



SK케미칼

(우)440-745 경기도 수원시 장안구 정자1동 600
전화 : 0331)40-8742, 8745~6 FAX:0331)45-1192

SKYPOWER 004

식품용 보일러 청관제

정밀화학연구소



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1. 식품용 보일러 청관제의 정의

음식물과 직접적으로 접촉하는 Steam 을 제조하는데 있어서 안전하게 사용될 수 있는 보일러수처리제 첨가물에 대한 제한 법규

2. 법규사항 (첨부 1)

국내 : 식품공장용 보일러수처리제에 대한 법규없음

국외 : FDA(Food and Drug Administration)

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

code - FDA 21CFR 173.310, CFR(CODE OF FEDERAL REGULATION)

3. 특이사항

Hydrazine (Zero in Steam)

4. SKYPOWER SERIES 의 FDA 적합성

SKYPOWER FOOD GRADE 의 구성성분들은 FDA 21 CFR 173.310 을 모두 만족함.

- * Oxygen Scavenger : 탈산소제
- * Corrosion Inhibitor : 부식방지제
- * Scale Inhibitor : 스케일억제제
- * Condensate Corrosion Inhibitor : 응축수 부식방지제



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5. SK 케미칼의 식품용 보일러수처리제들

| 제 품 | 기능 | 투입농도, ppm | FDA 기준 |
|----------------------------|----------------|-----------|--------|
| SKYPOWER 520F | 부식 & 스케일억제제 | 50 ± 10 | passed |
| SKYPOWER 540F | 부식 & 스케일억제제 | 100 ± 20 | passed |
| SKYPOWER 560F | 스케일 억제제 | 150 ± 20 | passed |
| SKYPOWER 571F (부스타 일반용) | 부식 & 스케일억제제 | 200 ± 30 | passed |

* 급수수질 및 보일러운전조건에 따라 적합한 제품이 선정되어야함



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첨부 : FDA Regulation 21CFR 173.310

[Code of Federal Regulations]
[Title 21, Volume 3, Parts 170 to 199]

[Revised as of April 1, 1998]

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[CITE: 21CFR173.310]

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TITLE 21--FOOD AND DRUGS

CHAPTER I--FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES
(CONTINUED)

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

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: [[Page 127]]

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

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, 200 C St. SW., Washington, DC 20204, or may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

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 Sec. 172.820 of this chapter. |
|--------------------------|---|

Polymaleic acid [CAS Reg. No. 26099-09-2], and/or its sodium salt. million in boiler feed water
 [CAS Reg. No. 30915-61-8 or CAS (calculated as the acid).
 Reg. No. 70247-90-4].

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 method prescribed in the
 ``Food Chemicals Codex," 3d Ed.
 (1981), pp. 280-282, which is
 incorporated by reference. Copies
 may be obtained from the National
 Academy Press, 2101 Constitution
 Ave. NW., Washington, DC 20418, or
 may be examined at the Office of
 the Federal Register, 800 North
 Capitol Street, NW., suite 700,
 Washington, DC 20408.

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.....
 Tannin (including quebracho
 extract).
 Tetrasodium EDTA.....
 Tetrasodium pyrophosphate.....

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| 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]