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TITLE 21--FOOD AND DRUGS

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

PART 178--INDIRECT FOOD ADDITIVES: ADJUVANTS, PRODUCTION AIDS, AND SANITIZERS--
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Subpart B--Substances Utilized To Control the Growth of Microorganisms

Sec. 178.1010 Sanitizing solutions.

(b) The solutions consist of one of the following, to which may be added components generally recognized as safe and components which are permitted by prior sanction or approval.

(1) An aqueous solution containing potassium, sodium, or calcium hypochlorite, with or without the bromides of potassium, sodium, or calcium.

(2) An aqueous solution containing dichloroisocyanuric acid, trichloroisocyanuric acid, or the sodium or potassium salts of these acids, with or without the bromides of potassium, sodium, or calcium.

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(9) An aqueous solution containing n-alkyl (C12-C18) benzyldimethylammonium chloride compounds having average molecular weights of 351 to 380.

The alkyl groups consist principally of groups with 12 to 16 carbon atoms and contain not more than 1 percent each of groups with 8 and 10 carbon atoms. Additionally, the aqueous solution may contain either ethyl alcohol or isopropyl alcohol as an optional ingredient.

(10) An aqueous solution containing trichloromelamine and either sodium lauryl sulfate or dodecyl- benzenesulfonic acid. In addition to use on food-processing equipment and utensils and other food-contact articles, this solution may be used on beverage containers except milk containers or equipment.

(11) An aqueous solution containing equal amounts of n-alkyl (C12-C18) benzyl dimethyl ammonium chloride and n-alkyl (C12-C18) dimethyl ethylbenzyl ammonium

chloride (having an average molecular weight of 384). In addition to use on food-processing equipment and utensils, this solution may be used on food-contact surfaces in public eating places.

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(15) An aqueous solution containing lithium hypochlorite.

(16) An aqueous solution containing equal amounts of n-alkyl (C12-C18) benzyl dimethyl ammonium chloride and n-alkyl (C12-C14) dimethyl ethylbenzyl ammonium chloride (having average molecular weights of 377 to 384), with the optional adjuvant substances tetrasodium ethylenediaminetetraacetate and/or alpha-(p-nonylphenol)-*omega*-hydroxy poly (oxyethylene) having an average poly- (oxyethylene) content of 11 moles. Alpha-hydro-*omega*-hydroxypoly-(oxyethylene) poly(oxypropylene) (15 to 18 mole minimum) poly (oxyethylene) block copolymer, having a minimum molecular weight of 1,900 (CAS Registry No. 9003-11-6) may be used in lieu of alpha- (p-nonylphenol)-*omega*-hydroxy- poly(oxyethylene) having an average poly(oxyethylene) content of 11 moles. In addition to use on food-processing equipment and utensils, this solution may be used on food-contact surfaces in public eating places.

(17) An aqueous solution containing di-n-alkyl(C8-C10) dimethyl ammonium chlorides having average molecular weights of 332-361 and either ethyl alcohol or isopropyl alcohol. In addition

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to use on food-processing equipment and utensils, this solution may be used on food-contact surfaces in public eating places.

(18) An aqueous solution containing n-alkyl(C12-C18) benzyl dimethyl ammonium chloride, sodium metaborate, alpha-terpineol and alpha[p-(1,1,3,3-tetramethylbutyl)phenyl] --*omega*--hydroxy-poly (oxyethylene) produced with one mole of the phenol and 4 to 14 moles ethylene oxide.

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(20) An aqueous solution containing ortho-phenylphenol, ortho-benzyl-para-chlorophenol, para-tertiaryamylphenol, sodium -alpha-alkyl(C12-C15)- *omega*--hydroxypoly (oxyethylene)

sulfate with the poly(oxyethylene) content averaging one mole, potassium salts of coconut oil fatty acids, and isopropyl alcohol or hexylene glycol.

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(22) An aqueous solution containing (1) di-n-alkyl(C8-C10) dimethylammonium chloride compounds having average molecular weights of 332-361, (2) n-alkyl (C12-C18) benzyldimethylammonium chloride compounds having average molecular weights of 351-380 and consisting principally of alkyl groups with 12 to 16 carbon atoms with or without not over 1 percent each of groups with 8 and 10 carbon atoms, and (3) ethyl alcohol. The ratio of compound (1) to compound (2) is 60 to 40.

(23) An aqueous solution containing n-alkyl (C12-C16) benzyl-dimethylammonium chloride and didecyldimethylammonium chloride.

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(32) An aqueous solution containing (i) di-n-alkyl(C8-C10)dimethyl- ammonium chloride compounds having average molecular weights of 332 to 361, (ii) n-alkyl(C12-C18)benzyldimethyl- ammonium chloride compounds having average molecular weights of 351 to 380 and consisting principally of alkyl groups with 12 to 16 carbon atoms with no more than 1 percent of groups with 8 and 10, (iii) ethyl alcohol, and (iv) alpha-(p-nonylphenyl)- *-omega-*-hydroxypoly(oxyethylene) produced by the condensation of 1 mole of p-nonylphenol with 9 to 12 moles of ethylene oxide. The ratio of compound (i) to compound (ii) is 3 to 2.

(33) An aqueous solution containing (i) di-n-alkyl-(C8-C10)-dimethylammonium chloride compounds having average molecular weights of 332 to 361; (ii) n-alkyl(C12-C18) -benzyldimethylammonium chloride compounds having molecular weights of 351 to 380 and consisting principally of alkyl groups with 12 to 16 carbon atoms with no more than 1 percent of the groups with 8 to 10; and (iii) tetrasodium ethylenediamine tetraacetate. Additionally, the aqueous solution contains either alpha-(p-nonylphenyl)- *-omega-*-hydroxypoly-(oxyethylene) or alpha-alkyl(C11-C15)- *-omega-*-hydroxypoly-(oxyethylene), each produced with 9 to 13 moles of ethylene oxide. The ratio of compound (i) to compound (ii) is 3 to 2.

(34) An aqueous solution of an equilibrium mixture of oxychloro species (predominantly chlorite, chlorate, and chlorine dioxide) generated either (i) by directly metering a concentrated chlorine dioxide solution, prepared just prior to use, into potable water to

provide the concentration of available chlorine dioxide stated in paragraph (c)(29) of this section, or (ii) by acidification of an aqueous alkaline solution of oxychloro species (predominantly chlorite and chlorate) followed by dilution with potable water to provide the concentration of available chlorine dioxide described in paragraph (c)(29) of this section.

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(37) The sanitizing solution contains sodium hypochlorite (CAS Reg. No. 7681-52-9), trisodium phosphate (CAS Reg. No. 7601-54-9), sodium lauryl sulfate (CAS Reg. No. 151-21-3), and potassium permanganate (CAS Reg. No. 7722-64-7). Magnesium oxide (CAS Reg. No. 1309-48-4) and potassium bromide (CAS Reg. No. 7758-02-3) may be added as optional ingredients to this sanitizing solution. In addition to use on food-processing equipment and utensils, this solution may be used on food-contact surfaces in public eating places.

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(40) An aqueous solution prepared by combining elemental iodine (CAS Reg. No. 7553-56-2); hydriodic acid (CAS Reg. No. 10034-85-2); sodium N-cyclohexyl-N-palmitoyl taurate (CAS Reg. No. 132-43-4); chloroacetic acid, sodium salt reaction products with 4,5-dihydro-2-undecyl-1H-imidazole-1-ethanol and sodium hydroxide (CAS Reg. No. 68608-66-2); dodecylbenzene sulfonic acid (CAS Reg. No. 27176-87-0); phosphoric acid (CAS Reg. No. 7664-38-2); isopropyl alcohol (CAS Reg. No. 67-63-0); and calcium chloride (CAS Reg. No. 10043-52-4). In addition to use on food-processing equipment and utensils, this solution may be used on dairy-processing equipment.

(41) An aqueous solution containing n-alkyl(C12-C16)benzyltrimethylammonium chloride, having average molecular weights ranging from 351 to 380 wherein the alkyl groups contain principally 12 to 16 carbons and not more than 1 percent each of the groups with 8 and 10 carbon atoms; ammonium chloride (CAS Reg. No. 12125-02-9); calcium stearate (CAS Reg. No. 1592-23-0); sodium bicarbonate (CAS Reg. No. 144-55-8); starch or dextrin, or both starch and dextrin (CAS Reg. No. 9004-53-9); and the optional ingredient methylene blue (CAS Reg. No. 61-73-4). In addition to use on food-

processing equipment and utensils, this solution may be used on food-contact surfaces in public eating places.

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(43) An aqueous solution of iodine and hypochlorous acid generated by the dilution of an aqueous acidic (21.5 percent nitric acid) solution of iodine monochloride. In addition to use on food-processing equipment and utensils, this solution may be used on dairy-processing equipment.

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(46) An aqueous solution of chlorine dioxide and related oxychloro species generated by acidification of an aqueous solution of sodium chlorite with a solution of sodium gluconate, citric acid, phosphoric acid, and sodium mono- and didodecylphenoxybenzenedisulfonate. In addition to use on food-processing equipment and utensils, this solution may be used on dairy-processing equipment.