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Material Safety Data Sheet

TO: Graham Corporation FROM: BETE FOG NOZZLE, INC PO#: B180322 BETE SO#: 386509-1 OTHER REF: 1820795	BETE PART: 1 1/2NCM1526K-15@3 MATERIAL: Teflon QUANTITY: 1 PROJECT: Job #15645 - 0020 CUST REF#:
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We hereby certify that the material accompanying this certificate is supplied in accordance with our ISO 9001:2008 Registered Quality Management System. The attached Material Safety Data Sheets (MSDS) are typical of the supplied material(s).

CERTIFIED BY:

DATE: February 28, 2018

NOZZLES FOR INDUSTRY, POLLUTION CONTROL, AND FIRE PROTECTION

Visit our website: www.bete.com

FORM# M6-1-4

105/2016



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Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name PTFE G400
Chemical name and synonym Poly(tetrafluoroethylene)

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

Intended use SEMI-FINISHED AND FINISHED PRODUCTS IN PTFE G400

1.3. Details of the supplier of the safety data sheet

Name GUARNIFLON SpA
Full address Via Torquato Tasso, 12
District and Country 24060 Castelli Calepio (Bg)
Italy
Tel. +39 035 4494311
Fax +39 035 4425191
e-mail address of the competent person
responsible for the Safety Data Sheet info@guarniflon.it

1.4. Emergency telephone number

For urgent inquiries refer to Centro Antiveleni Ospedale Niguarda (MI) +39 02 66101029

2. Hazards identification.

This product is not dangerous under 67/584/EEC and 1999/45/EC directives and subsequent amendments.
Vapor decomposition of fluorinated products can cause febrile symptoms similar to a flu (Polymer Fumes Fever), especially if you smoke tobacco contaminated.

2.1. Classification of the substance or mixture.

The product is not classified as hazardous pursuant to the provisions set forth in Directives 67/548/EEC and 1999/45/EC and/or EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements).

2.2. Label elements.

Labelling unnecessary in accordance with Regulation (CE) 1272/2008 - Annex I - 1.3.4.

Pictograms: --

Warning: --

Hazard indication: --

Caution recommendations: --

This product is not subject to hazard labeling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

2.3. Other hazards.

Information not available.

3. Composition/information on ingredients.

3.1. Substances.

The product does not contain substances classified as being hazardous to human health or the environment pursuant to the provisions set forth in Directives 67/548/EEC and/or EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements).



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3.2. Mixtures.

Information not relevant.

4. First aid measures.

GENERAL ADVICE: Remove from exposure, lie down. Never give anything by mouth to an unconscious person. No hazards which require special first aid measures. Remove the contaminated or soaked clothes. Wash the contaminated clothes before wearing them again.

4.1. Description of first aid measures.

EYES: Rinse thoroughly with plenty of water, also under the eyelids. Consult a physician.

SKIN: Wash immediately with plenty of water for at least ten minutes. Cool skin rapidly with cold water after contact with molten material. Do not peel polymer from the skin, consult a physician.

INHALATION: Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. Consult a physician after significant exposure.

INGESTION: No hazards which require special first aid measures. Drink plenty of water as a precaution.

4.2. Most important symptoms and effects, both acute and delayed.

SYMPTOMS AFTER EXPOSURE TO PRODUCTS OF THERMAL DECOMPOSITION

EYES: redness, irritation, ulceration

SKIN: redness, irritation, ulceration

INHALATION: headache, shortness of breath, cough, chills and fever (Polymer fume fever), tachycardia.

INGESTION: No hazard which require special first aid measures. Drink plenty of water as a precaution.

4.3. Indication of any immediate medical attention and special treatment needed.

Information not available.

5. Firefighting measures.

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING MEDIA

The extinction equipment should be of the conventional kind: carbon dioxide, foam, powder and nebulised water.

EXTINGUISHING MEDIA WHICH SHALL NOT BE USED FOR SAFETY REASONS

None in particular.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products (carbon oxide, toxic pyrolysis products, etc). Fluoropolymer may increase the relative toxicity of the combustion gases.

5.3. Advice for firefighters.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Hardhat with visor, fireproof clothing (fireproof jacket and trousers with straps around arms, legs and waist), work gloves (fireproof, cut proof and dielectric), a depressurised mask with facemask covering the whole of the operator's face or a self-respirator (self-protector) in the event of large quantities of foam.

6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

PERSONAL PRECAUTIONS

Use breathing equipment if fumes due to thermal decomposition or powders are released into the air. Ventilate the room.

6.2. Environmental precautions.

No special environmental precautions required.

6.3. Methods and material for containment and cleaning up.

Collect most of the material with a broom or half aspirant. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Contaminated material should be disposed of in compliance with the provisions set forth in point 13.



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7. Handling and storage.

7.1. Precautions for safe handling.

Wear appropriate personal protective equipment (see section 8); avoid working conditions involving temperatures above the decomposition temperature ($>350^{\circ}\text{C}$); clean lines and equipment before attempting to combustion or welding; provide a suitable suction at the places where dust and airborne particles may be issued; avoid contact with tobacco products, avoid contact with open flames and heat sources to avoid product decomposition and subsequent formation of irritating and toxic products.

7.2. Conditions for safe storage, including any incompatibilities.

Store in a dry and well ventilated place; keep the container closed (polyethylen bags with cardboard boxes - wooden boxes) when not in use.

7.3. Specific end use(s).

Information not available.

8. Exposure controls/personal protection.

8.1. Control parameters.

Information not available.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protection equipment, make sure that the workplace is well aired through effective local aspiration or bad air vent.

HAND PROTECTION

Protect hands using work gloves (see standard EN 374). We recommend applying protective hand cream. The following should be considered when choosing work glove material: degradation, breakage times and permeation. Work glove resistance to preparations should be checked before use, as it can be unpredictable. Gloves' limit depends on the duration of exposure.

SKIN PROTECTION

Wear overalls with long sleeves and professional safety footwear (see standard EN 344). Wash with soap and water after removing protective clothing. Wash clothing before reuse.

RESPIRATORY PROTECTION

If workplace maximum concentration thresholds are exceeded, wear a facemask covering the nose and mouth (see standard EN 141). For high concentrations in the workplace or in the case of an emergency, when exposure levels are unknown, wear an open circuit compressed air self-respirator (see standard EN 137) or an external air intake respirator with mask, partial mask or snorkel (see standard EN 138).

EYE PROTECTION

Wear sealed protective goggles with side shields (see standard EN 166).

9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	Solid (Films - skived tapes - sheets - tubes - finished products)
Colour	white
Odour	odourless
Odour threshold.	Not available.
pH.	Not available.
Melting or freezing point.	Not available.
Boiling point.	Not available.
Distillation range.	Not available.
Flash point.	Not available.
Evaporation Rate	Not available.
Flammability of solids and gases	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Specific gravity.	2,14 - 2,18 Kg/l
Solubility	insoluble
Partition coefficient: n-octanol/water	Not available.
Ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Reactive Properties	Not available.



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9.2. Other information.

Decomposition temperature > 350°C
Melting range 327 - 335°C

10. Stability and reactivity.

10.1. Reactivity.

The product is an inert material.

10.2. Chemical stability.

The product is stable under normal conditions of use and storage.

10.3. Possibility of hazardous reactions.

Information not available.

10.4. Conditions to avoid.

Avoid overheating the product. Potentially toxic vapours are produced after thermal decomposition at temperatures above 350°C.

10.5. Incompatible materials.

Metal powder, finely divided aluminum, strong oxidizing agents like fluorine (F₂) and related compound.

10.6. Hazardous decomposition products.

Hydrofluoric acid, carbonyl fluoride, tetrafluoroethylene, hexafluoroethylene, perfluoroisobutylene.

11. Toxicological information.

According to currently available data, this product has not yet produced health damages. Anyway, it must be handled according to good industrial practices.

11.1. Information on toxicological effects.

ACUTE TOXICITY: No data available

CORROSION/IRRITATION: may cause irritation in contact with skin or eyes by mechanical effects; the decomposition products may cause burns to skin, eyes and mucous membranes.

SENSITIZATION: No data available

GERM CELL MUTAGENICITY: No data available

CARCINOGENICITY: IARC assessment - none of the components of this product present at levels greater than or equal to 0,1% is identified as a carcinogen.

REPRODUCTION TOXICITY: No data available

TARGET ORGAN SPECIFIC TOXICITY: No data available

EXPERIMENTAL DATA

LC50 - inhalation - rat: 3500 mg/m³ (30 min.) - products of pyrolysis at 625°C

LC50 - inhalation - rat: 2700 mg/m³ (5 min.) - products of pyrolysis at 800°C

ADDITION INFORMATION: RTECS number - KX4025000.

Information not available.

12. Ecological information.

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

12.1. Toxicity.

No data available.

12.2. Persistence and degradability.

No data available.

12.3. Bioaccumulative potential.

No data available.



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12.4. Mobility in soil.

No data available.

12.5. Results of PBT and vPvB assessment.

No data available.

12.6. Other adverse effects.

No data available.

13. Disposal considerations.

13.1. Waste treatment methods.

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information.

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

15. Regulatory information.

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

Seveso category.

None.

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

None.

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorisation (Annex XIV REACH).

None.

Healthcare controls.

Information not available.

15.2. Chemical safety assessment.

No chemical safety assessment has been processed for the mixture and the substances it contains.

16. Other information.

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
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8. Handling Chemical Safety
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10. INRS - Fiche Toxicologique (toxicological sheet)
11. Patty - Industrial Hygiene and Toxicology
12. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition



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Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product .

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Changes to previous review:

The following sections were modified:

01 / 08.