

## **Fillers Used by AGC Chemicals Americas, Inc.**

### *Effect in Fluon<sup>®</sup> Filled PTFE Compounds*

#### **FILLED PTFE COMPOUND FILLERS**

##### **Glass Fiber**

##### **Molybdenum Disulfide**

##### **Graphite Powder**

##### **Carbon Powder & Fiber**

##### **Bronze Powder**

##### **Mineral**

##### **EkonoI<sup>®</sup> or Polyester**

##### **Polyphenylene Sulfide (PPS)**

##### **Polyimide**

##### **Advanced Wear Compounds**

#### **GLASS-FILLED COMPOUNDS**

- Good wear resistance
- Low creep
- Good compressive strength
- Little effect on the chemical and electrical properties of PTFE
- Abrasive to mating surfaces, especially in rotary applications – can be overcome with addition of graphite and molybdenum disulfide

#### **MOLY-FILLED COMPOUNDS**

- Improved wear resistance
- Greatly reduced torque on start-up
- Lowered coefficient of friction
- Typically combined with other fillers such as glass fiber and bronze

#### **GRAPHITE-FILLED COMPOUNDS**

- Excellent lubricity and decreased wear
- Typically combined with carbon and glass to help lower coefficient of friction
- Good wear resistance against soft metals

#### **CARBON-FILLED COMPOUNDS**

- Excellent compression strength (DUL)
- Excellent wear resistance
- Less abrasive than glass-filled but more abrasive than polymer-filled compounds
- Good heat dissipation
- Low permeability
- Often combined with graphite for excellent wear and friction properties

# Fluon® Filled PTFE Compounds *Filler Overview*

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## BRONZE-FILLED COMPOUNDS

- Excellent wear resistance and thermal conductivity
- Improved creep performance
- Typically used with moly or graphite to control higher friction properties
- Poorer chemical resistance and electrical properties than other PTFE filled compounds
- May contain up to 2% zinc to stabilize color against oxidation

## MINERAL-FILLED COMPOUNDS

- Good wear resistance
- Improved creep performance
- Good compressive strength
- Excellent chemical resistance
- Less abrasive than glass
- Compliant with FDA regulations for food contact

## EKONOL®-FILLED COMPOUNDS

- Thermally stable aromatic polyester
- Excellent high-temperature and wear resistance
- Does not wear mating surfaces
- Excellent dimensional stability

## PPS-FILLED COMPOUNDS

- Improved wear and abrasion properties
- Excellent thermal and dimensional stability
- Excellent deformation and extrusion resistance

## POLYIMIDE-FILLED COMPOUNDS

- Improved wear and abrasion properties
- Lowest friction properties of all filled PTFE materials
- Provide great performance in non-lubricated applications
- Does not wear mating surfaces

## ADVANCED WEAR COMPOUNDS

- High-temperature organic and inorganic additives that dramatically reduce wear and extend seal life when compared to traditional PTFE compounds
- Improved wear performance versus standard PTFE compounds such as 10% graphite-, 15% glass- and 10% polyimide-filled PTFE against steel surfaces
- Improved wear performance versus 10% graphite-filled and equivalent performance versus 10% polyimide-filled against aluminum surface
- Excellent balance of physical properties

# Fluon<sup>®</sup> Filled PTFE Compounds *Filler Overview*

## REGULATORY INFORMATION

The following is a list of fillers that are compounded with PTFE by AGC Chemicals Americas, Inc. that are compliant with FDA regulations for food contact:

- **Mineral:** Compliant with the requirement of FDA regulation 21 CFR 175.300 for use in food contact applications.
- **Polyimide:** Compliant with the requirement of FDA regulation 21 CFR 170.39 for use in food contact applications as long as the temperature does not exceed 212 °F (100 °C).
- **PEEK:** Compliant with the requirement of FDA regulation 21 CFR 177.2415 for use in food contact applications.
- **Unfilled Pigmented Grades:** Please contact your AGC Chemicals Americas representative for specific information on FDA-compliant grades.

## HANDLING PRECAUTIONS

Heating Fluon products in excess of 750 °F (399 °C) can produce toxic fumes. It is therefore necessary to provide local exhaust ventilation in areas where Fluon products are exposed to high temperatures. Avoid breathing fumes or contaminating smoking tobacco with fumes, powder or dust.

Thermal decomposition of this product will generate hydrogen fluoride, which is corrosive. Corrosion-resistant materials are required for prolonged contact with molten resin.

## SAFE HANDLING INFORMATION

A summary of the hazards as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200 for this product:

Physical hazards: None

Health hazards: None

FOR ADDITIONAL INFORMATION AND HANDLING INSTRUCTIONS READ AGC CHEMICALS AMERICAS, INC. MATERIAL SAFETY DATA SHEET.

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