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[Code of Federal Regulations]
 [Title 21, Volume 3]
 [Revised as of April 1, 2005]
 [CITE: 21CFR173.310]

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.

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	Total not to exceed 20 parts per million (active) in boiler feedwater.

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..

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.....

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.

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	Total not to exceed 20 parts per million (active) in boiler feedwater.

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

Database Updated April 1, 2005

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