide
Carbon dioxide
Hydrofluoric acid
Perfluorobutylene (PFIB)
Toxic vapours, gas or particulates

Condition

At increased temperatures
At increased temperatures
At increased temperatures
At increased temperatures
At increased temperatures
At increased temperatures

Toxic decomposition products, such as hydrofluoric acid (MAC-value: 3 ml/m³; 2 mg/m³, MAC and BEL-value list 1997, DFG) and Perfluorobutylene (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 250 °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. Fluoroelastomers 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:

Gastrointestinal irritations: symptoms can include: abdominal pain, upset stomach, sickness, vomiting and diarrhoea.

Information on the following relevant hazard classifications

If a product listed in section 3 does not occur in the 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
Fluoroelastomer FKM	Dermal		K No data available, calculated ATE > 5000 mg/kg
Fluoroelastomer FKM	Ingestion		No data available, calculated ATE 2.000 - 5.000 mg/kg
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	Dermal		LD50 estimated > 5.000 mg/kg
VDF/HFP Copolymer	Dermal		LD50 estimated > 5.000 mg/kg
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	Ingestion	rat	LD50 > 5.000 mg/kg
VDF/HFP Copolymer	Ingestion	rat	LD50 6.000 mg/kg
4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis[phenol]	Dermal		LD50 estimated: 2.000 - 5.000 mg/kg
4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis[phenol]	Ingestion	rat	LD50 3.400 mg/kg
Bis(4-chlorophenyl)sulfon	Ingestion	rat	LD50 4.810 mg/kg
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S ₂ Cl ₂)	Dermal	rat	LD50 > 2.000 mg/kg
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S ₂ Cl ₂)	Ingestion	rat	LD50 > 2.000 mg/kg
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluor-1-(trifluor methyl)ethyliden] bis[phenol] (1:1)	Dermal	rat	LD50 > 2.000 mg/kg
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluor-1-(trifluoromethyl)ethyliden] bis[phenol] (1:1)	Ingestion	rat	LD50 25 - 200 mg/kg
Silica acid, calcium salt	Dermal	rat	LD50 estimated > 5.000 mg/kg
Silica acid, calcium salt	Ingestion	rat	LD50 > 5.000 mg/kg
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-, TRIBUTYL (2-METHOXYPROPYL) PHOSPHONIUM	Dermal	rat	LD50 estimated 2.000- 5.000 mg/kg
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-, TRIBUTYL (2-METHOXYPROPYL) PHOSPHONIUM	Ingestion	rat	LD50 > 2.000 mg/kg
Tetrahydrothiophene-1,1-dioxide	Dermal	rabbit	LD50 4.897 mg/kg
Tetrahydrothiophene-1,1-dioxide	Inhalation dust/ vapours (4 h)	rat	LC50 > 12 mg/l
Tetrahydrothiophene-1,1-dioxide		rat	LD50 1.846 mg/kg

ATE = estimated acute toxicity

Skin corrosion/irritation

Substance	Species	Value
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	Evaluation by expert	No significant irritation
VDF/HFP Copolymer	Rabbit	No significant irritation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl) ethylidene]bis[phenol]	Guinea pig	Moderate irritation
Bis(4-chlorophenyl)sulfone	Rabbit	Minimum irritation
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction product with benzene, chloride and sulphuric chloride (S ₂ Cl ₂)	Rabbit	No significant irritation
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluor-1-(trifluor methyl)ethylidene] bis[phenol] (1:1)	Rabbit	No significant irritation
Silica acid, calcium salt	Rabbit	No significant irritation
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-, TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	Rabbit	Minimum irritation
Tetrahydrothiophen-1,1-dioxide	Rabbit	Minimum irritation

Eye damage/irritation

Substance	Species	Value
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	Evaluation by expert	No significant irritation
VDF/HFP Copolymer	Rabbit	Slightly irritant
4,4'-[2,2,2-trifluor-1-(trifluoromethyl) ethylidene] bis[phenol]	Evaluation by expert	Moderately irritant
Bis(4-chlorophenyl)sulfon	Rabbit	Strong eye irritation
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	Rabbit	Strong eye irritation
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoro methyl)ethylidene] bis[phenol] (1:1)	Rabbit	corrosive
Silica acid, calcium salt	Rabbit	Slightly irritant
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUORMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	Rabbit	Slightly irritant
Tetrahydrothiophen-1,1-dioxide	Rabbit	Moderately irritant

Skin sensitisation

Substance	Species	Value
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	Mouse	Sensitising
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoro methyl)ethylidene] bis[phenol] (1:1)	Guinea pig	Not Sensitising
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUORMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	Mouse	Sensitising
Tetrahydrothiophen-1,1-dioxide	Guinea pig	Not sensitising

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

Substance	Species	Value
4,4'-[2,2,2-trifluor-1-(trifluoromethyl) ethylidene] bis[phenol]	In vitro	The available data are not sufficient for a classification
Bis(4-chlorophenyl)sulfon	In vitro	The available data are not sufficient for a classification
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	In vitro	The available data are not sufficient for a classification
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoro methyl)ethylidene] bis[phenol] (1:1)	In vitro	Not mutagenic
PHENOL,4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUORMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PHOSPHONIUM	In vitro	Not mutagenic
Tetrahydrothiophen-1,1-dioxide	In vitro	Not mutagenic

Carcinogenicity

Substance	Exposure route	Species	Value
Bis(4chlorphenyl)sulfon	Ingestion	Several species	Not carcinogenic

Reproductive toxicity**Effects on reproduction and/or development**

Substance	Exposure route	Value	Species	Result	Exposure duration
4,4'-[2,2,2-trifluor-1-(trifluoromethyl) ethylidene] bis[phenol]	Ingestion	Some development data for male test animals are available but are not sufficient for classification.	Rat	NOAEL 600 mg/kg/day	10 days
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	Ingestion	Not toxic regarding reproduction and/or development	Rat	NOAEL 150 mg/kg/day	28 days
Tetrahydrothiophen-1,1-dioxide	Ingestion	Not toxic regarding male reproduction	Rat	NOAEL 700 mg/kg/day	14 days
Tetrahydrothiophen-1,1-dioxide	Ingestion	Some development data for female test animals are available but are not sufficient for classification.	Rat	NOAEL 200 mg/kg/day	Before copulation and during pregnancy.
Tetrahydrothiophen-1,1-dioxide	Ingestion	Developmental toxicity	Rat	NOAEL 60 mg/kg/day	Before copulation and during pregnancy.

Specific target organ toxicity**Specific target organ toxicity / single exposure**

Substance	Exposure route	Specific target organ toxicity	Value	Species	Result	Exposure duration
4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene] bis[phenol]	Inhalation	Irritation of respiratory tract	The available data are not sufficient for a classification.		NOAEL Not available.	

Specific target organ toxicity / repeated exposure

Substance	Exposure route	Specific target organ toxicity	Value	Species	Result	Exposure duration
VDF/HFP Copolymer	ingestion	Liver	The available data are not sufficient for classification.	Rat	NOAEL 10.000 mg/kg/day	2 weeks
Bis(4-chlorophenyl)sulfon	ingestion	Haematopoietic system Liver	The available data are not sufficient for classification.	Rat	NOAEL 200 mg/kg/day	14 weeks
Bis(4-chlorophenyl)sulfon	ingestion	Kidney and/or bladder	The available data are not sufficient for classification.	Rat	NOAEL 19 mg/kg/day	14 weeks
Bis(4-chlorophenyl)sulfon	ingestion	Nervous system	All data are negative.	Rat	NOAEL 200 mg/kg/day	14 weeks
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	ingestion	Endocrine system Liver kidney and/or bladder	The available data are not sufficient for classification.	Rat	NOAEL 150 mg/kg/day	28 days
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl) ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	ingestion	Hearing Heart bones, teeth, fingernails and/or hair bone marrow Haematopoietic system immune system Nervous system Respiratory organs Vascular-System	All data are negative.	Rat	NOAEL 150 mg/kg/day	28 days
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene] bis[phenol] (1:1)	ingestion	Endocrine system	The available data are not sufficient for classification.	Rat	NOAEL 20 mg/kg/day	28 days
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene] bis[phenol] (1:1)	ingestion	Heart Liver Central nervous system nervous system Respiratory organs Vascular-System	All data are negative.	Rat	NOAEL 20 mg/kg/day	28 days
Tetrahydrothiophen-1,1-dioxide	Inhalation	Nervous system	The available data are not sufficient for classification.	Several species	LOAEL 0,5 mg/l	27 days
Tetrahydrothiophen-1,1-dioxide	Inhalation	Respiratory organs	The available data are not sufficient for classification.	Several species	LOAEL 0,02 mg/l	90 days
Tetrahydrothiophen-1,1-dioxide	Inhalation	Liver	The available data are not sufficient for classification.	Ape	LOAEL 0,5 mg/l	27 days
Tetrahydrothiophen-1,1-dioxide	Inhalation	Blood	The available data are not sufficient for classification.	Guinea pig	LOAEL 0,16 mg/l	90 days
Tetrahydrothiophen-1,1-dioxide	Ingestion	Haematopoietic system	The available data are not sufficient for classification.	rat	NOAEL 700 mg/kg/day	28 days
Tetrahydrothiophen-1,1-dioxide	Ingestion	Kidney and/or bladder	The available data are not sufficient for classification.	rat	NOAEL 60 mg/kg/day	28 days

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

Toxic for water organisms, repeated exposure.

Aquatic tests with the mixtures had the following results:

Actual load for 48h EC50 *Daphnia magna* and 72h-EC50 *Pseudokirchneriella subcapitata* ranged between 1000 and 6000 mg / l.

The impact of the test medium under condition of a worst-case scenario on basis of the elastomer formula had been tested because:

- (1) extractable solids in highest concentrations are possible in the fluoroelastomer-formular,
- (2) only a small amount of extractable solids (<1%) can be dissolved from the elastomer and
- (3) there is only an impact on freshwater species if the tested load exceeds the regulatory value of 100 mg / l.

Substance	CAS-no.	Organism	Test method	Exposure	Final point	Result
VDF/HFP Copolymer	9011-17-0		No data available or the available data are not sufficient for a classification.			
1-Propene,1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	25190-89-0		No data available or the available data are not sufficient for a classification.			
4,4'-[2,2,2-trifluor-1-(trifluoromethyl) ethylidene] bis[phenol]	1478-61-1	Rainbow trout	experimental	96 h	LC(50)	<1 mg/l
4,4'-[2,2,2-trifluor-1-(trifluoromethyl) ethylidene] bis[phenol]	1478-61-1	Water flea (<i>Daphnie magna</i>)	experimental	48 h	EC(50)	3,2 mg/l
Bis(4-chlorphenyl)sulfon	80-07-9	Water flea (<i>Daphnie magna</i>)	experimental	21 h	Concentration without impact	0,32 mg/l
Silica acid, calcium salt	1344-95-2	Green alga	Estimation	72 h	EC(50)	>100 mg/l
Silica acid, calcium salt	1344-95-2	Zebra fish	Estimation	96 h	LC(50)	>100 mg/l
Benzyltriphenylphosphonium Salt with 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene] bis[phenol] (1:1)	75768-65-9		the available data are not sufficient for a classification.			
Tetrahydrothiophen-1,1-dioxide	126-33-0	Green alga	experimental	72 h	EC(50)	>1.000 mg/l
Tetrahydrothiophen-1,1-dioxide	126-33-0	Water flea (<i>Daphnie magna</i>)	experimental	48 h	EC(50)	40 mg/l
Tetrahydrothiophen-1,1-dioxide	126-33-0	Rice fish	experimental	96 h	LC(50)	>100 mg/l
Tetrahydrothiophen-1,1-dioxide	126-33-0	Water flea (<i>Daphnie magna</i>)	experimental	21 days	Concentration without impact	25 mg/l

Substance	CAS-no.	Organism	Test method	Exposure	Final point	Result
Tetrahydrothiophen-1,1-dioxide	126-33-0	Green alga	experimental	72 h	Concentration without impact	310 mg/l
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	921213-47-0	Green alga	Estimation	96 H	EC(50)	0,18 mg/l
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	921213-47-0	Zebra fish	Estimation	96 H	LC(50)	>1,5 mg/l
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	921213-47-0	Water flea (Daphnie magna)	Estimation	48 H	EC(50)	0,088 mg/l
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	921213-47-0	Green alga	Estimation	96 H	Concentration without impact	0,12 mg/l
PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PH OSPHONIUM	126049-00-1	Green alga	experimental	72 H	EC(50)	1,3 mg/l
PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PH OSPHONIUM	126049-00-1	Water flea (Daphnie magna)	experimental	48 H	EC(50)	4,1 mg/l
PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL)PH OSPHONIUM	126049-00-1	Green alga	experimental	72 H	Concentration without impact	0,23 mg/l

12.2 Persistence and degradability

Substance	CAS-no.	Method	Duration	Indicator	Result	Protocol
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis-, reaction product with Benzene, chloride and sulphuric chloride (S2Cl2)	921213-47-0	Estimation / Hydrolysis		hydrolytic half-live	>1 year (t 1/2)	Other test method
1-Propene, 1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluoroethene and Tetrafluoroethene	25190-89-0	No data available or the available data are not sufficient for classification	Not applicable	Not applicable	Not applicable	Not applicable
Benzyltriphenyl-phosphonium salt with 4,4'-[2,2,2-Trifluor-1-(trifluormethyl)ethyliden]bis[phenol] (1:1)	75768-65-9	No data available or the available data are not sufficient for classification	Not applicable	Not applicable	Not applicable	Not applicable

Substance	CAS-no.	Method	Duration	Indicator	Result	Protocol
VDF/HFP Copolymer	9011-17-0	No data available or the available data are not sufficient for classification	Not applicable.	Not applicable	Not applicable	Not applicable
Silica acid, calcium salt	1344-95-2	No data available or the available data are not sufficient for classification	Not applicable.	Not applicable	Not applicable	Not applicable
4,4'-[2,2,2-trifluor-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	Estimation Biological decomposition	28 days	Biochemical oxygen demand	0.67 (% concentration)	Other test method
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluoromethyl)ethylidene]bis-, Reaction product with Benzene, chloride and Sulphuric chloride (S ₂ Cl ₂)	921213-47-0	Estimation Biological decomposition	28 days	CO ₂ -Development test	<=14 (% concentration)	OECD 301B Modified storm test or CO ₂ development test
Tetrahydrothiophen-1,1-dioxide	126-33-0	experimental Biological decomposition	14 days	Biochemical oxygen demand	10.1 (% concentration)	OECD 301C - MITI (I)
Bis(4-chlorophenyl)sulfon	80-07-9	experimental Biological decomposition	28 days	Biochemical oxygen demand	0 (% concentration)	OECD 301C - MITI (I)
PHENOL, 4,4'-[2,2,2-TRIFLUOR-1-(TRIFLUORMETHYL)ETHYLIDENE]BIS-, ION(1-), TRIBUTYL (2-METHOXYPROPYL) PHOSPHONIUM	126049-00-1	experimental Biological decomposition	28 days	CO ₂ -Development test	8 (% concentration)	OECD 301B Modified storm test or CO ₂ development test

12.3 Bioaccumulative potential

Substance	CAS-No.	Method	Duration	Indicator	Result	Protocol
VDF/HFP Copolymer	9011-17-0	No data available or the available data are not sufficient for classification	Not applicable	Not applicable	Not applicable	Not applicable
1-Propene, 1,1,2,3,3,3-Hexafluor-, Polymer with 1,1-Difluorethene and Tetrafluorethene	25190-89-0	No data available or the available data are not sufficient for classification	Not applicable	Not applicable	Not applicable	Not applicable
Phenol, 4,4'-[2,2,2-trifluor-1-(trifluormethyl)ethylidene]bis, Reaction product with Benzene, chloride and Sulphuric chloride (S ₂ Cl ₂)	921213-47-0	No data available or the available data are not sufficient for classification	Not applicable.	Not applicable	Not applicable	Not applicable
Benzyltriphenyl phosphonium salt with 4,4'-[2,2,2-Trifluor-1-(trifluormethyl)ethyliden]bis[phenol] (1:1)	75768-65-9	No data available or the available data are not sufficient for classification	Not applicable.	Not applicable	Not applicable	Not applicable
Silica acid, calcium salt	1344-95-2	No data available or the available data are not sufficient for classification	Not applicable.	Not applicable	Not applicable	Not applicable

Substance	CAS-No.	Method	Duration	Indicator	Result	Protocol
PHENOL,4,4'-[2,2,2-TRIFLUOR-1-(TRIFLUORMETHYL)ETHYLIDENE]BIS-,ION(1-),TRIBUTYL (2-METHOXYPROPYL) PHOSPHONIUM	126049-00-1	Estimation bioconcentration		Bio-accumulation-factor	115	Other test method
4,4'-[2,2,2-trifluor-1-(trifluoromethyl)ethylidene] bis[phenol]	1478-61-1	Estimation BCF - Fathead Mi		Bio-accumulation-factor	11,5	Other test method
Tetrahydrothiophen-1,1-dioxide	126-33-0	experimental BCF-Carp	42 days	Bio-accumulation-factor	0,8	Other test method
Bis(4-chlorophenyl)sulfon	80-07-9	experimental BCF-Carp	35 days	Bio-accumulation-factor	82	OECD 305E- Bioaccum FI-thru fi

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 for the disposal of the non-processed material. (Hazard waste is marked with an asterisk (*))

Recommended waste codes / waste names

070214*

Waste of additives containing hazard substances.

SECTION 14: Transport information

ADR: IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, REACTION PRODUCTS WITH BENZENE, CHLORINE AND SULFUR CHLORIDE), 9., III, fish and tree marking may be required (> 5kg/l).

IATA: ADR: UN3077, Substance hazardous to the environment, sold, n.a.g., (Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction product with benzol, chloride and sulphuric chloride), 9., III, (E), hazardous to the environment, classification code: M7.

IMDG: IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, REACTION PRODUCTS WITH BENZENE, CHLORINE AND SULFUR CHLORIDE), 9., III, IMDG-Code segregation code: NONE, Marine Pollutant, (PHENOL, 4,4'-[2,2,2-TRIFLUORO-1-(TRIFLUOROMETHYL)ETHYLIDENE]BIS-, REACTION PRODUCTS WITH BENZENE, CHLORINE AND SULFUR CHLORIDE), EMS: FA,SF.

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

The ingredients of this product are in accordance with the regulations of TSCA for the registration of chemicals.

National regulations

Observe the regulations of TRGS 401 'skin contact hazard' and TRGS 406 'sensitizing substances for the respiratory tract'.

Observe the employment restriction according to article 22 of German child labour law „Jugendarbeitsschutzgesetz JArbSchG of 31.10.2008.

Observe the employment restrictions according to articles 4 and 5 of the German regulation on the protection of mothers at job. (MuSchArbV; of 31.10.2006).

Water hazard class

WHC 1

moderately hazardous to water

self assessment

Technical instruction air

not stipulated.

15.2 Material safety evaluation

Not applicable

SECTION 16: Other information**Relevant H-phrases**

H301	Toxic if swallowed.
H302	Harmful if swallowed
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

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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