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TITLE 21--FOOD AND DRUGS
 CHAPTER I--FOOD AND DRUG ADMINISTRATION
 DEPARTMENT OF HEALTH AND HUMAN SERVICES
 SUBCHAPTER B--FOOD FOR HUMAN CONSUMPTION (CONTINUED)

PART 173 -- SECONDARY DIRECT FOOD ADDITIVES PERMITTED IN FOOD FOR HUMAN CONSUMPTION

Subpart D--Specific Usage Additives

Sec. 173.310 Boiler water additives.

Boiler water additives may be safely used in the preparation of steam that will contact food, under the following conditions:

(a) The amount of additive is not in excess of that required for its functional purpose, and the amount of steam in contact with food does not exceed that required to produce the intended effect in or on the food.

(b) The compounds are prepared from substances identified in paragraphs (c) and (d) of this section, and are subject to the limitations, if any, prescribed:

(c) List of substances:

Substances	Limitations
Acrylamide-sodium acrylate resin	Contains not more than 0.05 percent by weight of acrylamide monomer.
Acrylic acid/2-acrylamido-2-methyl propane sulfonic acid copolymer having a minimum weight average molecular weight of 9,900 and a minimum number average molecular weight of 5,700 as determined by a method entitled "Determination of Weight Average and Number Average Molecular Weight of 60/40 AA/AMPS" (October 23, 1987), which is incorporated by reference in accordance with 5 U.S.C. 552(a). Copies may be obtained from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 5100 Paint Branch Pkwy., College Park, MD 20740, or may be examined at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html .	Total not to exceed 20 parts per million (active) in boiler feedwater.
Ammonium alginate	
Cobalt sulfate (as catalyst)	
1-hydroxyethylidene-1,1-diphosphonic acid (CAS Reg. No. 2809-21-4) and its sodium and potassium salts	
Lignosulfonic acid	
Monobutyl ethers of polyethylene-polypropylene glycol produced by random condensation of a 1:1 mixture by weight of ethylene oxide and propylene oxide with butanol	Minimum mol. wt. 1,500.
Poly(acrylic acid-co-hypophosphite), sodium salt (CAS Reg. No. 71050-62-9), produced from a 4:1 to a 16:1 mixture by weight of acrylic acid and sodium hypophosphite	Total not to exceed 1.5 parts per million in boiler feed water. Copolymer contains not more than 0.5 percent by weight of acrylic acid monomer (dry weight basis).

Polyethylene glycol	As defined in 172.820 of this chapter.
Polymaleic acid [CAS Reg. No. 26099-09-2], and/or its sodium salt. [CAS Reg. No. 30915-61-8 or CAS Reg. No. 70247-90-4]	Total not to exceed 1 part per million in boiler feed water (calculated as the acid).
Polyoxypropylene glycol	Minimum mol. wt. 1,000.
Potassium carbonate	
Potassium tripolyphosphate	
Sodium acetate	
Sodium alginate	
Sodium aluminate	
Sodium carbonate	
Sodium carboxymethylcellulose	Contains not less than 95 percent sodium carboxymethylcellulose on a dry-weight basis, with maximum substitution of 0.9 carboxymethylcellulose groups per anhydroglucose unit, and with a minimum viscosity of 15 centipoises for 2 percent by weight aqueous solution at 25 deg. C; by the method prescribed in the "Food Chemicals Codex," 4th ed. (1996), pp. 744-745, which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies are available from the National Academy Press, Box 285, 2101 Constitution Ave. NW., Washington, DC 20055 (Internet address http://www.nap.edu), or may be examined at the Center for Food Safety and Applied Nutrition's Library, Food and Drug Administration, 5100 Paint Branch Pkwy., College Park, MD 20740, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html .
Sodium glucoheptonate	Less than 1 part per million cyanide in the sodium glucoheptonate.
Sodium hexametaphosphate	
Sodium humate	
Sodium hydroxide	
Sodium lignosulfonate	
Sodium metabisulfite	
Sodium metasilicate	
Sodium nitrate	
Sodium phosphate (mono-, di-, tri-)	
Sodium polyacrylate	
Sodium polymethacrylate	
Sodium silicate	
Sodium sulfate	
Sodium sulfite (neutral or alkaline)	
Sodium tripolyphosphate	
Sorbitol anhydride esters: a mixture consisting of sorbitan monostearate as defined in 172.842 of this chapter; polysorbate 60 ((polyoxyethylene (20) sorbitan monostearate) as defined in 172.836 of this chapter; and polysorbate 20 ((polyoxyethylene (20) sorbitan monolaurate)), meeting the specifications of the Food Chemicals Codex, 4th ed. (1996), pp. 306-307, which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies are available from the National Academy Press, 2101 Constitution Ave. NW., Box 285, Washington, DC 20055 (Internet http://www.nap.edu), or may be examined at the Center for Food Safety and Applied Nutrition's Library, Food and Drug Administration, 5100 Paint Branch Pkwy., College Park, MD 20740, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html .	The mixture is used as an anticorrosive agent in steam boiler distribution systems, with each component not to exceed 15 parts per million in the steam.
Tannin (including quebracho extract)	
Tetrasodium EDTA	
Tetrasodium pyrophosphate	

(d) Substances used alone or in combination with substances in paragraph (c) of this section:

Substances	Limitations
Cyclohexylamine	Not to exceed 10 parts per million in steam, and excluding use of such steam in contact with milk and milk products.
Diethylaminoethanol	Not to exceed 15 parts per million in steam, and excluding use of such steam in contact with milk and milk products.
Hydrazine	Zero in steam.

Morpholine	Not to exceed 10 parts per million in steam, and excluding use of such steam in contact with milk and milk products.
Octadecylamine	Not to exceed 3 parts per million in steam, and excluding use of such steam in contact with milk and milk products.
Trisodium nitrilotriacetate	Not to exceed 5 parts per million in boiler feedwater; not to be used where steam will be in contact with milk and milk products.

(e) To assure safe use of the additive, in addition to the other information required by the Act, the label or labeling shall bear:

- (1) The common or chemical name or names of the additive or additives.
- (2) Adequate directions for use to assure compliance with all the provisions of this section.

[42 FR 14526, Mar. 15, 1977, as amended at 45 FR 73922, Nov. 7, 1980; 45 FR 85726, Dec. 30, 1980; 48 FR 7439, Feb. 22, 1983; 49 FR 5748, Feb. 15, 1984; 49 FR 10106, Mar. 19, 1984; 50 FR 49536, Dec. 3, 1985; 53 FR 15199, Apr. 28, 1988; 54 FR 31012, July 26, 1989; 55 FR 12172, Apr. 2, 1990; 61 FR 14245, Apr. 1, 1996; 64 FR 1759, Jan. 12, 1999; 64 FR 29227, June 1, 1999]