

**§ 178.3850 Reinforced wax.**

Reinforced wax may be safely used as an article or component of articles intended for use in producing, manufacturing, packing, processing, transporting, or holding food subject to the provisions of this section.

(a) Reinforced wax consists of petroleum wax to which have been added certain optional substances required in its production, or added to impart desired physical or technical properties.

(b) The quantity of any optional adjuvant substance employed in the production of or added to reinforced wax does not exceed the amount reasonably required to accomplish the intended physical or technical effect or any limitation provided in this section.

(c) Any substance employed in the production of reinforced wax, including any optional substance, that 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) The substances and optional adjuvant substances employed in the production of or added to reinforced wax include:

- (1) Substances generally recognized as safe in food.
- (2) Substances subject to prior sanction for use in reinforced wax and used in accordance with such sanction or approval.
- (3) Substances identified in this subparagraph and subject to any limitations provided therein:

List of substances	Limitations
Copolymer of isobutylene modified with isoprene. Petroleum wax, Type I and Type II. Polyethylene. Rosins and rosin derivatives as provided in § 178.3870. Synthetic wax polymer as described in § 176.170(a)(5) of this chapter.	Not to exceed 5 percent by weight of the petroleum wax.

(e) Reinforced wax conforming with the specifications in this paragraph is used as provided in paragraph (e)(2) of this section.

(1) The chloroform-soluble portion of the water extract obtained by exposing reinforced wax to demineralized water at 70 °F for 48 hours shall not exceed 0.5 milligram per square inch of food-contact surface.

(2) It is used as a packaging material or component of packaging materials for cheese and cheese products.

[42 FR 14609, Mar. 15, 1977, as amended at 47 FR 1288, Jan. 12, 1982]

**§ 178.3860 Release agents.**

Substances listed in paragraph (b) of this section may be safely used as release agents in petroleum wax complying with §178.3710 and in polymeric resins that contact 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 or any limitations prescribed in this section.

(b) Release agents:

List of substances	Limitations
Erucamide (erucylamide). Formaldehyde, polymer with 1-naphthalenol (CAS Reg. No. 25359-91-5).	For use only as an antiscaling or release agent, applied on the internal parts of reactors employed in the production of polyvinyl chloride and acrylic copolymers, provided that the residual levels of the additive in the polymer do not exceed 4 parts per million.
<i>N,N</i> -Dioleoyl ethylenediamine .....	For use only in polyvinyl chloride films in amounts such that the concentration of the substance in these films in the form in which the films contact food shall not exceed 0.055 milligram of the substance per square inch of film.
Oleyl palmitamide. Polybutene, hydrogenated; complying with the identity prescribed under § 178.3740(b). Poly(vinyl acetate/vinyl <i>N</i> -octadecylcarbamate) (CAS Reg. No. 70892-21-6) produced by the reaction between stoichiometrically equivalent amounts of octadecyl isocyanate and vinyl alcohol/vinyl acetate copolymer; minimum average molecular weight is 500,000.	For use only subject to the limitations prescribed for hydrogenated polybutene under § 178.3740(b). For use only in application to the backing of pressuresensitive adhesive tapes at levels not to exceed 0.2 milligram per square centimeter (1.29 milligrams per square inch) of backing.
Rice bran wax .....	For use only in plastics intended for contact with dry foods identified as Type VIII in table 1 of § 176.170(c) of this chapter, at levels not in excess of 1.0 percent by weight of the polymer.

List of substances	Limitations
Saturated fatty acid amides manufactured from fatty acids derived from animal, marine, or vegetable fats and oils. Stearyl erucamide.	

[42 FR 14609, Mar. 15, 1977, as amended at 44 FR 69649, Dec. 4, 1979; 46 FR 51902, Oct. 23, 1981; 61 FR 25396, May 21, 1996; 61 FR 42381, Aug. 15, 1996]

**§ 178.3870 Rosins and rosin derivatives.**

The rosins and rosin derivatives identified in paragraph (a) of this section may safely be 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 rosins and rosin derivatives are identified as follows:

- (1) Rosins:
  - (i) Gum rosin, refined to color grade of K or paler.
  - (ii) Wood rosin, refined to color grade of K or paler.
  - (iii) Tall oil rosin, refined to color grade of K or paler.
  - (iv) Dark tall oil rosin, a fraction resulting from the refining of tall oil rosin produced by multicolumnar distillation of crude tall oil to effect removal of fatty acids and pitch components and having a saponification number of from 110-135 and 32 percent-44 percent rosin acids.
  - (v) Dark wood rosin, all or part of the residue after the volatile terpene oils are distilled from the oleoresin extracted from pine wood.
- (2) Modified rosins manufactured from rosins identified in paragraph (a)(1) of this section:
  - (i) Partially hydrogenated rosin, catalytically hydrogenated to a maximum refractive index of 1.5012 at 100 °C, and a color of WG or paler.
  - (ii) Fully hydrogenated rosin, catalytically hydrogenated to a maximum dehydroabietic acid content of 2 percent, a minimum drop-softening point of 79 °C, and a color of X or paler.
  - (iii) Partially dimerized rosin, dimerized by sulfuric acid catalyst to a drop-softening point of 95-105 °C and a color of WG or paler.

(iv) Fully dimerized rosin, dimerized by sulfuric acid catalyst, and from which sufficient nondimerized rosin has been removed by distillation to achieve a minimum drop-softening point of 143 °C, and a color of H or paler.

(v) Disproportionated rosin, catalytically disproportionated to a minimum dehydroabietic acid content of 35 percent, a maximum abietic acid content of 1 percent, a maximum content of substituted phenanthrenes (as retene) of 0.25 percent, and a color of WG or paler.

(3) Rosin esters manufactured from rosins and modified rosins identified in paragraphs (a)(1) and (2) of this section:

- (i) Glycerol ester of wood rosin purified by steam stripping to have an acid number of 3 to 9, a drop-softening point of 88-96 °C, and a color of N or paler.
- (ii) Glycerol ester of partially hydrogenated wood rosin, having an acid number of 3 to 10, a drop-softening point of 79-88 °C, and a color of N or paler.
- (iii) Glycerol ester of partially dimerized rosin, having an acid number of 3 to 8, a drop-softening point of 109-119 °C, and a color of M or paler.
- (iv) Glycerol ester of fully dimerized rosin, having an acid number of 5 to 16, a drop-softening point of 165-175 °C, and a color of H or paler.
- (v) Glycerol ester of maleic anhydride-modified wood rosin, having an acid number of 30 to 40, a drop-softening point of 138-146 °C, a color of M or paler, and a saponification number less than 280.
- (vi) Methyl ester of rosin, partially hydrogenated, purified by steam stripping to have an acid number of 4 to 8, a refractive index of 1.5170 to 1.5205 at 20 °C, and a viscosity of 23 to 66 poises at 25 °C.
- (vii) Pentaerythritol ester of wood rosin, having an acid number of 6 to 16,