

**§ 177.2000**

article in the finished form in which it is to contact food.

[48 FR 38605, Aug. 25, 1983; 48 FR 50077, Oct. 31, 1983, as amended at 53 FR 47185, Nov. 22, 1988; 54 FR 24898, June 12, 1989]

**§ 177.2000 Vinylidene chloride/methyl acrylate/methyl methacrylate polymers.**

The vinylidene chloride/methyl acrylate/methyl methacrylate polymers (CAS Reg. No. 34364-83-5) identified in paragraph (a) of this section may be safely used as articles or as a component of articles intended for use in contact with food subject to the provisions of this section.

(a) *Identity.* For the purpose of this section, vinylidene chloride/methyl acrylate/methyl methacrylate polymers consist of basic polymers produced by the copolymerization of vinylidene chloride/methyl acrylate/methyl methacrylate such that the basic polymers or the finished food-contact articles meet the specifications prescribed in paragraph (d) of this section.

(b) *Optional adjuvant substances.* The basic vinylidene chloride/methyl acrylate/methyl methacrylate polymers identified in paragraph (a) of this section may contain optional adjuvant substances required in the production of such basic polymers. These optional adjuvant substances may include substances permitted for such use by regulations in parts 170 through 179 of this chapter, substances generally recognized as safe in food, and substances used in accordance with a prior sanction of approval.

(c) *Conditions of use.* The polymers may be safely used as articles or as components of articles intended for use in producing, manufacturing, processing, preparing, treating, packaging, transporting, or holding food, including processing of packaged food at temperatures up to 121 °C (250 °F).

(d) *Specifications and limitations.* The vinylidene chloride/methyl acrylate/methyl methacrylate basic polymers and/or finished food-contact articles meet the following specifications and limitations:

(1)(i) The basic vinylidene chloride/methyl acrylate/methyl methacrylate polymers contain not more than 2 weight percent of polymer units de-

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rived from methyl acrylate monomer and not more than 6 weight percent of polymer units derived from methyl methacrylate monomer.

(ii) The basic polymers are limited to a thickness of not more than 0.005 centimeter (0.002 inches).

(2) The weight average molecular weight of the basic polymer is not less than 100,000 when determined by gel permeation chromatography using tetrahydrofuran as the solvent. The gel permeation chromatography is calibrated with polystyrene standards. The basic gel permeation chromatographic method is described in ANSI/ASTM D3536-76, which is incorporated by reference. Copies are available from the American Society for Testing Materials, 1916 Race St., Philadelphia, PA 19103, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(3) The basic polymer or food-contact article described in paragraph (a) of this section, when extracted with the solvent or solvents characterizing the type of food and under the conditions of time and temperature characterizing the conditions of its intended use as determined from tables 1 and 2 of §176.170(c) of this chapter, yields net chloroform-soluble extractives in each extracting solvent not to exceed .08 milligram per square centimeter (0.5 milligram per square inch) of food-contact surface when tested by the methods described in §176.170(d). If the finished food-contact article is itself the subject of a regulation in parts 174 through 178 and §179.45 of this chapter, it shall also comply with any specifications and limitations prescribed for it by the regulation.

[49 FR 29578, July 23, 1984]

**Subpart C—Substances for Use Only as Components of Articles Intended for Repeated Use**

**§ 177.2210 Ethylene polymer, chlorosulfonated.**

Ethylene polymer, chlorosulfonated as identified in this section may be safely used as an article or component of articles intended for use in contact

with food, subject to the provisions of this section.

(a) Ethylene polymer, chlorosulfonated is produced by chlorosulfonation of a carbon tetrachloride solution of polyethylene with chlorine and sulfuryl chloride.

(b) Ethylene polymer, chlorosulfonated shall meet the following specifications:

(1) Chlorine not to exceed 25 percent by weight.

(2) Sulfur not to exceed 1.15 percent by weight.

(3) Molecular weight is in the range of 95,000 to 125,000.

Methods for the specifications in this paragraph (b), titled "Chlorine and Bromine—Coulometric Titration Method by Aminco Chloridometer," "Hypolon® Synthetic Rubber—Determination of Sulfur by Parr Bomb," and ASTM method D2857-70 (Reapproved 1977), "Standard Test Method for Dilute Solution Viscosity of Polymers," are incorporated by reference. Copies of the ASTM method may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia, PA 19103. Copies of the other two methods are available from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204. Copies of all three methods may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(c) The additive is used as the article, or a component of articles, intended for use as liners and covers for reservoirs intended for the storage of water for drinking purposes.

(d) Substances permitted by § 177.2600 may be employed in the preparation of ethylene polymers, chlorosulfonated, subject to any limitations prescribed therein.

(e) The finished ethylene copolymers, chlorosulfonated shall conform to § 177.2600(e) and (g).

[42 FR 14572, Mar. 15, 1977, as amended at 49 FR 10111, Mar. 19, 1984; 54 FR 24898, June 12, 1989]

**§ 177.2250 Filters, microporous polymeric.**

Microporous polymeric filters identified in paragraph (a) of this section

may be safely used, subject to the provisions of this section, to remove particles of insoluble matter in producing, manufacturing, processing, and preparing bulk quantities of liquid food.

(a) Microporous polymeric filters consist of a suitably permeable, continuous, polymeric matrix of polyvinyl chloride, vinyl chloride-propylene, or vinyl chloride-vinyl acetate, in which finely divided silicon dioxide is embedded. Cyclohexanone may be used as a solvent in the production of the filters.

(b) Any substance employed in the production of microporous polymeric filters that is the subject of a regulation in parts 170 through 189 of this chapter must conform with any specification in such regulation.

(c) Cyclohexanone when used as a solvent in the production of the filters shall not exceed 0.35 percent by weight of the microporous polymeric filters.

(d) The microporous polymeric filters may be colored with colorants used in accordance with § 178.3297 of this chapter.

(e) The temperature of food being processed through the microporous polymeric filters shall not exceed 180 °F.

(f) The microporous polymeric filters shall be maintained in a sanitary manner in accordance with good manufacturing practice so as to prevent potential microbial adulteration of the food.

(g) To assure safe use of the microporous polymeric filters, the label or labeling shall include adequate directions for a pre-use treatment, consisting of washing with a minimum of 2 gallons of potable water at a temperature of 180 °F for each square foot of filter, prior to the filter's first use in contact with food.

[42 FR 14572, Mar. 15, 1977, as amended at 56 FR 42933, Aug. 30, 1991]

**§ 177.2260 Filters, resin-bonded.**

Resin-bonded filters may be safely used in producing, manufacturing, processing, and preparing food, subject to the provisions of this section.

(a) Resin-bonded filters are prepared from natural or synthetic fibers to which have been added substances required in their preparation and finishing, and which are bonded with resins prepared by condensation or polymerization of resin-forming materials,