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used to determine organic extractives. The 2-liter sample is carefully evaporated to constant weight at 105 °C; this is total extractives. This residue is fired in a muffle furnace at 850 °C to constant weight; this is ash. Total extractives, minus ash equals the organic extractives. If the organic extractives are greater than 1 part per million of the solvent used, a blank should be run on the solvent and a correction should be made by subtracting the total extractives obtained with the blank from the total extractives obtained in the resin test. The solvents used are to be made as follows:

Distilled water (de-ionized water is distilled).

15 percent ethyl alcohol made by mixing 15 volumes of absolute ethyl alcohol A.C.S. reagent grade, with 85 volumes of distilled de-ionized water.

5 percent acetic acid made by mixing 5 parts by weight of A.C.S. reagent grade glacial acetic acid with 95 parts by weight of distilled de-ionized water.

In addition to the organic extractives limitation prescribed in this paragraph, the ion-exchange resin identified in paragraph (a)(17) of this section, when extracted with each of the named solvents, distilled water, 50 percent alcohol, and 5 percent acetic acid, will be found to result in not more than 7 parts per million of nitrogen extractives (calculated as nitrogen) when the resin in the free-base form is subjected to the following test immediately before each use: Using a separate 1–inch diameter glass ion-exchange column for each solvent, prepare each column using 100 milliliters of ready to use ion-exchange resin that is to be tested. With the bottom outlet closed, fill each ion-exchange column with one of the three solvents at a temperature of 25 °C until the solvent level is even with the top of the resin bed. Seal each column at the top and bottom and store in a vertical position at a temperature of 25 °C. After 96 hours, open the top of each column, drain the solvent into a collection vessel, and analyze each drained solvent and a solvent blank for nitrogen by a standard micro-Kjeldahl method.

(d)(1) The ion-exchange resins identified in paragraphs (a)(1), (a)(2), (a)(11), and (a)(15) of this section are exempted from the acetic acid extraction requirement of paragraph (c)(4) of this section.

(2) The ion-exchange resin identified in paragraph (a)(20) of this section shall comply with the extraction requirement in paragraph (c)(4) of this section by using dilute sulfuric acid, pH 3.5, as a substitute for acetic acid.

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

[42 FR 14526, Mar. 15, 1977, as amended at 46 FR 40181, Aug. 7, 1981; 46 FR 57033, Nov. 20, 1981; 49 FR 28830, July 17, 1984; 56 FR 16268, Apr. 22, 1991; 62 FR 7679, Feb. 20, 1997]

§ 173.40 Molecular sieve resins.

Molecular sieve resins may be safely used in the processing of food under the following prescribed conditions:

(a) The molecular sieve resins consist of purified dextran having an average molecular weight of 40,000, cross-linked with epichlorohydrin in a ratio of 1 part of dextran to 10 parts of epichlorohydrin, to give a stable three dimensional structure. The resins have a pore size of 2.0 to 3.0 milliliters per gram of dry resin (expressed in terms of water regain), and a particle size of 10 to 300 microns.

(b) The molecular sieve resins are thoroughly washed with potable water prior to their first use in contact with food.

(c) Molecular sieve resins are used as the gel filtration media in the final purification of partially delactosed whey. The gel bed shall be maintained in a sanitary manner in accordance with good manufacturing practice so as to prevent microbial build-up on the bed and adulteration of the product.

§ 173.45 Polymaleic acid and its sodium salt.

Polymaleic acid (CAS Reg. No. 26099–09–2) and its sodium salt (CAS Reg. No. 70247–90–4) may be safely used in food in accordance with the following prescribed conditions:

(a) The additives have a weight-average molecular weight in the range of 540 to 850 and a number-average molecular weight in the range of 520 to 650, calculated as the acid. Molecular

weights shall be determined by a method entitled ''Determination of Molecular Weight Distribution of Poly(Maleic) Acid,'' March 17, 1992, produced by Ciba-Geigy, Inc., Seven Skyline Dr., Hawthorne, NY 10532–2188, which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies are available from the Division of Product Policy, Center for Food Safety and Applied Nutrition (HFS–205), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, or are available for inspection at the Center for Food Safety and Applied Nutrition's Library, 200 C St. SW., rm. 3321, Washington, DC, or at the Office of the Federal Register, 800 North Capitol St. NW., suite 700, Washington, DC.

(b) The additives may be used, individually or together, in the processing of beet sugar juice and liquor or of cane sugar juice and liquor to control mineral scale.

(c) The additives are to be used so that the amount of either or both additives does not exceed 4 parts per million (calculated as the acid) by weight of the beet or cane sugar juice or liquor process stream.

[51 FR 5315, Feb. 13, 1986, as amended at 61 FR 386, Jan. 5, 1996]

§ 173.50 Polyvinylpolypyrrolidone.

The food additive polyvinylpolypyrrolidone may be safely used in accordance with the following prescribed conditions:

(a) The additive is a homopolymer of purified vinylpyrrolidone catalytically produced under conditions producing polymerization and cross-linking such that an insoluble polymer is produced.

(b) The food additive is so processed that when the finished polymer is refluxed for 3 hours with water, 5 percent acetic acid, and 50 percent alcohol, no more than 50 parts per million of extractables is obtained with each solvent.

(c) It is used or intended for use as a clarifying agent in beverages and vinegar, followed by removal with filtration.

§ 173.55 Polyvinylpyrrolidone.

The food additive polyvinylpyrrolidone may be safely used in accordance with the following prescribed conditions:

(a) The additive is a polymer of purified vinylpyrrolidone catalytically produced, having an average molecular weight of 40,000 and a maximum unsaturation of 1 percent, calculated as the monomer, except that the polyvinylpyrrolidone used in beer is that having an average molecular weight of 360,000 and a maximum unsaturation of 1 percent, calculated as the monomer.

(b) The additive is used or intended for use in foods as follows:

Food	Limitations
Beer	As a clarifying agent, at a residual level not to exceed 10 parts per million.
Flavor concentrates in tablet form	As a tableting adjuvent in an amount not to exceed good manufacturing practice.
Nonnutritive sweeteners in concentrated liquid form.	As a stabilizer, bodying agent, and dispersant, in an amount not to exceed good manufacturing practice.
Nonnutritive sweeteners in tablet form	As a tableting adjuvant in an amount not to exceed good manufacturing practice.
Vitamin and mineral concentrates in liquid form	As a stabilizer, bodying agent, and dispersant, in an amount not to exceed good manufacturing practice.
Vitamin and mineral concentrates in tablet form	As a tableting adjuvant in an amount not to exceed good manufacturing practice.
Vinegar	As a clarifying agent, at a residual level not to exceed 40 parts per million.
Wine	As a clarifying agent, at a residual level not to exceed 60 parts per million.

§ 173.60 Dimethylamine-epichlorohydrin copolymer.

Dimethylamine-epichlorohydrin copolymer (CAS Reg. No. 25988–97–0) may be safely used in food in accordance with the following prescribed conditions:

(a) The food additive is produced by copolymerization of dimethylamine and epichlorohydrin in which not more than 5 mole-percent of dimethylamine may be replaced by an equimolar