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centimeter silica spectrophotometric absorption cells. The height of any absorption peak shall be measured, corrected for the blank as determined in paragraph (c)(4)(iii) of this section, and multiplied by the correction factor determined according to paragraph (c)(8)(i) of this section.

(d) In accordance with current good manufacturing practice, finished semirigid and rigid acrylic and modified acrylic plastics, and articles containing these polymers, intended for repeated use in contact with food shall be thoroughly cleansed prior to their first use in contact with food.

(e) Acrylonitrile copolymers identified in this section shall comply with the provisions of §180.22 of this chapter.

(f) The acrylic and modified acrylic polymers identified in and complying with this section, when used as components of the food-contact surface of an article that is the subject of a regulation in this part and in parts 174, 175, 176, and 178 of this chapter, shall comply with any specifications and limitations prescribed by such regulation for the article in the finished form in which it is to contact food.

[42 FR 14572, Mar. 15, 1977; 42 FR 56728, Oct. 28, 1977, as amended at 43 FR 54927, Nov. 24, 1978; 45 FR 67320, Oct. 10, 1980; 46 FR 46796, Sept. 22, 1981; 49 FR 10108, Mar. 19, 1984; 49 FR 13139, Apr. 3, 1984; 50 FR 31045, July 24, 1985]

**§ 177.1020 Acrylonitrile/butadiene/styrene co-polymer.**

Acrylonitrile/butadiene/styrene copolymer identified in this section may be safely used as an article or component of articles intended for use with all foods, except those containing alcohol, under conditions of use E, F, and G described in table 2 of §176.170(c) of this chapter.

(a) *Identity.* For the purpose of this section, the acrylonitrile/butadiene/styrene copolymer consists of:

(1) Eighty-four to eighty-nine parts by weight of a matrix polymer containing 73 to 78 parts by weight of acrylonitrile and 22 to 27 parts by weight of styrene; and

(2) Eleven to sixteen parts by weight of a grafted rubber consisting of (i) 8 to 13 parts of butadiene/styrene elastomer containing 72 to 77 parts by weight of

butadiene and 23 to 28 parts by weight of styrene and (ii) 3 to 8 parts by weight of a graft polymer having the same composition range as the matrix polymer.

(b) *Adjuvants.* The copolymer identified in paragraph (a) of this section may contain adjuvant substances required in its production. Such adjuvants may include substances generally recognized as safe in food, substances used in accordance with prior sanction, substances permitted in this part, and the following:

Substance	Limitations
2-Mercapto- ethanol .....	The finished copolymer shall contain not more than 100 ppm 2-mercaptoethanol acrylonitrile adduct as determined by a method titled "Analysis of Cycopac Resin for Residual β-(2-Hydroxyethylmercapto) propionitrile," which is incorporated by reference. Copies are available from the Bureau of Foods (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(c) *Specifications.* (1) Nitrogen content of the copolymer is in the range of 16 to 18.5 percent as determined by Micro-Kjeldahl analysis.

(2) Residual acrylonitrile monomer content of the finished copolymer articles is not more than 11 parts per million as determined by a gas chromatographic method titled "Determination of Residual Acrylonitrile and Styrene Monomers-Gas Chromatographic Internal Standard Method," which is incorporated by reference. Copies are available from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(d) *Extractive limitations.* (1) Total nonvolatile extractives not to exceed

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0.0005 milligram per square inch surface area when the finished food contact article is exposed to distilled water, 3 percent acetic acid, or *n*-heptane for 8 days at 120 °F.

(2) The finished food-contact article shall yield not more than 0.0015 milligram per square inch of acrylonitrile monomer when exposed to distilled water and 3 percent acetic acid at 150 °F for 15 days when analyzed by a polarographic method titled "Extracted Acrylonitrile by Differential Pulse Polarography," which is incorporated by reference. Copies are available from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(e) Acrylonitrile copolymers identified in this section shall comply with the provisions of §180.22 of this chapter.

(f) Acrylonitrile copolymers identified in this section are not authorized to be used to fabricate beverage containers.

[42 FR 14572, Mar. 15, 1977, as amended at 42 FR 48543, Sept. 23, 1977; 47 FR 11841, Mar. 19, 1982; 54 FR 24897, June 12, 1989]

**§ 177.1030 Acrylonitrile/butadiene/styrene/methyl methacrylate copolymer.**

Acrylonitrile/butadiene/styrene/methyl methacrylate copolymer identified in this section may be safely used as an article or component of articles intended for use with food identified in table 1 of §176.170(c) of this chapter as Type I, II, III, IVA, IVB, V, VIB, (except bottles intended to hold carbonated beverages), VIIA, VIIB, VIII and IX, under conditions of use C, D, E, F, and G described in table 2 of §176.170(c) of this chapter with a high temperature limitation of 190 °F.

(a) *Identity.* For the purpose of this section, acrylonitrile/butadiene/styrene/methyl methacrylate copolymer consists of: (1) 73 to 79 parts by weight of a matrix polymer containing 64 to 69 parts by weight of acrylonitrile, 25 to 30 parts by weight of styrene and 4 to 6 parts by weight of methyl methacrylate; and (2) 21 to 27 parts by weight of

a grafted rubber consisting of (i) 16 to 20 parts of butadiene/styrene/elastomer containing 72 to 77 parts by weight of butadiene and 23 to 28 parts by weight of styrene and (ii) 5 to 10 parts by weight of a graft polymer having the same composition range as the matrix polymer.

(b) *Adjuvants.* The copolymer identified in paragraph (a) of this section may contain adjuvant substances required in its production. Such adjuvants may include substances generally recognized as safe in food, substances used in accordance with prior sanction, substances permitted under applicable regulations in this part, and the following:

Substances	Limitations
2-Mercaptoethanol .....	The finished copolymer shall contain not more than 800 ppm 2-mercaptoethanol acrylonitrile adduct as determined by a method titled "Analysis of Cycopac Resin for Residual β-(2-Hydroxyethylmercapto) propionitrile," which is incorporated by reference. Copies are available from the Bureau of Foods (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(c) *Specifications.* (1) Nitrogen content of the copolymer is in the range of 13.0 to 16.0 percent as determined by Micro-Kjeldahl analysis.

(2) Residual acrylonitrile monomer content of the finished copolymer articles is not more than 11 parts per million as determined by a gas chromatographic method titled "Determination of Residual Acrylonitrile and Styrene Monomers-Gas Chromatographic Internal Standard Method," which is incorporated by reference. Copies are available from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.