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

1.1 Product identifier

Polytetrafluoroethylene (PTFE), sintered, with parts of carbon

Note: The carbon used is electrographitised carbon (so-called "soft carbon"). Its official identification is often also "graphite".

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

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Tel./ Fax.: +49 9346 9286-0 / +49 9346 9286-51

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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 mixture.

2.2 Label elements

Regulation (EC) No. 1272/2008

Not applicable.

Additional Information:

None

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 material safety data sheet before use.

Heating PTFE to temperatures over 400°C can cause hazardous vapours.

These vapours can cause irritations in eyes, nose, throat and lung.

2.3 Other hazards

Product can cause burns in hot condition.
Heating PTFE to temperatures over 400°C can cause hazardous vapours.
These vapours can cause irritations in eyes, nose, throat and lung.

SECTION 3: Composition/information on ingredients

Substance Name	CAS no.	EC no.	Concentration	Classification
Polytetrafluorethylene	9002-84-0		70-90 % by weight	
Graphite	7782-42-5	EINECS 231-955-3	0-40 % 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 PTFE:

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 PTFE:

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 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 PTFE.

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 (>400°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**

If a component which is listed in section 3 does not occur in the following chart, there is no limit available for this component.

Substance Name	CAS no.	Source	Threshold value	Additional information
Graphite	7782-42-5	MAC as per DFG	MAC: 4mg/m ³ (E); 1,5mg/m ³ (A)	Pregnancy Group C
Graphite	7782-42-5	TRGS 900	OEL: 10 mg/m ³ (E-dust); 3mg/m ³ (A-dust); 1,25mg/m ³ (A); ÜF 2 (E-dust)	Category II

MAC acc. to DFG: "List of MAC and BAT values" of DFG (German Research Foundation)

E= measured as inhalable fraction

A= measured as respirable fraction

ÜF= factor of exceeding

Categories for peak limit:

Category I: substances having a local effect which is determining the limits or substances which are sensitizing the respiratory system

Category II: substances with resorptive effects

TRGS 900: TRGS 900 "occupational exposure limits"

E/A/ÜF Categories for short-time values: see above

MW: momentary value

Note Y: A teratogenic risk is not given if the occupational exposure limits and the biological limits are kept

Note Z: A teratogenic risk cannot be excluded even if occupational exposure limits and the biological limits are kept

MAC= maximum workplace concentration

OEL=occupational exposure limit

STEL=short-term exposure limit

CEIL=maximum limit which must not be exceeded

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 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").

Provide adequate ventilation / exhaust if product is heated.

A high air exchange rate and/or a 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.

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 PTFE with carbon parts 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 > 400°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:	black, odourless
Odour threshold:	No data available
pH	Not applicable
Boiling point:	Not applicable
Melting point:	320 -345 °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:	1,8-2,2 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:	>400°C; see Safe Handling Guide PTFE, Plastics Europe
Viscosity:	Not applicable
Density:	1,8-2,2 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

Alkaline metals and alkaline earth metals

High-energy radiation.

Reactions with metal powders are possible at temperatures above 370°C.

10.6 Hazardous decomposition products**Substance**Carbonyl fluoride
Carbon monoxide
Carbon dioxide
Hydrogen fluoride
Perfluorobutylene (PFIB)
Toxic vapours, gas or particles**Condition**At increased temperatures- above 380 °C
At increased temperatures- above 380 °C
At increased temperatures- above 380 °C
At increased temperatures- above 380 °C
At increased temperatures- above 380 °C
At increased temperatures- above 380 °C

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 400°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. PTFE with carbon parts 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:

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
PTFE	Ingestion		No data available, calculated ATE > 5000 mg/kg
PTFE	Dermal		LD 50 estimated >5000 mg/kg
PTFE	Ingestion		LD 50 estimated >5000 mg/kg
Graphite	Ingestion	Rat	LD 50 estimated >2000 mg/kg

ATE = estimated acute toxicity

Skin corrosion/irritation

Substance	Species	Value
PTFE	Humans and animals	No significant corrosion/irritation
Graphite	Rabbit	No significant corrosion/irritation

Eye damage/irritation

Substance	Species	Value
PTFE	Evaluation by expert	No significant irritation
Graphite	Rabbit	No significant irritation

Skin sensitisation

Substance	Species	Value
PTFE	Human	Not sensitizing

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	Exposure route	Value
Graphite	In vitro	The available data are not sufficient for a classification

Carcinogenicity

Substance	Exposure route	Species:	Value
PTFE	No data available	Several species	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
PTFE	Ingestion	Haematopoietic system	The available data are not sufficient for a classification.	Rat	NOAEL not available	90 days
Graphite	Inhalation	Pneumoconiosis	The available data are not sufficient for a classification	Human	NOAEL not available	Work-related exposition

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
Graphite	7782-42-5		No data available or the available data are not sufficient for a classification.			
PTFE	9002-84-0		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
PTFE	9002-84-0	No data available or the available data are not sufficient for a classification	Not applicable	Not applicable	Not applicable	Not applicable
Graphite	7782-42-5	No data available/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
PTFE	9002-84-0	No data available or the available data are not sufficient for a classification	Not applicable	Not applicable	Not applicable	Not applicable
Graphite	7782-42-5	No data available/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 halides (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****Carcinogenicity**

Chemical Name	CAS-No.	Classification	Regulation
Polytetrafluoroethylene (PTFE)	9002-84-0	IARC Group 3: not classifiable as to its carcinogenicity to humans	International Agency for Research on Cancer (IARC)

Status of worldwide chemicals register

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

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01	12.07.2016	New emergency telephone no.	Section 1, 1.4

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