

on dairy or beverage containers, shall provide when ready for use at least 36 parts per million and not more than 108 parts per million of hydrogen peroxide; at least 23 parts per million and not more than 69 parts per million of peroxyacetic acid; at least 20 parts per million and not more than 61 parts per million of octanoic acid (including peroxyoctanoic acid); at least 140 parts per million and not more than 343 parts per million of acetic acid; at least 3 parts per million and not more than 17 parts per million of 1-hydroxyethylidene-1,1-diphosphonic acid; and at least 18 parts per million and not more than 55 parts per million of sodium 1-octanesulfonate.

(40) The solution identified in paragraph (b)(46) of this section shall provide, when ready for use, at least 100 parts per million and not more than 200 parts per million of chlorine dioxide as determined by the method developed by Bio-cide International, Inc., entitled, "Iodometric Method for the Determination of Available Chlorine Dioxide (50-250 ppm Available ClO<sub>2</sub>)," dated June 11, 1987, which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of this method are available from the Division of Petition Control, Center for Food Safety and Applied Nutrition (HFS-215), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, and may be examined at the Center for Food Safety and Applied Nutrition's Library, Food and Drug Administration, 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; at least 380 parts per million and not more than 760 parts per million of sodium gluconate; and at least 960 parts per million and not more than 1,920 parts per million of sodium mono- and didodecylphenoxybenzenedisulfonate.

Other components listed under paragraph (b)(46) of this section shall be used in the minimum amount necessary to produce the intended effect.

(d) Sanitizing agents for use in accordance with this section will bear labeling meeting the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act.

[42 FR 14609, Mar. 16, 1977]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §178.1010, see the List of CFR Sections Affected in the Finding Aids section of this volume.

**Subpart C—Antioxidants and Stabilizers**

**§ 178.2010 Antioxidants and/or stabilizers for polymers.**

The substances listed in paragraph (b) of this section may be safely used as antioxidants and/or stabilizers in polymers used in the manufacture of articles or components of articles intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food, subject to the provisions of this section:

(a) The quantity used shall not exceed the amount reasonably required to accomplish the intended technical effect.

(b) List of substances:

Substances	Limitations
<i>N-n</i> -Alkyl- <i>N'</i> -(carboxymethyl)- <i>N,N'</i> -trimethylenediglycine; the alkyl group is even numbered in the range C <sub>14</sub> -C <sub>18</sub> and the nitrogen content is in the range 5.4-5.6 weight percent.	For use only: 1. As component of nonfood articles complying with §§ 175.105 and 177.2600 of this chapter. 2. At levels not to exceed 1.35 percent by weight of natural rubber, butadiene-acrylonitrile, butadiene-acrylonitrile-styrene, and butadiene-styrene polymers that are used in contact with nonalcoholic food at temperatures not to exceed room temperature and that are employed in closure-sealing gaskets complying with § 177.1210 of this chapter or in coatings complying with § 175.300, § 176.170, or § 175.320 of this chapter. The average thickness of such coatings and closure-sealing gaskets shall not exceed 0.004 inch.
Alkylthiophenolics: acid-catalyzed condensation reaction products of 4-nonylphenol, formaldehyde, and 1-dodecanethiol (CAS Reg. No. 164907-73-7).	For use only at levels not to exceed 2 percent by weight of adhesives complying with § 175.105 of this chapter, of pressure-sensitive adhesives complying with § 175.125 of this chapter, and of rubber articles complying with § 177.2600 of this chapter.

Substances	Limitations
<i>p</i> - <i>tert</i> -Amylphenolformaldehyde resins produced when one mole of <i>p</i> - <i>tert</i> -amylphenol is made to react under acid conditions with one mole of formaldehyde.	<p>For use only at levels not to exceed 2.1 percent by weight of polyamide resins that are:</p> <ol style="list-style-type: none"> <li>1. Derived from dimerized vegetable oil acids (containing not more than 20 percent of monomer acids) and ethylenediamine.</li> <li>2. Used in compliance with regulations in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter.</li> </ol>
1,4-Benzenedicarboxylic acid, bis[2-(1,1-dimethylethyl)-6-[[3-(1,1-dimethylethyl)-2-hydroxy-5-methylphenyl]methyl]-4-methylphenyl]ester (CAS Reg. No. 57569-40-1).	For use only at levels not to exceed 0.075 percent by weight of olefin polymers complying with § 177.1520 of this chapter.
2-(2 <i>H</i> -Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol (CAS Reg. No. 70321-86-7).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.5 percent by weight of polyethylene phthalate polymers complying with § 177.1630 of this chapter.</li> <li>2. At levels not to exceed 3.0 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter.</li> </ol>
2-(2 <i>H</i> -Benzotriazol-2-yl)-4-(1, 1, 3, 3-tetramethylbutyl) phenol (CAS Reg. No. 3147-75-9).	For use only at levels not to exceed 0.5 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter: <i>Provided</i> , That the finished resins contact food only under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.
β, 3(or 4)-Bis(octadecylthio)cyclohexylethane (CAS Reg. No. 37625-75-5); CAS synonym: 1-[( <i>beta</i> -octadecylthio)ethyl]-3(or 4)-(octadecylthio)cyclohexane.	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.3 percent by weight of all polymers for use in contact with foods of Types I, II, IV-B, VI, VII-B, and VIII under conditions of use B through H as described in tables 1 and 2 of § 176.170(c) of this chapter.</li> <li>2. At levels not to exceed 0.3 percent by weight of polyolefins complying with § 177.1520 of this chapter, for use in contact with food of types III, IV-A, V, VII-A, and IX under conditions of use C through G as described in tables 1 and 2 of § 176.170(c) of this chapter.</li> </ol>
Bis(2,4-di- <i>tert</i> -butyl-6-methylphenyl) ethyl phosphite (CAS Reg. No. 145650-60-8).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.3 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter. The finished polymers may only be used with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, IV-B, VI-A, VI-B, VII-B, and VIII, and under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>2. At levels not to exceed 0.1 percent by weight of propylene polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 3.2b, 3.4, or 3.5, or 3.1a (where the density of this polymer is at least 0.85 gram per cubic centimeter and less than 0.91 gram per cubic centimeter). The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories III, IV-A, V, VI-C, VII-A, and IX, and under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>3. At levels not to exceed 0.1 percent by weight of high-density ethylene polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, or 3.6 (where the density of each of these polymers is at least 0.94 gram per cubic centimeter), or 5. The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories III, IV-A, V, VI-C, VII-A, and IX, and under conditions of use C (maximum temperature 70 °C) through G described in table 2 of § 176.170(c) of this chapter. <i>Provided</i>, that the finished food contact articles have a volume of at least 18.9 liters (5 gallons).</li> <li>4. At levels not to exceed 0.01 percent by weight of low-density ethylene polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, 3.4, 3.5, or 3.6 (where the density of each of these polymers is less than 0.94 gram per cubic centimeter). The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories III, IV-A, V, VI-C, VII-A, and IX, and under conditions of use B through H described in table 2 of § 176.170(c) of this chapter. <i>Provided</i>, that the average thickness of such polymers in the form in which they contact food shall not exceed 0.001 inch.</li> </ol>
1,2-Bis(3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamoyl)-hydrazine (CAS Reg. No. 32687-78-8).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As provided in § 175.105 of this chapter.</li> <li>2. At levels not exceeding 0.1 percent by weight of acrylonitrile-butadiene-styrene copolymers used in accordance with parts 175, 176, 177, and 181 of this chapter.</li> <li>3. At levels not exceeding 0.1 percent by weight of polyoxymethylene copolymers complying with § 177.2470 of this chapter and of polyoxymethylene homopolymers complying with § 177.2480 of this chapter.</li> </ol>

Substances	Limitations
2,6-Bis(1-methylheptadecyl)- <i>p</i> -cresol .....	For use only at levels not exceeding 0.3 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4. The average thickness of such polymers in the form in which they contact fatty food or food containing more than 8 percent of alcohol shall not exceed 0.004 inch.
3,9-bis[2,4-bis(1-methyl-1-phenylethyl)phenoxy]-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane (CAS Reg. No. 154862–43–8).	For use only: 1. At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, or 1.3, and items 2.1, 2.2, 2.3, 3.1, or 3.2 (where density of each of these polymers is greater than 0.94 gram per cubic centimeter) and under conditions of use C, D, E, F, and G as described in table 2 of § 176.170(c) of this chapter. 2. At levels not to exceed 0.06 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, item 3.1 or 3.2, having a density less than 0.94 gram per cubic centimeter and under conditions of use C, D, E, F, and G as described in table 2 of § 176.170(c) of this chapter.
5,7-bis(1,1-dimethylethyl)-3-hydroxy-2(3H)-benzofuranone, reaction products with <i>o</i> -xylene (CAS Reg. No. 181314–48–7).	For use only: 1. At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter. The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, Table 1, under Categories I, II, IV–B, VI–A, VI–B, VII–B, and VIII, and under conditions of use B through H described in Table 2 of § 176.170(c) of this chapter. 2. At levels not to exceed 0.02 percent by weight of propylene polymers and copolymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 3.1a, 3.2a, 3.2b, 3.4, or 3.5, and ethylene polymers and copolymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, or 3.6 (where the density of each of these polymers is at least 0.94 gram per cubic centimeter), or 5. The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, Table 1, under Categories III, IV–A, V, VI–C, VII–A, and IX, and under conditions of use B through H described in Table 2 of § 176.170(c) of this chapter; provided that the finished food-contact articles have a volume of at least 18.9 liters (5 gallons). 3. At levels not to exceed 0.02 percent by weight of ethylene polymers and copolymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, 3.4, 3.5, or 3.6 (where the density of each of these polymers is less than 0.94 gram per cubic centimeter). The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, Table 1, under Categories III, IV–A, V, VI–C, VII–A, and IX, and under conditions of use B through H described in Table 2 of § 176.170(c) of this chapter; provided that the average thickness of such polymers in the form in which they contact food shall not exceed 50 micrometers (0.002 inch).
3,9-Bis[2-{3-(3- <i>tert</i> -butyl-4-hydroxy-5-methylphenyl)propionyloxy}-1,1-dimethylethyl]-2,4,8,10-tetraoxaspiro[5.5]undecane (CAS Reg. No. 90498–90–1).	For use only: 1. At levels not to exceed 0.2 percent by weight of polypropylene complying with § 177.1520(c), item 1.1 of this chapter. The finished polymer is to be used in contact with food only under conditions of use D through H described in table 2 of § 176.170(c) of this chapter. 2. At levels not to exceed 0.3 percent by weight of polyethylene complying with § 177.1520(c) of this chapter, item 2.1, provided that the polymer has a minimum density of 0.94 grams per cubic centimeter and is used in contact with food only under conditions of use D through G described in table 2 of § 176.170(c) of this chapter. 3. At levels not to exceed 0.3 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 3.1, and 3.2, where the copolymers complying with items 3.1 and 3.2 contain not less than 85 weight percent of polymer units derived from propylene. The finished polymer is to be used in contact with food of types I, II, IV–B, VI–A, VI–B, VI–C, VII–B, and VIII under conditions of use A through H described in tables 1 and 2 of § 176.170(c) of this chapter.

Substances	Limitations
4-[[4,6-Bis(octylthio)-s-triazin-2-yl]amino]-2,6-di- <i>tert</i> -butylphenol (CAS Reg. No. 991-84-4).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.5 percent by weight: in styrene block copolymers complying with § 177.1810 of this chapter; in rosins and rosin derivatives complying with § 175.300(b)(3)(v) of this chapter; in can end cement formulations complying with § 175.300(b)(3)(xxxi) of this chapter; in side seam cement formulations complying with § 175.300(b)(3)(xxxii) of this chapter; in petroleum alicyclic hydrocarbon resins and terpene resins complying with § 175.320(b)(3) of this chapter; in rosin and rosin derivatives complying with § 176.170(a)(5) of this chapter; in petroleum alicyclic hydrocarbon resins or their hydrogenated products complying with § 176.170(b)(2) of this chapter; in terpene resins complying with § 175.300(b)(2)(xi) of this chapter, when such terpene resins are used in accordance with § 176.170(b)(1) of this chapter; in resins and polymers complying with § 176.180(b) of this chapter; in closures with sealing gaskets complying with § 177.1210 of this chapter; in petroleum hydrocarbon resin and rosins and rosin derivatives complying with § 178.3800(b) of this chapter; and in reinforced wax complying with § 178.3850 of this chapter.</li> <li>At levels not to exceed 0.2 percent by weight of the finished cellophane complying with § 177.1200 of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight in polystyrene and rubber-modified polystyrene complying with § 177.1640 of this chapter: <i>Provided</i>, That the finished polystyrene and rubber-modified polystyrene polymer contact food only under conditions of use B through G described in table 2 of § 176.170(c) of this chapter.</li> <li>In adhesives complying with § 175.105 of this chapter; in pressure-sensitive adhesives complying with § 175.125 of this chapter; and as provided in § 177.2600 of this chapter.</li> </ol>
4,4'-Bis( $\alpha,\alpha$ -dimethylbenzyl)diphenylamine (CAS Reg. No. 10081-67-1).	For use at levels not to exceed 0.3 percent by weight of polypropylene complying with § 177.1520(c) of this chapter. The polypropylene articles are limited to use in contact with non-fatty foods only.
Boric acid (CAS Reg. No. 10043-35-3). .....	For use only at levels not to exceed 0.16 percent by weight of ethylene-vinyl acetate-vinyl alcohol copolymers complying with § 177.1360(a)(3) and (d) of this chapter.
1,3-Butanediol. Butylated reaction product of <i>p</i> -cresol and dicyclopentadiene produced by reacting <i>p</i> -cresol and dicyclopentadiene in an approximate mole ratio of 1.5 to 1, respectively, followed by alkylation with isobutylene so that the butyl content of the final product is not less than 18 percent.	<p>For use only:</p> <ol style="list-style-type: none"> <li>As components of nonfood articles complying with §§ 175.105 and 177.2600(c)(4)(iii) of this chapter.</li> <li>At levels not to exceed 1.0 percent by weight of acrylonitrile/butadiene/styrene copolymers. The finished copolymers may be used in contact with food of Types I, II, IV-B, VI-A, VI-B, VII-B, and VIII under conditions of use B through H, as described in tables 1 and 2 of § 176.170(c) of this chapter, and with food of Types III, IV-A, V, VI-C, VII-A, and IX under conditions of use C through G as described in tables 1 and 2 of § 176.170(c) of this chapter.</li> </ol>
Butylated, styrenated cresols produced when equal moles of isobutylene, styrene, and a metacresol- <i>para</i> cresol mixture having a no more than 3 °C distillation range including 202 °C are made to react so that the final product meets the following specifications: Not less than 95 percent by weight of total alkylated phenols consisting of 13-25 percent by weight of butylated <i>m</i> - and <i>p</i> -cresols, 26-38 percent by weight of styrenated <i>m</i> - and <i>p</i> -cresols, 37-49 percent by weight of butylated styrenated <i>m</i> - and <i>p</i> -cresols, and not more than 10 percent by weight total of alkylated xylenols, alkylated <i>o</i> -cresol, alkylated phenol, and alkylated ethylphenol; acidity not more than 0.003 percent; and refractive index at 25 °C of 1.5550-1.5650, as determined by ASTM method D1218-82, "Standard Test Method for Refractive Index and Refractive Dispersion of Hydrocarbon Liquids," which is incorporated by reference. Copies may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia, PA 19103, or may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.	<p>For use only:</p> <ol style="list-style-type: none"> <li>As provided in §§ 175.105 and 177.2600 of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of polystyrene, rubber-modified polystyrene, or olefin polymers complying with § 177.1520 (c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4, or complying with other sections in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter, used in articles that contact food only under the conditions described in § 176.170(c) of this chapter, table 2, under conditions of use C through G.</li> </ol>

Substances	Limitations
2- <i>tert</i> -Butyl- <i>a</i> (3- <i>tert</i> -butyl-4-hydroxyphenyl)- <i>p</i> -cumenyl bis( <i>p</i> -nonylphenyl) phosphite; the nonyl group is a propylene trimer isomer and the phosphorus content is in the range 3.8–4.0 weight percent.	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As components of nonfood articles complying with §§ 175.105 and 177.2600 of this chapter.</li> <li>2. At levels not to exceed 1.35 percent by weight of natural rubber, butadiene-acrylonitrile, butadiene-acrylonitrile-styrene, and butadiene-styrene polymers that are used in contact with nonalcoholic food at temperatures not to exceed room temperature and that are employed in closure-sealing gaskets complying with § 177.1210 of this chapter or in coatings complying with § 175.300, § 175.320, or § 176.170 of this chapter. The average thickness of such coatings and closure-sealing gaskets shall not exceed 0.004 inch.</li> </ol>
2-(3'- <i>tert</i> -Butyl-2'-hydroxy-5'-methyl-phenyl)-5-chlorobenzotriazole with a melting point of 137–141 °C.	<p>For use only at levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, provided that the finished polymer contacts foods only of the types identified in Categories I, II, IV-B, VI-A and B, VII-B, and VIII in table 1, § 176.170 of this chapter.</p>
4,4'-Butylidenebis(6- <i>tert</i> -butyl- <i>m</i> -cresol) .....	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As provided in §§ 175.105 and 177.2600 of this chapter.</li> <li>2. At levels not to exceed 0.5 percent by weight of polypropylene complying with § 177.1520 of this chapter and for use at levels not to exceed 0.3 percent by weight of polyethylene complying with § 177.1520 of this chapter, provided that the finished polypropylene and polyethylene contact food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, VI–B, and VIII.</li> </ol>
Butyric acid, 3,3-bis(3- <i>tert</i> -butyl-4-hydroxyphenyl)ethylene ester (CAS Reg. No. 32509–66–3).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.5 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1 and 3.2 except that when used in contact with foods described as types III, IV–A, V, VII–A, and IX in table 1 of § 176.170(c) of this chapter, the olefin copolymers may only be used under conditions of use E, F, and G set forth in table 2 of § 176.170(c) of this chapter.</li> <li>2. At levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 1.1, 3.1, or 3.2 (where the copolymers complying with items 3.1 and 3.2 contain not less than 85 weight-percent of polymer units derived from propylene).</li> <li>3. At levels not to exceed 0.2 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 3.1, and 3.2.</li> </ol>
Calcium benzoate.	

Substances	Limitations
Calcium bis[monoethyl(3,5-di- <i>tert</i> -butyl-4-hydroxybenzyl)phosphonate] (CAS Reg. No. 65140-91-2).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.25 percent by weight of polypropylene that complies with § 177.1520(c) of this chapter, items 1.1, 1.2, and 1.3.</li> <li>2. At levels not to exceed 0.2 percent by weight of polyethylene and olefin copolymers that comply with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6. Finished polymers having a density less than 0.94 gram per cubic centimeter shall be used in contact with food only under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>3. In adhesives complying with § 175.105 of this chapter.</li> <li>4. At levels not to exceed 0.5 percent by weight of pressure-sensitive adhesives complying with § 175.125 of this chapter.</li> <li>5. At levels not to exceed 0.5 percent by weight of rosins and rosin derivatives complying with § 175.300(b)(3)(v) of this chapter.</li> <li>6. At levels not to exceed 0.5 percent by weight of can end cement formulations complying with § 175.300(b)(3)(xxi) of this chapter.</li> <li>7. At levels not to exceed 0.5 percent by weight of side seam cement formulations complying with § 175.300(b)(3)(xxii) of this chapter.</li> <li>8. At levels not to exceed 0.5 percent by weight of petroleum alicyclic hydrocarbon resins complying with § 175.320(b)(3) of this chapter.</li> <li>9. At levels not to exceed 0.5 percent by weight of rosin and rosin derivatives complying with § 176.170(a)(5) of this chapter; and petroleum alicyclic hydrocarbon resins, or the hydrogenated product thereof, complying with § 176.170(b)(2) of this chapter.</li> <li>10. At levels not to exceed 0.5 percent by weight of resins and polymers used as components of paper and paperboard in contact with dry food in compliance with § 176.180 of this chapter.</li> <li>11. At levels not to exceed 0.5 percent by weight of closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>12. At levels not to exceed 0.5 percent by weight of the finished rubber article complying with § 177.2600 of this chapter.</li> <li>13. At levels not to exceed 0.5 percent by weight of petroleum hydrocarbon resin and rosins and rosin derivatives complying with § 178.3800(b).</li> <li>14. At levels not to exceed 0.5 percent by weight of reinforced wax complying with § 178.3850.</li> <li>15. At levels not to exceed 0.3 percent by weight of polyethylene phthalate polymers, complying with § 177.1630 of this chapter. Provided, that the finished polymers contact food only under conditions of use B through H described in Table 2 of § 176.170(c) of this chapter.</li> </ol>
Calcium myristate. Calcium ricinoleate .....	<p>For use only at levels not to exceed 1 percent by weight of polyoxymethylene copolymer as provided in § 177.2470(b)(1) of this chapter.</p>
Calcium stearate. Carbathoxymethyl diethyl phosphonate (CAS Reg. No. 867-13-0).	<p>At levels not to exceed 0.07 percent by weight of polyethylene phthalate polymers complying with § 177.1630 of this chapter.</p>
Cerium stearate (CAS Reg. No. 10119-53-6) .....	<p>For use only at levels not to exceed 0.5 percent by weight in rigid and semirigid vinyl chloride homo- and copolymer articles modified in accordance with § 178.3790(b)(1) of this chapter that contact food under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</p>
Cupric acetate and lithium iodide .....	<p>For use at levels not exceeding 0.025 percent cupric acetate and 0.065 percent lithium iodide by weight of nylon 66 resins complying with § 177.1500 of this chapter; the finished resins are used or are intended to be used to contain foods during oven baking or oven cooking at temperatures above 250 °F. The average thickness of such resins in the form in which they contact food shall not exceed 0.0012 inch.</p>
Cuprous iodide .....	<p>For use at levels not exceeding 0.01 percent cuprous iodide by weight of nylon 66T resins complying with § 177.1500 of this chapter; the finished resins are used or are intended to be used to contain foods during oven baking or oven cooking at temperatures above 250 °F. The average thickness of such resins in the form in which they contact food shall not exceed 0.001 inch.</p>
Cuprous iodide and cuprous bromide .....	<p>For use at levels not exceeding 0.0025 percent cuprous iodide and 0.0175 percent cuprous bromide by weight of nylon 66 resins complying with § 177.1500 of this chapter; the finished resins are used or are intended to be used to contain foods during oven baking or oven cooking at temperatures above 250 °F. The average thickness of such resins in the form in which they contact food shall not exceed 0.0015 inch.</p>
Cyanoguanidine .....	<p>For use only at levels not to exceed 1 percent by weight of polyoxymethylene copolymer as provided in § 177.2470(b)(1) of this chapter.</p>

Substances	Limitations
Cyclic neopentetetrayl bis(octadecyl phosphite) (CAS Reg. No. 3806–34–6); the phosphorus content is in the range of 7.8 to 8.2 weight percent.	For use only at levels not to exceed 0.1 percent by weight of ethylene-vinyl acetate copolymers complying with § 177.1350 of this chapter that contact food under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.
Cyclic neopentetetrayl bis(octadecyl phosphite) (CAS Reg. No. 3806–34–6) (which may contain not more than 1 percent by weight of triisopropanolamine (CAS Reg. No. 122–20–3)); the phosphorus content is in the range of 7.8 to 8.2 weight percent.	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.25 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 2.1, and 3.1.</li> <li>2. At levels not to exceed 0.25 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 2.2, that contact food Types I, II, VI-A, VII-B, and VIII described in table 1 of § 176.170(c) of this chapter under conditions of use B (for boil-in-bag applications), C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> <li>3. At levels not to exceed 0.15 percent by weight of olefin polymers complying with § 177.1520, items 1.1 and 3.2, that contact food Types I, II, VI-A, VII-B, and VIII described in table 1 of § 176.170(c) of this chapter under conditions of use B (for boil-in-bag applications), C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> <li>4. At levels not to exceed 0.20 percent by weight of polystyrene and/or rubber modified polystyrene complying with § 177.1640 of this chapter that contact food under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> </ol>
4,4'-Cyclohexylidenebis(2-cyclohexylphenol) .....	For use only at levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4: <i>Provided</i> , That the finished polymers contact food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, IV-B, VI, VII-B, and VIII.
Dicetyl thiodipropionate having a melting point of 59°–62 °C as determined by ASTM method E324–79, "Standard Test Method for Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals," and a saponification value in the range 176–183 as determined by ASTM method D1962–67 (Reapproved 1979), "Standard Test Method for Saponification Value of Drying Oils, Fatty Acids, and Polymerized Fatty Acids," which are incorporated by reference. Copies may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia, PA 19103, or may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.	The concentration of this additive and any other permitted antioxidants in the finished food-contact article shall not exceed a total of 0.5 milligram per square inch of food-contact surface.
Didodecyl-1,4-dihydro-2,6-dimethyl-3,5-pyridinedicarboxylate (CAS Reg. No. 36265–41–5).	For use only at levels not to exceed 0.3 percent by weight in rigid polymer articles modified in accordance with § 178.3790 that contact food, under conditions of use E, F, and G described in table 2 of § 176.170 of this chapter.
2,6-Di(α-methyl benzyl)-4-methyl phenol [Chemical Abstracts Service Registry No. 1817–68–1].	For use only at levels not to exceed 0.2 percent by weight of olefin polymers complying with item 3.4 in § 177.1520(c) of this chapter, provided that such olefin polymers are limited to use at a level not to exceed 25 percent by weight in other olefin polymers complying with § 177.1520 of this chapter; and the total amount in such finished olefin polymers not to exceed 0.05 percent by weight, including the level that may be contributed by its presence at 6 percent in the item "butylated, styrenated cresols * * *" listed in this paragraph; and further provided that the finished olefin polymers are intended for contact with foods, except those containing more than 8 percent alcohol.
2,4-Dimethyl-6-(1-methylpentadecyl)phenol (CAS Reg. No. 134701–20–5).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.3 percent by weight of acrylonitrile-butadiene-styrene copolymers used in accordance with applicable regulations in parts 175, 176, 177, and 181 of this chapter, under conditions of use C through H as described in table 2 of § 176.170(c) of this chapter.</li> <li>2. At levels not to exceed 0.033 percent by weight of rigid polyvinyl chloride, under conditions of use A through H as described in table 2 of § 176.170(c) of this chapter.</li> </ol>
Dimethyl succinate polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (CAS Reg. No. 65447–77–0).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.3 percent by weight of olefin polymers complying with § 177.1520 of this chapter and under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>2. At levels not to exceed 0.3 percent by weight of ethylene-vinyl acetate copolymers complying with § 177.1350 of this chapter and under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
<p>Dimethyltin/monomethyltin isooctylmercaptoacetates consisting of 5 to 90 percent by weight of monomethyltin tris(isooctylmercaptoacetate) (CAS Reg. No. 54849-38-6) or monomethyltin tris(2-ethylhexylmercaptoacetate) (CAS Reg. No. 57583-34-3) and 10 to 95 percent by weight of dimethyltin bis(isooctylmercaptoacetate) (CAS Reg. No. 26636-01-1) or dimethyltin bis(2-ethylhexylmercaptoacetate) (CAS Reg. No. 57583-35-4), and no more than 0.4 percent by weight of trimethyltin compounds, and having the following specifications: Tin content (as Sn) in the range of 15 to 21 percent and mercaptosulfur content in the range of 11 to 13.5 percent. Other alkyltin compounds are not to exceed 20 ppm.</p>	<p>For use only at levels not to exceed 2 percent by weight:</p> <ol style="list-style-type: none"> <li>1. In rigid polyvinyl chloride used in the manufacture of pipes intended for contact with water in food-processing plants, and</li> <li>2. In rigid polyvinyl chloride and in rigid vinyl chloride copolymers complying with § 177.1950 of this chapter or § 177.1980 of this chapter for use in contact with food of Types I, II, III, IV (except liquid milk), V, VI, VII, VIII, and IX described in table 1 of § 176.170(c) of this chapter under conditions of use C through G described in table 2 of § 176.170(c) of this chapter at temperatures not to exceed 88 °C (190 °F).</li> </ol>
<p>Dimyristyl thiodipropionate having a melting point of 48°-52 °C as determined by ASTM method E324-79, "Standard Test Method for Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals," and a saponification equivalent in the range 280-290 as determined by ASTM method D1962-67 (Re-approved 1979), "Standard Test Method for Saponification Value of Drying Oils, Fatty Acids, and Polymerized Fatty Acids," which are incorporated by reference. Copies may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia PA 19103, or may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.</p>	<p>Finished food-contact articles containing this additive shall meet the extractives limitations prescribed in § 176.170(c) of this chapter.</p>
<p>Di(<i>n</i>-octyl)tin bis(2-ethylhexyl maleate) [CAS Reg. No. 10039-33-5] having 12.5 to 15.0 percent by weight of tin (Sn) and having a saponification number of 260 to 280. The additive is made from di(<i>n</i>-octyl)tin oxide meeting the specifications of § 178.2650(a)(1).</p>	<p>For use only at levels not to exceed 0.5 percent by weight of acrylonitrile copolymers complying with §§ 177.1020 and 177.1030 of this chapter and used in contact with all food types under conditions of use C through G described in table 2 of § 176.170(c) of this chapter.</p>
<p><i>N,N'</i>-Diphenylthiourea .....</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.5 percent by weight of polyvinyl chloride and/or vinyl chloride copolymers complying with § 177.1980 of this chapter.</li> <li>2. At levels not to exceed 0.5 percent by weight of vinyl chloride-vinyl acetate copolymers containing not more than 20 molar percent of vinyl acetate.</li> </ol>
<p>2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol (CAS Reg. No. 147315-50-2).</p>	<p>For use only</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.5 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter.</li> <li>2. At levels not to exceed 0.5 percent by weight of polyester elastomers complying with § 177.1590 of this chapter.</li> <li>3. At levels not to exceed 0.5 percent by weight of polyethylene phthalate polymers complying with § 177.1630 of this chapter, in contact with food under conditions of use A through H described in Table 2 of § 176.170(c) of this chapter.</li> </ol>
<p>2,6-Di-<i>tert</i>-butyl-4-ethylphenol .....</p>	<p>For use only in contact with nonalcoholic foods:</p> <ol style="list-style-type: none"> <li>1. At levels not exceeding 0.04 mg/in<sup>2</sup> of food contact surface and not exceeding 0.1 percent by weight in ethylene polymers and copolymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1, 3.2, and 3.3; § 177.1340; and § 177.1350 of this chapter. The average thickness of such polymers and copolymers in the form in which they contact food shall not exceed 0.0025 in.</li> <li>2. At levels not exceeding 0.04 mg/in<sup>2</sup> of food contact surface in ethylene polymers and copolymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1, 3.2, and 3.3; § 177.1340; and § 177.1350 of this chapter. The average thickness of such polymers and copolymers in the form in which they contact food shall be greater than 0.0025 in but shall not exceed 0.025 in.</li> </ol>

Substances	Limitations
<p>3,5-Di-<i>tert</i>-butyl-4-hydroxyhydrocinnamic acid triester with 1,3,5-tris(2-hydroxyethyl)-s-triazine-2,4,6-(1<i>H</i>,3<i>H</i>,5<i>H</i>)-trione (CAS Reg. No. 34137-09-2).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.5 percent by weight of polypropylene complying with § 177.1520 of this chapter in articles that contact food not in excess of high temperature heat-sterilized condition of use A described in § 176.170(c) of this chapter, table 2.</li> <li>At levels not to exceed 0.5 percent by weight of polyethylene complying with § 177.1520 of this chapter in articles that contact food not in excess of high temperature heat-sterilized condition of use A described in § 176.170(c) of this chapter, table 2.</li> <li>In adhesives complying with § 175.105 of this chapter.</li> <li>At levels not to exceed 0.25 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1, 3.2, 3.3, 3.4, 3.5, and 4.0.</li> <li>At levels not to exceed 2 percent by weight of polyester elastomers, complying with § 177.1590 of this chapter, in contact with dry food only, and finished rubber articles for repeated use, complying with § 177.2600 of this chapter, in contact with all foods, at temperatures not to exceed 150 °F.</li> </ol>
<p>Di-<i>tert</i>-butyl-<i>m</i>-cresyl phosphonite condensation product with biphenyl (CAS Reg. No. 178358–58–2) produced by the condensation of 2,4-di-<i>tert</i>-butyl-<i>m</i>-cresol with the Friedel-Crafts addition product (phosphorus trichloride and biphenyl) so that the food additive has a minimum phosphorus content of 5.0 percent.</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 2.1, 2.2, 3.1(a), 3.1(b), 3.2(a), or 3.2(b).</li> </ol>
<p>Di-<i>tert</i>-butylphenyl phosphonite condensation product with biphenyl (CAS Reg. No. 119345–01–6) produced by the condensation of 2,4-di-<i>tert</i>-butylphenol with the Friedel-Crafts addition product (phosphorus trichloride and biphenyl) so that the food additive has a minimum phosphorus content of 5.4 percent, an acid value not exceeding 10 mg KOH/gm, and a melting range of 85 °C to 110 °C (185 °F to 230 °F).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 3.2b, 3.3a, 3.3b, 3.4, 3.5, and 3.1a (where the density is not less than 0.85 gram per cubic centimeter and not more than 0.91 gram per cubic centimeter); and 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, and 3.6 (where the density is not less than 0.94 gram per cubic centimeter) and 5.</li> <li>At levels not to exceed 0.1 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter.</li> <li>At levels not to exceed 0.2 percent by weight of polystyrene and 0.3 percent by weight of rubber-modified polystyrene complying with § 177.1640 of this chapter.</li> <li>At levels not to exceed 0.15 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, 3.4, 3.5, and 3.6 (where the polyethylene component has a density less than 0.94 gram per cubic centimeter).</li> <li>At levels not to exceed 0.1 percent by weight of repeated use rubber articles complying with § 177.2600 of this chapter.</li> </ol>
<p>2,4-Di-<i>tert</i>-butylphenyl-3,5-di-<i>tert</i>-butyl-4-hydroxybenzoate (CAS Reg. No. 4221–80–1).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.6 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 1.1: (1) when used in single-use articles that contact food of types I, II, IV–B, VI–A, VI–B, VII–B, and VIII, identified in table 1 of § 176.170(c) of this chapter; and (2) when used in repeated-use articles that contact food of types I, II, III, IV, V, VI, VII, VIII, and IX identified in table 1 of § 176.170(c) of this chapter. The additive is used under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.25 percent by weight of olefin polymers having a density of not less than 0.94 gram per cubic centimeter and complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 3.1, and 3.2: (1) when used in single-use articles that contact food of types I, II, IV–B, VI–A, VI–B, VII–B, and VIII, identified in table 1 of § 176.170(c) of this chapter; and (2) when used in repeated-use articles that contact food of types I, II, III, IV, V, VI, VII, VIII, and IX identified in table 1 of § 176.170(c) of this chapter. The additive is used under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> </ol>
<p>2,4-Di-<i>tert</i>-pentyl-6-[1-(3,5-di-<i>tert</i>-pentyl-2-hydroxyphenyl)ethyl]phenyl acrylate (CAS Reg. No. 123968-25-2).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.2 percent by weight of polypropylene complying with § 177.1520 of this chapter. The additive is used under conditions of use D through G described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of styrene block polymers complying with § 177.1810 of this chapter. The additive is used under conditions of use D through G described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of polystyrene and rubber-modified polystyrene complying with § 177.1640 of this chapter in contact with all food types under conditions of use D through G as described in table 2 of § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
Ethylenebis(oxyethylene)-bis-(3- <i>tert</i> -butyl-4-hydroxy-5-methylhydrocinnamate) (CAS Reg. No. 36443-68-2).	<ol style="list-style-type: none"> <li>1. At levels not to exceed 0.3 percent by weight of polystyrene and/or rubber modified polystyrene polymers complying with §177.1640 of this chapter.</li> <li>2. At levels not to exceed 0.3 percent by weight of acrylonitrile-butadiene-styrene copolymers used in accordance with applicable regulations in parts 175, 176, 177, and 181 of this chapter.</li> <li>3. At levels not to exceed 0.75 percent by weight of polyoxymethylene copolymers used in accordance with §177.2470 of this chapter. The finished articles shall not be used for foods containing more than 15 percent alcohol.</li> <li>4. At levels not to exceed 0.25 percent by weight of polyoxymethylene homopolymers used in accordance with §177.2480 of this chapter. The finished articles shall not be used for foods containing more than 15 percent alcohol.</li> <li>5. At levels not to exceed 0.2 percent by weight of rigid vinyl chloride plastics prepared from vinyl chloride homopolymers and/or vinyl chloride copolymers used in accordance with a prior sanction or applicable regulations in parts 175, 176, and 177 of this chapter. The vinyl chloride copolymers shall contain not less than 50 weight percent of total polymer units derived from vinyl chloride.</li> <li>6. At levels not to exceed 0.1 percent by weight of vinylidene chloride homopolymers and/or vinylidene chloride copolymers used in accordance with a prior sanction or applicable regulations in parts 175, 176, and 177 of this chapter. The vinylidene chloride copolymers shall contain not less than 50 weight percent of total polymer units derived from vinylidene chloride.</li> <li>7. In adhesives used in accordance with §175.105 of this chapter.</li> </ol>
2,2'-Ethylidenebis(4,6-di- <i>tert</i> -butylphenol) (CAS Reg. No. 35958-30-6).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.1 percent by weight of olefin polymers complying with §177.1520(c) of this chapter, item 1.1, 1.2, 1.3, 3.1, or 3.2 (where the polymers complying with items 3.1 and 3.2 contain primarily polymer units derived from propylene).</li> <li>2. At levels not to exceed 0.05 percent by weight of olefin polymers complying with §177.1520(c) of this chapter, item 2.1, 2.2, or 2.3. The finished polymers are to be used only under conditions of use B through H described in table 2 of §176.170(c) of this chapter.</li> <li>3. At levels not to exceed 0.075 percent by weight of olefin polymers complying with §177.1520(c) of this chapter, item 2.1, 2.2, or 2.3 (where the density of each of these polymers is not less than 0.94 g/cc) and item 3.1 or 3.2 (where each of these polymers contains primarily polymer units derived from ethylene).</li> <li>4. At levels not to exceed 0.05 percent by weight of olefin polymers complying with §177.1520(c) of this chapter, item 3.3, 3.4, 3.5, or 4.</li> <li>5. At levels not to exceed 0.1 percent by weight of ethylene vinyl acetate copolymers complying with §177.1350 of this chapter and under conditions of use C through G described in table 2 of §176.170(c) of this chapter.</li> <li>6. At levels not to exceed 0.1 percent by weight of rigid or semirigid polyvinyl chloride and under conditions of use B through H described in table 2 of §176.170(c) of this chapter.</li> <li>7. At levels not to exceed 0.2 percent by weight of acrylonitrile-butadiene-styrene copolymers containing less than 30 percent by weight of acrylonitrile and under conditions of use D through G described in table 2 of §176.170(c) of this chapter.</li> <li>8. At levels not to exceed 0.1 percent by weight of polystyrene complying with §177.1640 of this chapter and under conditions of use D through G described in table 2 of §176.170(c) of this chapter.</li> <li>9. At levels not to exceed 0.2 percent by weight of rubber-modified polystyrene complying with §177.1640 of this chapter.</li> <li>10. In adhesives complying with §175.105 of this chapter.</li> </ol>

Substances	Limitations
<p>2,2'-Ethylidenebis(4,6-di-<i>tert</i>-butylphenyl)fluorophosphonite (CAS Reg. No. 118337–09–0).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As provided in § 175.105 of this chapter.</li> <li>2. In all polymers used in contact with food of types I, II, IV–B, VI–A, VI–B, VII–B, and VIII, under conditions of use B through H described in Tables 1 and 2 of § 176.170(c) of this chapter at levels not to exceed 0.25 percent by weight of polymers.</li> <li>3. In polypropylene complying with § 177.1520(c) of this chapter, item 1.1, in contact with food of types III, IV–A, V, VII–A, and IX, under: <ol style="list-style-type: none"> <li>(a) Conditions of use B through H described in Tables 1 and 2 of § 176.170(c) of this chapter at levels not to exceed 0.25 percent by weight of the polymer; or</li> <li>(b) Condition of use A, limited to levels not to exceed 0.1 percent by weight of the polymer; provided that the food-contact surface has an average thickness not exceeding 375 micrometers (0.015 inch).</li> </ol> </li> <li>4. In olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1a or 3.2a, and containing not less than 85 percent by weight of polymer units derived from propylene, in contact with food of types III, IV–A, V, VII–A, and IX, and under: <ol style="list-style-type: none"> <li>(a) Conditions of use C through G, described in Tables 1 and 2 of § 176.170(c) of this chapter, limited to levels no greater than 0.2 percent by weight of the copolymers; or</li> <li>(b) Conditions of use A, B, and H, limited to levels no greater than 0.1 percent by weight of the olefin copolymers; provided that the food-contact surface has an average thickness not exceeding 375 micrometers (0.015 inch).</li> </ol> </li> <li>5. In olefin polymers complying with § 177.1520(c) of this chapter, items 1.2 or 1.3 in contact with food of types III, IV–A, V, VII–A, and IX, under conditions of use A through H, described in Tables 1 and 2 of § 176.170(c) of this chapter at levels not to exceed 0.1 percent by weight of the polymers; provided that the food-contact surface has an average thickness not exceeding 375 micrometers (0.015 inch).</li> <li>6. In polyethylene complying with § 177.1520(c) of this chapter, items 2.1 or 2.2, having a density of not less than 0.94, in contact with food of types III, IV–A, V, VII–A, and IX, and under: <ol style="list-style-type: none"> <li>(a) Conditions of use B through H, described in Tables 1 and 2 of § 176.170(c) of this chapter limited to levels not to exceed 0.2 percent by weight of the polymers; or</li> <li>(b) Condition of use A, described in Tables 1 and 2 of § 176.170(c) of this chapter, limited to levels not to exceed 0.1 percent by weight of the polymer; provided that the food-contact surface has an average thickness not exceeding 125 micrometers (0.005 inch).</li> </ol> </li> <li>7. In olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1a, 3.1b, 3.2a, or 3.2b, containing not less than 85 percent by weight of polymer units derived from ethylene and having a density of not less than 0.94, in contact with food of types III, IV–A, V, VII–A, and IX, and under: <ol style="list-style-type: none"> <li>(a) Conditions of use C through G, described in Tables 1 and 2 of § 176.170(c) of this chapter limited to levels not to exceed 0.2 percent by weight of the copolymers; or</li> <li>(b) Conditions of use A, B, and H, limited to levels not to exceed 0.1 percent by weight of the copolymers; provided that the food-contact surface has an average thickness not exceeding 125 micrometers (0.005 inch).</li> </ol> </li> <li>8. In olefin polymers complying with § 177.1520(c) of this chapter, items 3.1a, 3.1b, 3.2a, or 3.2b containing not less than 85 percent by weight of polymer units derived from ethylene, in contact with food of types III, IV–A, V, VII–A, and IX, under conditions of use A through H, as described in Tables 1 and 2 of § 176.170(c) of this chapter at levels not to exceed 0.1 percent by weight of the copolymer; provided that the food-contact surface has an average thickness not exceeding 75 micrometers (0.003 inch).</li> <li>9. In polyethylene phthalate polymers complying with § 177.1630 of this chapter in contact with food of types III, IV–A, V, VI–C, VII–A, and IX, and under: <ol style="list-style-type: none"> <li>(a) Conditions of use B through H, described in tables 1 and 2 of § 176.170(c) of this chapter, limited to levels not to exceed 0.3 percent by weight of the polymers; or</li> <li>(b) Condition of use A with food of types III, IV–A, V, VII–A, and IX, and limited to levels not to exceed 0.1 percent by weight of the polymers; provided that the film thickness does not exceed 875 micrometers (0.035 inch).</li> </ol> </li> </ol>
<p>Hexadecyl 3,5-di-<i>tert</i>-butyl-4-hydroxybenzoate (CAS Reg. No. 67845–93–6).</p>	<p>For use only at levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520 of this chapter.</p>

Substances	Limitations
Hexamethylenebis (3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamate) (CAS Reg. No. 35074-77-2).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As provided in § 177.2470(b)(1) and § 177.2480(b)(1) of this chapter.</li> <li>2. In adhesives complying with § 175.105 of this chapter.</li> <li>3. At levels not to exceed 1 percent by weight in pressure-sensitive adhesives complying with § 175.125 of this chapter.</li> <li>4. At levels not to exceed 1 percent by weight in can end cement formulations complying with § 175.300(b)(3)(xxxi) of this chapter.</li> <li>5. At levels not to exceed 1 percent by weight in side seam cement formulations complying with § 175.300(b)(3)(xxii) of this chapter.</li> <li>6. At levels not to exceed 1 percent by weight in petroleum alicyclic hydrocarbon resins, polyamide resins, and terpene resins complying with § 175.320 of this chapter.</li> <li>7. At levels not to exceed 1 percent by weight in rosin and rosin derivatives when used in accordance with § 176.170(a)(5) of this chapter.</li> <li>8. At levels not to exceed 1 percent by weight in petroleum alicyclic hydrocarbon resins or their hydrogenated products complying with § 176.170(b)(2) of this chapter.</li> <li>9. At levels not to exceed 1 percent by weight in terpene resins complying with § 175.300(b)(3)(xi) of this chapter, when such terpene resins are used in accordance with § 176.170(b)(1) of this chapter.</li> <li>10. At levels not to exceed 1 percent by weight in resins and polymers authorized for use in accordance with § 176.180 of this chapter.</li> <li>11. At levels not to exceed 1 percent by weight in closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>12. At levels not to exceed 1 percent by weight in rubber articles intended for repeated use complying with § 177.2600 of this chapter.</li> <li>13. At levels not to exceed 1 percent by weight in petroleum hydrocarbon resin and rosins and rosin derivatives used in accordance with § 178.3800 of this chapter.</li> <li>14. At levels not to exceed 1 percent by weight in reinforced wax complying with § 178.3850 of this chapter.</li> </ol>
<i>N,N</i> -Hexamethylenebis (3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamide) (CAS Reg. No. 23128-74-7).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 1 percent by weight of nylon resins complying with § 177.1500(b) of this chapter, items 1 through 8, that contact food only of the types identified in categories in § 176.170(c) of this chapter, table 1 except VI-A and VI-C.</li> <li>2. At levels not to exceed 0.75 percent by weight of nylon 12 resins complying with § 177.1500(b) of this chapter, item 9, that contact food only of the types identified in categories in § 176.170(c) of this chapter, table 1, except VI-A and VI-C.</li> <li>3. At levels not to exceed 0.6 percent by weight of polyester resins complying with § 175.300(b)(3)(vii) of this chapter.</li> <li>4. At levels not to exceed 0.6 percent by weight of closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>5. At levels not to exceed 0.6 percent by weight of repeated use rubber articles complying with § 177.2600 of this chapter.</li> <li>6. At levels not to exceed 0.5 percent by weight of polyoxymethylene copolymer complying with § 177.2470 of this chapter.</li> <li>7. At levels not to exceed 0.5 percent by weight of polyoxymethylene homopolymer complying with § 177.2480 of this chapter.</li> </ol>
1,6-Hexanediamine, <i>N,N</i> -bis(2,2,6,6-tetramethyl-4-piperidiny)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated (CAS Reg. No. 193098-40-7).	<p>For use only as a stabilizer at levels not to exceed 0.3 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter. The finished polymers are to contact food only under conditions of use C, D, E, F, and G, as described in Table 2 of § 176.170(c) of this chapter. Provided that the finished food-contact articles have a volume of at least 18.9 liters (5 gallons).</p>
2-Hydroxy-4-isooctoxy-benzophenone. Chemical Abstracts (CA) name: Methanone, [2-hydroxy-4-(isooctyloxy) phenyl]phenyl; CA Registry No. 330:59-05-1.	<p>For use only at levels not to exceed 0.5 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter: items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3 or 4: <i>Provided</i>, That the finished polymer contacts food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, VII-B and VIII under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.</p>

Substances	Limitations
2-(2'-Hydroxy-5'-methylphenyl)benzotriazole meeting the following specification: melting point 126°–132 °C (258.8°–269.6 °F) (CAS Reg. No. 2440–22–4).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. As component of nonfood articles complying with § 177.1010 of this chapter.</li> <li>2. At levels not to exceed 0.25 percent by weight of rigid polyvinyl chloride and/or rigid vinyl chloride copolymers complying with § 177.1980 of this chapter.</li> <li>3. In polystyrene that complies with § 177.1640 of this chapter and that is limited to use in contact with dry food of Type VIII described in table 1 of § 176.170(c) of this chapter.</li> <li>4. At levels not to exceed 0.25 percent by weight of polystyrene and/or rubber-modified polystyrene polymers complying with § 177.1640 of this chapter intended to contact nonalcoholic food: <i>Provided</i>, That the finished basic rubber-modified polystyrene polymers in contact with fatty foods shall contain not less than 90 weight percent of total polymer units derived from styrene monomer.</li> <li>5. At levels not to exceed 0.5 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter. <i>Provided</i>, That the finished polycarbonate resins contact food only of Types I, II, III, IV, V, VI–A, VI–B, VII, VIII, and IX identified in table 1 of § 176.170(c) of this chapter and under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> <li>6. At levels not to exceed 0.5 percent by weight of ethylene-1,4-cyclohexylene dimethylene terephthalate copolymers complying with § 177.1315 of this chapter and of ethylene phthalate polymers complying with § 177.1630 of this chapter and that contact food only under conditions of use D through G described in table 2, § 176.170(c) of this chapter.</li> </ol>
2-Hydroxy-4- <i>n</i> -octoxy-benzophenone .....	<p>For use only at levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4: <i>Provided</i>, That the finished polymer contacts food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, IV-B, VII-B, and VIII, and under the conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</p>
4,4'-Isopropylidenediphenol alkyl(C <sub>12</sub> -C <sub>13</sub> ) phosphites; the phosphorus content is in the range of 5.2–5.6 weight percent.	<p>For use only at levels not exceeding 1.0 percent by weight in rigid polyvinyl chloride and/or rigid vinyl chloride copolymers complying with §§ 177.1950, 177.1970 or 177.1980 of this chapter, and used in contact with food, except milk, only under the conditions described in § 176.170(c) of this chapter, table 2, under conditions of use D through G.</p>
Magnesium salicylate .....	<p>For use only in rigid polyvinyl chloride and/or in rigid vinyl chloride copolymers complying with § 177.1980 of this chapter: <i>Provided</i>, That total salicylates (calculated as the acid) do not exceed 0.3 percent by weight of such polymers.</p>
2-methyl-4,6-bis-[(octylthio)methyl] phenol (CAS Reg. No. 110553–27–0).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. In adhesives complying with § 175.105 of this chapter.</li> <li>2. At levels not to exceed 0.5 percent by weight of can-end cements and side-seam cements complying with § 175.300(b)(3)(xxxi) and (xxxii) of this chapter.</li> <li>3. At levels not to exceed 1 percent by weight of pressure-sensitive adhesives complying with § 175.125 of this chapter, petroleum alicyclic hydrocarbon resins complying with § 176.170 of this chapter, resins and polymers complying with § 176.180 of this chapter, and closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>4. At levels not to exceed 0.5 percent by weight of finished rubber products complying with § 177.2600 of this chapter.</li> <li>5. At levels not to exceed 0.1 percent by weight of petroleum alicyclic hydrocarbon resins complying with § 175.320 of this chapter; rubber-modified polystyrene complying with § 177.1640 of this chapter; and petroleum hydrocarbon resins and rosins and rosin derivatives complying with § 178.3800 of this chapter.</li> <li>6. At levels not to exceed 0.2 percent by weight of styrene block polymers complying with § 177.1810 of this chapter that contact food of Types I, II, IV–B, VI, VII–B, and VIII described in table 1, § 176.170(c) of this chapter, only under conditions of use C through H described in table 2, § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
2,2'-Methylenebis(4,6-di- <i>tert</i> -butylphenyl)2-ethylhexyl phosphite (CAS Reg. No. 126050-54-2).	For use only at levels not to exceed 0.25 percent by weight of polypropylene complying with § 177.1520 of this chapter. The finished polymers may only be used in contact with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, IV-B, VI-B, VII-B, and VIII under conditions of use B through H described in table 2, § 176.170(c) of this chapter, and with food of the types identified in § 176.170(c) of this chapter, table 1, under Categories III, IV-A, V, VI-A, VI-C, VII-A, and IX under conditions of use C through G described in table 2, § 176.170(c) of this chapter.
2,2'-Methylenebis (6- <i>tert</i> -butyl-4-ethylphenol) .....	For use only: 1. In acrylonitrile-butadiene-styrene copolymers at levels not to exceed 0.6 percent by weight of the copolymer. 2. In semirigid and rigid acrylic and modified acrylic plastics complying with § 177.1010 of this chapter at levels not to exceed 0.1 percent by weight of the plastic.
4,4'-Methylenebis (2,6-di- <i>tert</i> -butyl-phenol) .....	For use only: 1. As provided in § 175.105 of this chapter. 2. At levels not to exceed 0.25 percent by weight of petroleum hydrocarbon resins used in compliance with regulations in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter. 3. At levels not to exceed 0.25 percent by weight of terpene resins used in compliance with regulations in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter. 4. At levels not to exceed 0.5 percent by weight of polyethylene complying with § 177.1520 of this chapter: <i>Provided</i> , That the polyethylene end product contacts foods only of the types identified in Categories I, II, IV-B, VI, VII-B, and VIII in table 1, § 176.170(c) of this chapter. 5. At levels not to exceed 0.5 percent by weight of polybutadiene used in rubber articles complying with § 177.2600 of this chapter: <i>Provided</i> , That the rubber end product contacts foods only of the types identified in Categories I, II, IV-B, VI, VII-B, and VIII in table 1, § 176.170(c) of this chapter.
2,2'-Methylenebis(4-methyl-6- <i>tert</i> -butylphenol) .....	For use only: 1. At levels not to exceed 0.1 percent by weight of olefin polymers complying with sec. 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4 used in articles that contact food of the types identified in sec. 176.170(c) of this chapter, table 1, under Categories I, II, IV-B, VI, VII-B, and VIII. 2. At levels not to exceed 1 percent by weight of polyoxymethylene copolymer as provided in sec. 177.2470(b)(1) of this chapter. 3. At levels not to exceed 0.5 percent by weight of polyoxymethylene homopolymer as provided in § 177.2480(b)(1) of this chapter.
2,2'-Methylenebis(4-methyl-6- <i>tert</i> -butylphenol) monoacrylate (CAS Reg. No. 61167-58-6).	For use only: 1. At levels not to exceed 0.5 percent by weight of polystyrene and rubber-modified polystyrene complying with § 177.1640 of this chapter. 2. At levels not to exceed 0.5 percent by weight of styrene block polymers complying with § 177.1810 of this chapter. 3. At levels not to exceed 1 percent by weight of adhesives complying with § 175.105 of this chapter and pressure sensitive adhesives complying with § 175.125 of this chapter. 4. At levels not to exceed 0.5 percent by weight of acrylonitrile-butadiene-styrene copolymers that comply with § 177.1020 of this chapter when used in articles that contact food only under conditions of use E, F, and G as described in table 2, § 176.170 (c) of this chapter.
2,2'-Methylenebis[6-(1-methylcyclo-hexyl)- <i>p</i> -cresol]	For use only: 1. As provided in § 177.1210 of this chapter. 2. At levels not to exceed 0.2 percent by weight of polyethylene complying with § 177.1520 of this chapter: <i>Provided</i> , That the finished polyethylene contacts foods only of the type identified in § 176.170(c) of this chapter, table 1, under Categories I, II, VI-B, and VIII. 3. In polyethylene complying with § 177.1520 of this chapter: <i>Provided</i> , That the finished polyethylene contacts foods only of the types identified in § 176.170(c) of this chapter, table 1, under Categories III, IV, V, VI-A, VII, and IX, and only at temperatures not to exceed room temperature: <i>And further provided</i> , That percentage concentration of the antioxidant in the polyethylene, when multiplied by the thickness in inches of the finished polyethylene, shall not be greater than 0.0005.
2,2'-Methylenebis(4-methyl-6-nonylphenol) and 2,6-bis(2-hydroxy-3-nonyl-5-methyl-benzyl)- <i>p</i> -cresol mixtures (varying proportions).	For use only in acrylonitrile-butadiene-styrene copolymers used in contact with nonalcoholic foods.
Nylon 66/610/6 terpolymer (see § 177.1500 of this chapter for identification).	For use only at levels not to exceed 1.5 percent by weight of polyoxymethylene homopolymer as provided in § 177.2480 (b)(1) of this chapter.

Substances	Limitations
<p>Nylon 612/6 copolymer. (CAS Reg. No. 51733–10–9), weight ratio 6/1.</p> <p>Octadecyl 3,5-di-<i>tert</i>-butyl-4-hydroxyhydrocinnamate (CAS Reg. No. 2082–79–3).</p>	<p>For use only at levels not to exceed 1.5 percent by weight of polyoxymethylene homopolymer as provided in § 177.2480(b)(1).</p> <p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not exceeding 0.25 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4.</li> <li>As provided in §§ 175.105 and 177.1010(a)(5) of this chapter.</li> <li>At levels not exceeding 0.25 percent by weight of polystyrene and/or rubber-modified polystyrene polymers complying with § 177.1640 of this chapter, except that the finished basic rubber-modified polystyrene polymers in contact with fatty foods shall contain not less than 85 weight percent of total polymer units derived from styrene monomer.</li> <li>At levels not to exceed 0.5 percent by weight of acrylonitrile-butadiene-styrene copolymers used in accordance with prior sanction or regulations in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter.</li> <li>At levels not exceeding 0.25 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.4 and 3.5 as follows: (a) item 3.4, <i>Provided</i>, That the finished copolymer contacts foods only of types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, III, IV–B, VI, VII, VIII, and IX; (b) item 3.5, <i>Provided</i>, That the finished copolymer contacts non-fatty foods only of types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, IV–B, VI, VII–B, and VIII.</li> <li>At levels not exceeding 0.05 percent by weight of modified semi-rigid and rigid vinyl chloride plastics modified with methacrylate-butadiene-styrene copolymers in accordance with § 178.3790.</li> <li>At levels not exceeding 0.2 percent by weight of rigid polyvinyl chloride.</li> <li>At levels not to exceed 0.3 percent by weight of polycarbonate resins that comply with § 177.1580 and that contact food only under conditions of use E, F, and G described in table 2, § 176.170(c) of this chapter.</li> <li>At levels not exceeding 0.1 percent by weight of ethylene-vinyl acetate copolymers complying with § 177.1350 of this chapter.</li> <li>At levels not to exceed 0.2 percent by weight of nitrile rubber-modified acrylonitrile-methyl acrylate copolymers that comply with § 177.1480 of this chapter when used in articles that contact food only under conditions of use D, E, F, and G described in table 2, § 176.170(c) of this chapter.</li> <li>At levels not exceeding 0.3 percent by weight of styrene block polymers complying with § 177.1810 of this chapter when used in articles that contact food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, IV–B, VI, VII–B, and VIII, and under conditions of use D, E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not exceeding 0.2 percent by weight of vinylidene chloride homopolymers and/or vinylidene chloride copolymers complying with applicable regulations in parts 175, 176, 177, 179, and 181 of this chapter. The vinylidene chloride copolymers shall contain not less than 50 weight percent of total polymer units derived from vinylidene chloride.</li> <li>At levels not exceeding 0.025 percent by weight of chlorinated isobutylene-isoprene copolymers complying with § 177.1420(a)(3) of this chapter.</li> <li>At levels not exceeding 0.5 percent by weight of the finished rubber article complying with § 177.2600 of this chapter.</li> </ol>
<p>Oxidized bis (hydrogenated tallow alkyl) amines .....</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.1 percent by weight of polypropylene polymers complying with § 177.1520(c) of this chapter, item 1.1, 1.2, 1.3, 3.1a (density not less than 0.85 gram per cubic centimeter and less than 0.91 gram per cubic centimeter), 3.2b, 3.4, and 3.5. The finished polymers may be used in contact with food types I, II, IV–B, VII–B and VIII described in table 1 of § 176.170(c) of this chapter, under conditions of use B through H described in table 2 of § 176.170(c) of this chapter and with food types III, IV–A, V, VI, VII–A, and IX described in table 1 of § 176.170(c) of this chapter, under conditions of use D through H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.075 percent by weight of high-density polyethylene polymers complying with § 177.1520(c) of this chapter, item 2.1, 2.2, 2.3, 3.1a, 3.1b, 3.2a, 3.6 (density not less than 0.94 gram per cubic centimeter), and 5. The finished polymers may be used in contact with food types I, II, IV–B, VII–B and VIII described in table 1 of § 176.170(c) of this chapter, under conditions of use B through H described in table 2 of § 176.170(c) of this chapter, and with food types III, IV–A, V, VI, VII–A and IX described in table 1 of § 176.170(c) of this chapter, under conditions of use D through H described in table 2 of § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
2,2'-Oxamidobis[ethyl 3-(3,5-di- <i>tert</i> -butyl-4-hydroxyphenyl)propionate] (CAS Reg. No. 70331-94-1).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.5 percent by weight of polystyrene and rubber-modified polystyrene complying with § 177.1640 of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, and 1.3.</li> <li>At levels not to exceed 0.5 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, and 4.0 that contact food Types I, II, IV-B, VI, VII-B and VIII described in table 1 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, and 4.0 that contact food Types III, IV-A, V, VII-A, and IX described in table 1 of § 176.170(c) of this chapter; except that olefin copolymers complying with items 3.1 and 3.2 where the majority of polymer units are derived from propylene may contain the additive at levels not to exceed 0.5 percent by weight.</li> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with item 3.4 of § 177.1520(c) of this chapter, that contact food Types III, VII-A, and IX described in table 1 of § 176.170(c) of this chapter; except that olefin copolymers complying with item 3.4 where the majority of the polymer units are derived from propylene may contain the additive at levels not to exceed 0.5 percent by weight.</li> </ol>
Pentaerythritol and its stearate ester .....	<p>For use only in rigid polyvinyl chloride and/or in rigid vinyl chloride copolymers complying with § 177.1980 of this chapter: <i>Provided</i>, That the total amount of pentaerythritol and/or pentaerythritol stearate (calculated as free pentaerythritol) does not exceed 0.4 percent by weight of such polymers.</p>
N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentenes (CAS Reg. No. 68411-46-1).	<p>For use at levels not to exceed 0.5 percent by weight of pressure-sensitive adhesives complying with § 175.125 of this chapter.</p>
Phosphoric acid triesters with triethylene glycol (CAS Reg. No. 64502-13-2).	<p>At levels not to exceed 0.1 percent by weight of polyethylene phthalate polymers complying with § 177.1630 of this chapter, such that the polymers contact foods only of Type VI-B described in table 1 of § 176.170(c) of this chapter.</p>
Phosphorous acid, cyclic butylethyl propanediol, 2,4,6-tri- <i>tert</i> -butylphenyl ester (CAS Reg. No. 161717-32-4), which may contain not more than 1 percent by weight of triisopropanolamine (CAS Reg. No. 122-20-3).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.2 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, or 1.3, and items 2.1, 2.2, or 2.3 (where the density of these polymers is not less than 0.94 gram per cubic centimeter), and items 3.1 or 3.2, provided that the finished polymer contacts foods of types I, II, and VI-B as described in table 1 of § 176.170(c) of this chapter only under conditions of use B, C, D, E, F, G, and H as described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, or 1.3, that contact food of types III, IV, V, VI-A, VI-C, VII, VIII, and IX as described in table 1 of § 176.170(c) of this chapter, only under conditions of use C, D, E, F, and G as described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1a, 3.1b, 3.2a, or 3.2b, having a density less than 0.94 grams per cubic centimeter, in contact with food only of types III, IV, V, VI-A, VI-C, VII, VIII, and IX and under conditions of use B, C, D, E, F, G, and H as described in tables 1 and 2 of § 176.170(c) of this chapter; provided that the food-contact surface does not exceed 0.003 inch (0.076 mm) in thickness.</li> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1(a), 3.1(b), 3.1(c), 3.2 (a), or 3.2(b), having a density not less than 0.94 grams per cubic centimeter, in contact with foods only of types III, IV, V, VI-A, VI-C, VII, VIII, and IX identified in Table 1 of § 176.170(c) of this chapter, and under conditions of use B through H as described in Table 2 of § 176.170(c) of this chapter; provided that the food-contact surface does not exceed 0.003 inch (0.076 mm) in thickness.</li> </ol>
Phosphorous acid, cyclic neopentetetrayl bis(2,4-di- <i>tert</i> -butylphenyl) ester (CAS Reg. No. 26741-53-7) which may contain not more than 1 percent by weight of triisopropanolamine (CAS Reg. No. 122-20-3).	<p>For use only at levels not to exceed 0.10 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, or 3.2, and limited to use in contact with food only under conditions of use B, C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter. Olefin polymers that contain more than 50 weight-percent of polymer units derived from ethylene shall have a density equal to or greater than 0.94 gram per cubic centimeter.</p>

Substances	Limitations
<p>Phosphorous acid, cyclic neopentetetrayl bis (2,6-di-<i>tert</i>-butyl-4-methylphenyl)ester (CAS Reg. No. 80693–00–1).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.25 percent by weight of polypropylene homopolymer and copolymers complying with § 177.1520 of this chapter, for use with all food types described in table 1 of § 176.170(c) of this chapter only under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.05 percent by weight of polymers complying with § 177.1520(c) of this chapter, item 3.1 or 3.2, and with a maximum thickness of 100 micrometers (0.004 inch) for use with all food types under conditions of use B, C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> </ol>
<p>Phosphorous acid, cyclic neopentetetrayl bis(2,4-di-<i>tert</i>-butylphenyl)ester (CAS Reg. No. 26741–53–7).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.86 percent by weight in polyvinyl chloride and/or vinyl chloride copolymers that comply with §§ 177.1950, 177.1960, 177.1970, or 177.1980 of this chapter for use with all food types described in table 1 of § 176.170(c) of this chapter, except those containing more than 15 percent alcohol, under conditions of use B, C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.25 percent by weight of polycarbonate resins that comply with § 177.1580 of this chapter for use with all food types described in table 1 of § 176.170(c) of this chapter, except those containing more than 15 percent alcohol, under conditions of use B, C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.05 percent by weight in olefin polymers complying with § 177.1520(c) of this chapter, item 3.1, that contain more than 50 weight percent of polymer units derived from ethylene and whose density is less than 0.94 gram per cubic centimeter. The average thickness of such polymers intended for use in contact with food types V and VII–A described in table 1 of § 176.170(c) of this chapter shall not exceed 80 micrometers (0.003 inch).</li> </ol>
<p>Poly(1,4-cyclohexylenedimethylene-3,3'-thiodipropionate) partially terminated with stearyl alcohol and produced when approximately equal moles of 1,4-cyclohexanedimethanol and 3,3'-thiodipropionic acid are made to react in the presence of stearyl alcohol so that the final product has an average molecular weight in the range of 1,800–2,200, as determined by vapor pressure osmometry, and has a maximum acid value of 2.5.</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>In polypropylene complying with § 177.1520(c) of this chapter, item 1.1, and used in contact with nonfatty, nonalcoholic food.</li> <li>At levels not to exceed 0.5 percent by weight of polypropylene complying with § 177.1520(c) of this chapter, item 1.1, and used in contact with fatty, nonalcoholic food. The average thickness of such polymers in the form in which they contact fatty nonalcoholic food shall not exceed 0.005 inch.</li> </ol>
<p>Poly[(1,3-dibutylidistanthianediylidene)-1,3-dithio] having the formula <math>[C_8H_{18}Sn_2S_3]_n</math> (where <math>n</math> averages 1.5–2) and produced so as to meet the following specifications: Softening point, 130–145 °C; volatile components at 150 °C, less than 1.0 percent; sulphur (sulfide) content in the range 20.5–22.0 percent; tin content in the range 52.0–53.2 percent.</p>	<p>For use only at levels not to exceed 0.2 by percent weight in polyvinyl chloride resin where such resin constitutes not less than 98.7 percent of a finished semirigid or rigid polyvinyl chloride food-contact surface, provided that the finished food-contact article is employed only to package meat, cheese, and food Types I, VIII, and IX as described in table 1 of § 176.170(c) of this chapter. The finished food-contact article containing this stabilizer, when extracted with refined cottonseed oil at 120 °F for 48 hours, using a volume-to-surface ratio of 2 milliliters per square inch of surface tested, shall yield tin (Sn) not to exceed 0.0005 milligram per square inch of food-contact surface.</p>
<p>Poly[(6-morpholino-s-triazine-2,4-diy)][(2,2,6,6-tetramethyl-4-piperidyl)imino]hexamethylene [(2,2,6,6-tetramethyl-4-piperidyl)imino] (CAS Reg. No. 82451–48–7).</p>	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.3 percent by weight of polypropylene complying with § 177.1520(c) of this chapter, items 1.1, 1.2, and 1.3, and of ethylene polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.3, and 3.1, whose specific gravity is not less than 0.94. The finished polymers are to contact food only under conditions of use D, E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.3 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.3, and 3.1, whose specific gravity is less than 0.94, and of olefin polymers complying with items 3.3., 3.4, 3.5, and 4.0. The finished polymers are to contact food in articles having a volume of at least 18.9 liters (5 gallons) only under conditions of use D, E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
Poly[[6-[(1,1,3,3-tetramethylbutyl) amino]-s-triazine-2,4-diy]] [2,2,6,6-tetramethyl-4-piperidyl]imino]hexamethylene[[2,2,6,6-tetramethyl-4-piperidyl]imino] (CAS Reg. No. 70624-18-9).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.3 percent by weight of polypropylene complying with § 177.1520 of this chapter.</li> <li>At levels not to exceed 0.2 percent by weight of polyethylene complying with § 177.1520 of this chapter, that has a density equal to or greater than 0.94 gram per cubic centimeter.</li> <li>At levels not to exceed 0.3 percent by weight of polyethylene that has a density less than 0.94 gram per cubic centimeter complying with § 177.1520 of this chapter, items 2.1, 2.2, and 2.3, and of olefin polymers and copolymers complying with items 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 4. The finished polymers are to contact food only under conditions of use B through H described in table 2 of § 176.170(c) of this chapter, and when contacting fatty foods of Types III, IV-A, V, VII-A, and IX described in table 1 of § 176.170(c) of this chapter, the finished articles are to have a volume of at least 18.9 liters (5 gallons).</li> </ol>
Potassium bromide and either cupric acetate or cupric carbonate.	<p>For use at levels not exceeding 0.18 percent potassium bromide and 0.005 percent copper as cupric acetate or cupric carbonate by weight of nylon 66 resins complying with § 177.1500 of this chapter; the finished resins are used or are intended to be used to contain foods during oven baking or oven cooking at temperatures above 250 °F. The average thickness of such resins in the form in which they contact food shall not exceed 0.0015 inch.</p>
<i>N,N</i> -1,3-Propanediylbis (3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamamide) (CAS Reg. No. 69851-61-2).	<p>For use only at levels not to exceed 0.6 percent by weight of rubber articles for repeated use complying with § 177.2600 of this chapter.</p>
Stearoylbenzoylmethane (CAS Reg. No. 58446-52-9) consisting of a mixture of β-diketones produced by the condensation of acetophenone and technical methyl stearate..	<p>For use only at levels not to exceed 0.5 percent by weight of vinyl chloride homopolymers modified in accordance with § 178.3790(b)(1). The finished polymers may be used in contact with food containing up to 50 percent alcohol under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</p>
Styrenated diphenylamine (CAS Reg. No. 68442-68-2).	<p>For use only in adhesives complying with § 175.105 of this chapter and in rubber articles intended for repeated use complying with § 177.2600 of this chapter.</p>
2-[[[2,4,8,10-Tetrakis(1,1-dimethylethyl)dibenzo[d,f][1,3,2]-dioxaphosphin-6-yl]oxy]- <i>N,N</i> -bis[2-[[[2,4,8,10-tetrakis(1,1-dimethylethyl)-dibenzo[d,f][1,3,2]dioxaphosphin-6-yl]oxy]ethyl]ethanamine (CAS Reg. No. 80410-33-9).	<p>For use only at levels not to exceed 0.075 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, or 2.3: <i>Provided</i>, That the density of the olefin polymers complying with items 2.1, 2.2, or 2.3 is not less than 0.94 gram per cubic centimeter: <i>And further provided</i>, That the finished polymers contact food only of Types I, II, IV-B, VI-A, VI-B, VII-B, and VIII described in table 1, of § 176.170(c) of this chapter, under conditions of use B through H described in table 2 of § 176.170(c) of this chapter and food only of Types III, IV-A, V, VI-C, VII-A, and IX described in table 1 of § 176.170(c) of this chapter, under conditions of use C through G described in table 2 of § 176.170(c) of this chapter.</p>
Tetrakis [methylene(3,5-di- <i>tert</i> -butyl-4-hydroxyhydro- cinnamate)] methane (CAS Reg. No. 6683-19-8).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.5 percent by weight of all polymers used as indirect additives in food packaging, except as specified below.</li> <li>At levels not to exceed 0.1 percent by weight of petroleum wax or synthetic petroleum wax complying with § 176.170(a)(5) of this chapter.</li> <li>At levels not to exceed 1.0 percent by weight of: <ol style="list-style-type: none"> <li>Pressure sensitive adhesives complying with § 175.125 of this chapter.</li> <li>Can end cement formulations complying with § 175.300(b)(3)(xxi) of this chapter.</li> <li>Petroleum alicyclic hydrocarbon resins complying with § 175.320(b)(3) of this chapter, § 176.170(b)(2) of this chapter, or their hydrogenated products complying with § 176.170(b)(2) of this chapter.</li> <li>Rosin and rosin derivatives used in accordance with parts 175 through 178 of this chapter.</li> <li>Terpene resins complying with § 175.300(b)(2)(xi) of this chapter when such terpene resins are used in accordance with § 176.170(b) of this chapter.</li> <li>Resins and polymers complying with § 176.180 of this chapter.</li> <li>Closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>Polyoxymethylene copolymer as provided in § 177.2470(b)(1) of this chapter.</li> <li>Petroleum hydrocarbon resin complying with § 178.3800.</li> <li>Reinforced wax complying with § 178.3850.</li> </ol> </li> </ol>

Substances	Limitations
4,4-Thiobis(6- <i>tert</i> -butyl- <i>m</i> -cresol) .....	<p>For use only:</p> <ol style="list-style-type: none"> <li>As provided in §§ 175.105 and 177.2600 of this chapter.</li> <li>At levels not to exceed 0.25 percent by weight of polyethylene complying with § 177.1520 of this chapter. <i>Provided</i>, That the specific gravity of the polyethylene is not less than 0.926: <i>And further provided</i>, That the finished polyethylene contacts food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, VI–B, and VIII.</li> </ol>
Thiodiethylene bis(3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamate) (CAS Reg. No. 41484-35-9).	<p>For use only:</p> <ol style="list-style-type: none"> <li>In adhesives complying with § 175.105 of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of pressure-sensitive adhesives complying with § 175.125 of this chapter, petroleum alicyclic hydrocarbon resins complying with § 176.170 of this chapter, resins and polymers complying with § 176.180 of this chapter, closures with sealing gaskets complying with § 177.1210 of this chapter, and finished rubber products complying with § 177.2600 of this chapter.</li> </ol>
Thiodipropionic acid. 1,3,5-Trimethyl-2,4,6-tris(3,5-di- <i>tert</i> -butyl-4-hydroxybenzyl) benzene (CAS Reg. No. 1709–70–2).	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.5 percent by weight of polymers except nylon resins identified in § 177.1500 of this chapter.</li> <li>At levels not to exceed 1 percent by weight of nylon resins identified in § 177.1500 of this chapter.</li> </ol>
Tri(mixed mono-and dinonylphenyl) phosphite (which may contain not more than 1 percent by weight of triisopropanolamine).. 1, 11-(3, 6, 9-Trioxaundecyl) bis-3-(dodecylthio) propionate (CAS Reg. No. 64253–30–1).. 1,3,5-Tris(3,5-di- <i>tert</i> -butyl-4-hydroxybenzyl)-s-triazine-2,4,6-(1 <i>H</i> ,3 <i>H</i> ,5 <i>H</i> )trione (CAS Reg. No. 27676–62–6).	<p>For use only as provided in § 175.300(b)(3)(xxxi) of this chapter at 4.0 parts per 100 parts rubber.</p> <p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.25 percent by weight of polypropylene complying with § 177.1520 of this chapter.</li> <li>In polyethylene complying with § 177.1520 of this chapter: <ol style="list-style-type: none"> <li>At levels not to exceed 0.1 weight percent.</li> <li>At levels not to exceed 0.5 weight percent in contact with nonfatty food.</li> </ol> </li> <li>At levels not to exceed 0.5 percent by weight of ethylene-propylene-5-ethylidene-2-norbornene terpolymers complying with § 177.1520 of this chapter. The maximum thickness of such polymers in the form in which they contact food shall not exceed 0.005 inch.</li> <li>At levels not exceeding 0.1 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1, 3.2, 3.3, 3.4, or 3.5.</li> <li>At levels not exceeding 0.25 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, items 3.1 and 3.2, and also containing not less than 85 weight percent of polymer units derived from propylene.</li> <li>At levels not to exceed 0.2 percent by weight of olefin polymers complying with § 177.1520(c)(4) of this chapter. The finished polymers may be used in contact with food under conditions of use A through H described in table 2 of § 176.170(c) of this chapter.</li> </ol>
1,3,5-Tris(3,5-di- <i>tert</i> -butyl-4-hydroxyhydrocinnamoyl) hexahydro- <i>s</i> -triazine.	<p>For use only in contact with nonfatty foods:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.25 percent by weight of polypropylene complying with § 177.1520 of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight of polyethylene complying with § 177.1520 of this chapter.</li> <li>At levels not to exceed 0.5 percent by weight of ethylene-propylene-5-ethylidene-2-norbornene terpolymers complying with § 177.1520 of this chapter. The maximum thickness of such polymers in the form in which they contact food shall not exceed 0.005 inch.</li> </ol>
1,3,5-Tris(4- <i>tert</i> -butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-triazine-2,4,6-(1 <i>H</i> ,3 <i>H</i> ,5 <i>H</i> )-trione. [CAS Reg. No. 40601–76–1].	<p>For use only:</p> <ol style="list-style-type: none"> <li>At levels not to exceed 0.1 percent by weight of olefin polymers complying with § 177.1520 of this chapter, under conditions of use A through H described in table 2 of § 176.170(c) of this chapter.</li> <li>At levels not to exceed 0.1 percent by weight of polystyrene and rubber-modified polystyrene that comply with § 177.1640 of this chapter, provided that the finished polystyrene and rubber-modified polystyrene contact food only under the conditions described in § 176.170(c) of this chapter, table 2, under conditions of use E through G.</li> </ol>

Substances	Limitations
Tris(2,4-di- <i>tert</i> -butylphenyl)phosphite. (CAS Reg. No. 31570-04-4).	<p>For use only:</p> <ol style="list-style-type: none"> <li>1. At levels not to exceed 0.5 percent by weight of elastomers used in rubber articles complying with § 177.2600 of this chapter.</li> <li>2. At levels not to exceed 1 percent by weight of nylon resins complying with § 177.1500 of this chapter: <i>Provided</i>, That the finished polymer contacts food only under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> <li>3. At levels not to exceed 0.3 percent by weight of polycarbonate resins complying with § 177.1580 of this chapter.</li> <li>4. At levels not to exceeds 0.2 percent by weight of polystyrene and rubber-modified polystyrene polymers complying with § 177.1640 of this chapter: <i>Provided</i>, that the finished polymer contacts food only under conditions of use B, C, D, E, F, G, and H described in table 2 of § 176.170(c) of this chapter.</li> <li>5. At levels not to exceed 0.25 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 1.1, 1.2, or 1.3.</li> <li>6. At levels not to exceed 0.2 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, items 2.1, 2.2, 2.3, 3.1(a), 3.1(b), 3.1(c), 3.2(a), or 3.2(b). The finished polymers complying with items 2.1, 2.2, or 2.3 having a density less than 0.94 gram per cubic centimeter and a thickness greater than 0.051 millimeter (0.002 inch), either shall have a level of tris(2,4-di-<i>tert</i>-butylphenyl)phosphite that shall not exceed 0.062 milligram per square inch of food-contact surface or shall contact all food types identified in Table 1 of § 176.170(c) of this chapter only under conditions of use E, F, and G described in Table 2 of § 176.170(c) of this chapter.</li> <li>7. At levels not to exceed 0.2 percent by weight of ethylene-vinyl-acetate copolymers complying with § 177.1350 of this chapter, and that are limited to use in contact with food only under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter. The average thickness of such polymers in the form in which they contact fatty food shall not exceed 0.1 millimeter (0.004 inch).</li> <li>8. At levels not to exceed 0.2 percent by weight of olefin polymers complying with § 177.1520(c) of this chapter, item 4. The finished polymers having a thickness greater than 0.051 millimeter (0.002 inch), shall contact food only under conditions of use E, F, and G described in table 2 of § 176.170(c) of this chapter.</li> <li>9. At levels not to exceed 0.5 percent by weight of acrylic and modified acrylic plastics, semirigid and rigid, complying with § 177.1010 of this chapter.</li> <li>10. At levels not to exceed 0.1 percent by weight of isobutylene polymers complying with § 177.1420 of this chapter.</li> <li>11. In adhesives complying with § 175.105 of this chapter.</li> <li>12. At levels not to exceed 0.5 percent by weight of pressure sensitive adhesives complying with § 175.125 of this chapter.</li> <li>13. At levels not to exceed 0.5 percent by weight of can end cement formulations complying with § 175.300(b)(3) (xxx) of this chapter.</li> <li>14. At levels not to exceed 0.5 percent by weight of side seam cement formulations complying with § 175.300(b)(3) (xxxii) of this chapter.</li> <li>15. At levels not to exceed 0.5 percent by weight of petroleum alicyclic hydrocarbon resins complying with § 175.320(b)(3) of this chapter.</li> <li>16. At levels not to exceed 0.5 percent by weight of petroleum alicyclic hydrocarbon resins or their hydrogenated products complying with § 176.170(b) (2) of this chapter.</li> <li>17. At levels not to exceed 0.5 percent by weight of resins and polymers complying with § 176.180(b) of this chapter.</li> <li>18. At levels not to exceed 0.5 percent by weight of rosins and rosin derivatives complying with § 176.210(d)(3) of this chapter.</li> <li>19. At levels not to exceed 0.5 percent by weight of closures with sealing gaskets complying with § 177.1210 of this chapter.</li> <li>20. At levels not to exceed 0.5 percent by weight of petroleum hydrocarbon resin, and rosins and rosin derivatives complying with § 178.3800(b).</li> <li>21. At levels not to exceed 0.5 percent by weight of reinforced wax complying with § 178.3850.</li> <li>22. At levels not to exceed 0.5 percent by weight of olefin copolymers complying with § 177.1520(c) of this chapter, item 3.3. The finished polymers may be used in contact with food under conditions of use A through H described in table 2 of § 176.170(c) of this chapter.</li> <li>23. At levels not to exceed 0.15 percent by weight of poly-1-butene resins and butene/ethylene copolymers complying with § 177.1570 of this chapter: <i>Provided</i>, that the finished polymer contacts food only under conditions of use B through H described in table 2 of § 176.170(c) of this chapter.</li> </ol>

Substances	Limitations
Tris(2-methyl-4-hydroxy-5- <i>tert</i> -butylphenyl)butane (CAS Reg. No. 1843–03–4).	For use only: 1. At levels not to exceed 0.25 percent by weight of polymers used as provided in § 176.180 of this chapter. 2. At levels not to exceed 0.25 percent by weight of the following polymers when used in articles that contact food of Types I, II, IV–B, VI–B, VII–B, and VIII described in table 1 of § 176.170(c) of this chapter: Olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4 or complying with other sections in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter; vinyl chloride polymers; and/or vinyl chloride copolymers complying with § 177.1980 of this chapter. 3. At levels not to exceed 0.1 percent by weight of the following polymers when used in articles that contact food of Types III, IV–A, V, VI–A, VI–C, VII–A, and IX described in table 1 of § 176.170(c) of this chapter: Olefin polymers complying with § 177.1520(c) of this chapter, items 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, or 4 or complying with other sections in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter; vinyl chloride polymers; and/or vinyl chloride copolymers complying with § 177.1980 of this chapter. 4. As provided in § 175.105 of this chapter. 5. At levels not to exceed 0.2 percent by weight of polystyrene and/or modified polystyrene polymers identified in § 177.1640 of this chapter. 6. At levels not to exceed 0.25 percent by weight of acrylonitrile-butadiene-styrene copolymers used in contact with nonalcoholic foods. 7. At levels not to exceed 1 percent by weight of closure-sealing gasket compositions complying with § 177.1210(b) of this chapter.
Zinc dibutyldithiocarbamate (CAS Reg. No. 136–23–2).	For use only: 1. At levels not to exceed 0.2 percent by weight of isobutyleneisoprene copolymers complying with § 177.1420 of this chapter: <i>Provided</i> , That the finished copolymers contact food only of the types identified in § 176.170(c) of this chapter, table 1, under Types V, VII, VIII, and IX. 2. At levels not to exceed 0.02 percent by weight of polypropylene polymers complying with § 177.1520(c), item 1.1 of this chapter.
Zinc palmitate. Zinc salicylate .....	For use only in rigid polyvinyl chloride and/or in rigid vinyl chloride copolymer complying with § 177.1980 of this chapter: <i>Provided</i> , That total salicylates (calculated as the acid) do not exceed 0.3 percent by weight of such polymers.
Zinc stearate.	

<sup>1</sup> Copies are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

[42 FR 14609, Mar. 15, 1977]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 178.2010, see the List of CFR Sections Affected in the Finding Aids section of this volume.

**§ 178.2550 4-Hydroxymethyl-2,6-di-*tert*-butylphenol.**

4-Hydroxymethyl-2,6-di-*tert*-butylphenol may be safely used as an antioxidant in articles intended for use in contact with food, in accordance with the following prescribed conditions:

(a) The additive has a solidification point of 140°–141 °C.

(b) The concentration of the additive and any other permitted antioxidants in the finished food-contact article does not exceed a total of 0.5 milligram per square inch of food-contact surface.

**§ 178.2650 Organotin stabilizers in vinyl chloride plastics.**

The organotin chemicals identified in paragraph (a) of this section may be safety used alone or in combination, at

levels not to exceed a total of 3 parts per hundred of resin, as stabilizers in vinyl chloride homopolymers and copolymers complying with the provisions of § 177.1950 or § 177.1980 of this chapter and that are identified for use in contact with food of types I, II, III, IV (except liquid milk), V, VI (except malt beverages and carbonated non-alcoholic beverages), VII, VIII, and IX described in table 1 of § 176.170(c) of this chapter, except for the organotin chemical identified in paragraph (a)(3) of this section, which may be used in contact with food of types I through IX at temperatures not exceeding 75 °C (167 °F), and further that the organotin chemicals identified in paragraphs (a) (5) and (6) of this section may be used in contact with food of types I through

IX at temperatures not exceeding 66 °C (150 °F), conditions of use D through G described in table 2 of § 176.170(c) of this chapter, and further that dodecyltin chemicals identified in paragraph (a)(7) of this section which may be used in contact with food of types I, II, III, IV (except liquid milk), V, VI (except malt beverages and carbonated nonalcoholic beverages), VII, VIII, and IX described in table 1 of § 176.170(c) of this chapter at temperatures not exceeding 71 °C (160 °F), in accordance with the following prescribed conditions:

(a) For the purpose of this section, the organotin chemicals are those listed in paragraphs (a) (1), (2), (3), (4), (5), (6), and (7) of this section.

(1) Di(*n*-octyl)tin S,S'-bis(isooctylmercaptoacetate) is an octyltin chemical having 15.1 to 16.4 percent by weight of tin (Sn) and having 8.1 to 8.9 percent by weight of mercapto sulfur. It is made from di(*n*-octyl)tin dichloride or di(*n*-octyl)tin oxide. The isooctyl radical in the mercaptoacetate is derived from oxo process isooctyl alcohol. Di(*n*-octyl)tin dichloride has an organotin composition that is not less than 95 percent by weight of di(*n*-octyl)tin dichloride and not more than 5 percent by weight of tri(*n*-octyl)tin chloride. Di(*n*-octyl)tin oxide has an organotin composition that is not less than 95 percent by weight of di(*n*-octyl)tin oxide and not more than 5 percent by weight of bis[tri(*n*-octyl)tin] oxide, and/or mono *n*-octyltin oxide.

(2) Di(*n*-octyl) tin maleate polymer is an octyltin chemical having the formula  $[(C_8H_{17})_2SnC_4H_2O_4]_n$  (where *n* is between 2 and 4 inclusive), having 25.2 to 26.6 percent by weight of tin (Sn) and having a saponification number of 225 to 255. It is made from di(*n*-octyl)tin dichloride or di(*n*-octyl)tin oxide meeting the specifications prescribed for di(*n*-octyl) tin dichloride or di(*n*-octyl) tin oxide in paragraph (a)(1) of this section.

(3) C<sub>10-16</sub>-Alkyl mercaptoacetates reaction products with dichlorodioctylstannane and trichlorooctylstannane (CAS Reg. No. 83447-69-2) is an organotin chemical mixture having 10.8 to 11.8 percent by weight of tin (Sn) and having 8.0 to 8.6 percent by weight of mercapto sulfur.

It is made from a mixture of di(*n*-octyl)tin dichloride and (*n*-octyl)tin trichloride which has an organotin composition that is not less than 95 percent by weight di(*n*-octyl)tin dichloride/(*n*-octyl)tin trichloride, and not more than 1.5 percent by weight of tri(*n*-octyl)tin chloride. The alkyl radical in the mercaptoacetate is derived from a mixture of saturated *n*-alcohols which has a composition that is not less than 50 percent by weight tetradecyl alcohol, and that is not more than 50 percent by weight total of decyl alcohol and/or dodecyl alcohol, and/or hexadecyl alcohol.

(4) (*n*-Octyl)tin S,S'S" tris(isooctylmercaptoacetate) is an octyltin chemical having the formula  $n-C_8H_{17}Sn(SCH_2CO_2C_8H_{17})_3$  (CAS Reg. No. 26401-86-5) having 13.4 to 14.8 percent by weight of tin (Sn) and having 10.9 to 11.9 percent by weight of mercapto sulfur. It is made from (*n*-octyl)tin trichloride. The isooctyl radical in the mercaptoacetate is derived from oxo process isooctyl alcohol. The (*n*-octyl)tin trichloride has an organotin composition that is not less than 95 percent by weight of (*n*-octyl)tin trichloride and not more than 5 percent by weight of tri(*n*-octyl)tin chloride.

(5) Bis(*beta*-carboboxyethyl)tin bis(isooctylmercaptoacetate) (CAS Reg. No. 63397-60-4) is an estertin chemical having 14.0 to 15.0 percent by weight of tin (Sn) and having 7.5 to 8.5 percent by weight of mercapto sulfur. It is made from bis(*beta*-carboboxyethyl)tin dichloride. The isooctyl radical in the mercaptoacetate is derived from oxo process primary octyl alcohols. The bis(*beta*-carboboxyethyl)tin dichloride has an organotin composition that is not less than 95 percent by weight of bis(*beta*-carboboxyethyl)tin dichloride and not more than 5 percent by weight of bis(*beta*-carboboxyethyl)tin trichloride. The triestertin chloride content of bis(*beta*-carboboxyethyl)tin dichloride shall not exceed 0.02 percent.

(6) *Beta*-carboboxyethyltin tris(isooctylmercaptoacetate) (CAS Reg. No. 63438-80-2) is an estertin chemical having 13.0 to 14.0 percent by weight of tin (Sn) and having 10.5 to

11.5 percent by weight of mercapto sulfur. It is made from *beta*-carboboxyethyltin trichloride. The isoocetyl radical in the mercaptoacetate is derived from oxo process primary octyl alcohol. The *beta*-carboboxyethyltin trichloride has an organotin composition that is not less than 95 percent by weight of *beta*-carboboxyethyltin trichloride and not more than 5 percent total of triestertin chloride and diestertin chloride.

(7) The dodecyltin stabilizer is a mixture of 50 to 60 percent by weight of *n*-dodecyltin  $S,S',S''$ -tris(isooctylmercaptoacetate) (CAS Reg. No. 67649-65-4) and 40 to 50 percent by weight of di(*n*-dodecyl)tin  $S,S'$ -di(isooctylmercaptoacetate) (CAS Reg. No. 84030-61-5) having 13 to 14 percent by weight of tin (Sn) and having 8 to 9 percent by weight of mercapto sulfur. It is made from a mixture of dodecyltin trichloride and di(dodecyl)tin dichloride which has not more than 0.2 percent by weight of dodecyltin trichloride, not more than 2 percent by weight of dodecylbutyltin dichloride and not more than 3 percent by weight of tri(dodecyl)tin chloride. The isoocetyl radical in the mercaptoacetate is derived from oxo process primary octyl alcohols.

(b) The vinyl chloride plastic containers, film or panels in the finished form in which they are to contact food, shall meet the following limitations:

(1) The finished plastics intended for contact with foods of the types listed in this section shall be extracted with the solvent or solvents characterizing those types of foods as determined from table 2 of §176.170(c) of this chapter at the temperature reflecting the conditions of intended use as determined therein. Additionally, extraction tests for acidic foods shall be included and simulated by 3-percent acetic acid at temperatures specified for water in table 2 of §176.170(c) of this chapter. The extraction tests shall cover at least three equilibrium periodic determinations, as follows:

(i) The exposure time for the first determination shall be at least 72 hours for aqueous solvents, and at least 6 hours for heptane.

(ii) Subsequent determinations shall be at a minimum of 24-hour intervals for aqueous solvents, and 2-hour intervals for heptane. These tests shall yield total octyltin stabilizers not to exceed 0.5 parts per million as determined by analytical method entitled "Atomic Absorption Spectrometric Determination of Sub-part-per-Million Quantities of Tin in Extracts and Biological Materials with Graphite Furnace," *Analytical Chemistry*, Vol. 49, p. 1090-1093 (1977), which is incorporated by reference. Copies are available from the Center for Food Safety and Applied Nutrition (HFS-200), Food and Drug Administration, 200 C St., SW., Washington, DC 20204, or available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408.

(iii) Subsequent determinations for the dodecyltin mixture described in paragraph (a)(7) of this section shall be at a minimum of 24-hour intervals for aqueous solvents and 2-hour intervals for heptane. These tests shall yield di(*n*-octyl)tin  $S,S'$ -bis(isooctylmercaptoacetate), or di(*n*-octyl)tin maleate polymer, or (C<sub>10</sub>-C<sub>16</sub>)-alkylmercaptoacetate reaction products with dichlorodioctylstannane and trichlorooctylstannane, or *n*-octyltin  $S,S',S''$ -tris(isooctylmercaptoacetate), tris(isooctylmercaptoacetate) and di(*n*-dodecyl)tin bis(isooctylmercaptoacetate) or any combination thereof, not to exceed 0.5 parts per million as determined by an analytical method entitled "Atomic Absorption Spectrophotometric Determination of Sub-part-per-Million Quantities of Tin in Extracts and Biological Materials with Graphite Furnace," *Analytical Chemistry*, Vol. 49, pp. 1090-1093 (1977), which is incorporated by reference in accordance with 5 U.S.C. 552(a). The availability of this incorporation by reference is given in paragraph (b)(1)(ii) of this section.

(2) In lieu of the tests prescribed in paragraph (b) (1) of this section, the finished plastics intended for contact with foods only of Types II, V, VI-A (except malt beverages), and VI-C may be end-tested with food-simulating solvents, under conditions of time and temperature, as specified below, whereby such tests shall yield the octyltin

residues cited in paragraph (b)(1) of this section not in excess of 0.5 ppm:

	Food-simulating solvent	Time (hours)	Temperature (degrees Fahrenheit)
Type II .....	Acetic acid, 3 pct .....	48	135
Type V .....	Heptane .....	2	100
Type VI-A ...	Ethyl alcohol, 8 pct .....	24	120
Type VI-C ...	Ethyl alcohol, 50 percent.	24	120

[42 FR 14609, Mar. 15, 1977, as amended at 47 FR 11847, Mar. 19, 1982; 48 FR 7170, Feb. 18, 1983; 48 FR 42972, Sept. 21, 1983; 48 FR 51612, Nov. 10, 1983; 49 FR 8432, Mar. 7, 1984; 50 FR 62, Jan. 2, 1985; 50 FR 3510, Jan. 25, 1985; 50 FR 37998, Sept. 19, 1985; 50 FR 47212, Nov. 15, 1985; 54 FR 24898, June 12, 1989]

**Subpart D—Certain Adjuvants and Production Aids**

**§ 178.3010 Adjuvant substances used in the manufacture of foamed plastics.**

The following substances may be safely used as adjuvants in the manufacture of foamed plastics intended for use in contact with food, subject to any prescribed limitations:

List of substances	Limitations
Azodicarbonamide .....	For use as a blowing agent in polyethylene complying with item 2.1 in § 177.1520(c) of this chapter at a level not to exceed 5 percent by weight of finished foamed polyethylene.
1,1-Difluoroethane (CAS Reg. No. 75-37-6).	For use as a blowing agent in polystyrene.
Isopentane .....	For use as a blowing agent in polystyrene. Do.
n-Pentane .....	For use only as a blowing agent adjuvant in polystyrene at a level not to exceed 0.3 percent by weight of finished foamed polystyrene intended for use in contact with food only of the types identified in § 176.170(c) of this chapter, table 1, under Categories I, II, VI, and VIII.

List of substances	Limitations
Toluene .....	For use only as a blowing agent adjuvant in polystyrene at a level not to exceed 0.35 percent by weight of finished foamed polystyrene.

[47 FR 22090, May 21, 1982, as amended at 58 FR 64895, Dec. 10, 1993]

**§ 178.3120 Animal glue.**

Animal glue may be safely used as a component of articles intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food, subject to the provisions of this section.

(a) Animal glue consists of the proteinaceous extractives obtained from hides, bones, and other collagen-rich substances of animal origin (excluding diseased or rotted animals), to which may be added other optional adjuvant substances required in its production or added to impart desired properties.

(b) The quantity of any substance employed in the production of animal glue does not exceed the amount reasonably required to accomplish the intended physical or technical effect nor any limitation further provided.

(c) Any substance employed in the production of animal glue and which is the subject of a regulation in parts 174, 175, 176, 177, 178 and § 179.45 of this chapter conforms with any specification in such regulation.

(d) Optional adjuvant substances employed in the production of animal glue include:

(1) Substances generally recognized as safe in food.

(2) Substances subject to prior sanction or approval for use in animal glue and used in accordance with such sanction or approval.

(3) Substances identified in this paragraph (d)(3) and subject to such limitations as are provided:

List of substances	Limitations
Alum (double sulfate of aluminum and ammonium, potassium, or sodium).	
4-Chloro-3-methylphenol ( <i>p</i> -chlorome-tacresol) .....	For use as preservative only.
Chromium potassium sulfate (chrome alum) .....	For use only in glue used as a colloidal flocculant added to the pulp suspension prior to the sheet-forming operation in the manufacture of paper and paper board.
3,5-Dimethyl-1,3,5- <i>H</i> -tetrahydrothiadia-zine-2-thione .....	For use as preservative only.
Disodium cyanodithioimidocarbonate .....	Do.
Defoaming agents .....	As provided in § 176.210 of this chapter.