Teflon®/Tefzel® Fluoropolymer Resins and Zonyl® Fluoroadditives in Applications Regulated by the Food and Drug Administration

This data sheet pertains to the U.S. Federal Food and Drug Administration (FDA) regulations governing the use of fluoropolymers as articles or components of articles intended for use in contact with food.

Articles Intended to Contact Food
Reference: 21 CFR 177.1550 Perfluorocarbon Resins

Most Teflon® PTFE and FEP fluoropolymer resins may be used as articles or components of articles intended to contact food in compliance with this regulation. A partial list of resins that meet the requirements of this regulation is given in Table 1.

Teflon® PFA type fluoropolymer resins listed in Table 1 have been approved by the FDA for repeated-use food contact articles such as tubing, hoses, components of valves, etc., as well as for coatings for articles intended for repeated food contact use in compliance with this regulation.

Some fluoropolymer resins are irradiated to facilitate grinding into fine powders for applications needing a very small particle size. Paragraph (c) specifies the allowable dose of radiation and maximum particle size for PTFE resins so processed and restricts their use to components of articles intended for repeated use in contact with food. Table 1 shows the Zonyl® fluoroadditives that comply with this paragraph.

Components of Resinous and Polymeric Coatings
Reference: 21 CFR 175.300 Resinous and Polymeric Coatings

As indicated in Table 1, most Teflon® fluoropolymer resins and Zonyl® fluoroadditives may be used as release agents in compliance with this regulation as long as the finished coating meets the extractives limitations of the regulation. Both because of the small amount required for a release agent and its insolubility, the PTFE would be expected to contribute a negligible amount to the extractables, but it is the customer’s responsibility to measure extractives on finished coating to ensure compliance.

Components of Paper and Paperboard
Reference: 21 CFR 176.170 Components of Paper and Paperboard in Contact with Aqueous and Fatty Foods

As indicated in Table 1, most Teflon® fluoropolymer resins and Zonyl® fluoroadditives may be used as release agents in compliance with this regulation as long as the finished coating meets the extractives limitations of this regulation. Both because of the small amount required for a release agent and its insolubility, the PTFE would be expected to contribute a negligible amount to the extractables, but it is the customer’s responsibility to measure extractives on finished coating to ensure compliance.

Processing Aids for Polyolefins
Reference: 21 CFR 177.1520 Olefin Polymers

Zonyl® fluoroadditives MP 1500J and MP 1600N; Teflon® PTFE and FEP resins listed in Table 1; and up to 2,000 ppm of Zonyl® fluoroadditives MP 1000, MP 1300, and MP 1400 may be used as extrusion aids for polyolefins in compliance with this regulation as long as the polyolefin resin complies with the regulation.

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Reference: 21 CFR 176.180 Components of Paper and Paperboard in Contact with Dry Food

As indicated in Table 1, most Teflon® fluoro-polymer resins and Zonyl® fluoroadditives may be used as release agents in compliance with this regulation.

**Lubricant for Rubber Articles**

Reference: 21 CFR 177.2600 Rubber Articles Intended for Repeated Use

The Teflon® PTFE and FEP resins and the Zonyl® fluoroadditives indicated in Table 1 can be used as lubricants for rubber articles intended for repeated use in contact with food in compliance with this regulation.

**Components of Adhesives**

Reference: 21 CFR 175.105 Adhesives

The Teflon® PTFE resins listed in Table 1 and Zonyl® fluoroadditives MP 1000, MP 1300, MP 1400, MP 1500J, and MP 1600N may be used as components of adhesives in compliance with this regulation.

**Tefzel® Fluoropolymers**

Tefzel® 200, 210, 220, and 280 may be used as articles or components of articles intended for repeat-use food processing applications, in contact with all food types at temperatures up to 121°C (250°F) in compliance with the Federal Food, Drug, and Cosmetic Act and the applicable regulations.

**Colorants in Polymers**

Reference: 21 CFR 178.3297 Colorants for Polymers

This regulation permits certain colorants for use in polymers intended for food contact use. Included are TiO₂, iron oxides, all-gas channel black, and ultramarine colorants.

**Housewares Exemption**


The housewares exemption holds that substances sold for use in housewares such as dinnerware or eating utensils need no FDA clearance. This exclusion flows from the legislative history of the 1958 Amendment to the FD&C Act, and FDA’s position has been that it will not require Food Additives Amendment-type clearance of materials used to manufacture empty containers, utensils, or appliances sold to the consumer for home use.

**USDA Acceptance**

The United States Department of Agriculture (USDA) has accepted Teflon® PTFE, FEP, and PFA fluoropolymer resins that comply with 21 CFR 177.1550 as components of materials in direct contact with meat or poultry food products prepared under Federal inspection. Resins that comply with this regulation are shown in Table 1.

**3-A Sanitary Standards**

Teflon® PTFE, FEP, PFA, and Tefzel® fluoropolymer resins comply with the Criteria in “3-A Sanitary Standards for Multiple-Use Plastic Materials Used as Product Contact Surfaces for Dairy Equipment, Number 20-17,” published by the 3-A Secretary, Dairy and Food Industries Supply Association, Inc.

**US Pharmacopeia Class VI**

Representative samples of Teflon® PTFE, FEP, PFA, and Tefzel® fluoropolymer resins have been tested in accordance with USP protocol, and all meet the requirements of a USP Class VI plastic. These tests on representative samples may not reflect results on articles made from these fluoropolymers, especially if other substances are added during fabrication. Testing of the finished article is the responsibility of the manufacturer or seller of the finished product if certification that it meets USP standards is required.

USP testing was done to support use of these fluoropolymers in pharmaceutical processing and food processing applications. While USP Class VI certification is not required for pharmaceutical processing, many pharmaceutical customers seeking ISO-9000 certification have requested it.

**Medical Use**

Caution: Do not use Teflon® or Tefzel® fluoropolymers or Zonyl® fluoroadditives in medical applications involving permanent implantation in the human body. For other medical applications, see “DuPont Medical Caution Statement,” H-50102.

DuPont does not make surgical or medical grades of Teflon® or Tefzel® resins and does not guarantee continuity of process in our manufacturing operations as changes may occur from time to time.
Table 1: Summary of DuPont Fluoropolymer Resins and Fluoroadditives Complying with FDA Regulations

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<sup>1</sup>See accompanying text and the FDA regulations for any limitations or conditions of use. It is the customer’s responsibility to test finished articles to ensure compliance with the extractives limitations of applicable regulations.

<sup>2</sup>Articles made from dispersions sintered at high temperatures common to the industry should comply (see Note 1). Articles made from unsintered dispersions do not comply.

<sup>3</sup>Limited to articles or components of articles for repeated use in contact with food.
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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see “DuPont Medical Caution Statement,” H-50102.

Zonyl® fluoroadditives are part of the DuPont family of fluoropolymers. Customers who wish to use the Teflon® trademark in connection with Zonyl® fluoroadditive products under license from DuPont should contact (800) 262-2745.

Teflon® is a registered trademark of DuPont.