§ 180.3 Tolerances for related pesticide chemicals.

(a) Pesticide chemicals that cause related pharmacological effects will be regarded, in the absence of evidence to the contrary, as having an additive deleterious action. (For example, many pesticide chemicals within each of the following groups have related pharmacological effects: Chlorinated organic pesticides, arsenic-containing chemicals, metallic dithiocarbamates, cholinesterase-inhibiting pesticides.)

(b) Tolerances established for such related pesticide chemicals may limit the amount of a common component (such as As_2O_3) that may be present, or may limit the amount of biological activity (such as cholinesterase inhibition) that may be present, or may limit the total amount of related pesticide chemicals (such as chlorinated organic pesticides) that may be present.

(c)(1) Where tolerances for inorganic bromide in or on the same raw agricultural commodity are set in two or more sections in this part (example: §§ 180.123 and 180.199), the overall quantity of inorganic bromide to be tolerated from use of the same pesticide in different modes of application or from two or more pesticide chemicals for which tolerances are established is the highest of the separate applicable tolerances. For example, where the bromide tolerance on asparagus from methyl bromide commodity fumigation is 100 parts per million (40 CFR 180.123) and on asparagus from methyl bromide soil treatment is 300 parts per million (40 CFR 180.199), the overall inorganic bromide tolerance for asparagus grown on methyl bromide-treated soil and also fumigated with methyl bromide after harvest is 300 parts per million.

(2) Where tolerances are established in terms of inorganic bromide residues only from use of organic bromide fumigants on raw agricutural commodities, such tolerances are sufficient to protect the public health, and no additional concurrent tolerances for the organic pesticide chemicals from such use are necessary. This conclusion is based on evidence of the dissipation of the organic pesticide or its conversion to inorganic bromide residues in the food when ready to eat.

(d)(1) Where tolerances are established for both calcium cyanide and hydrogen cyanide on the same raw agricultural commodity, the total amount of such pesticides shall not yield more residue than that permitted by the larger of the two tolerances, calculated as hydrogen cyanide.

(2) Where tolerances are established for residues of both *O,O*-diethyl *S*-[2-(ethylthio)ethyl] phosphorodithioate and demeton (a mixture of *O,O*-diethyl *O*-(and *S*-) [2-(ethylthio)ethyl] phosphorothioates) on the same raw agricultural commodity, the total amount of such pesticides shall not yield more residue than that permitted by the larger of the two tolerances, calculated as demeton.

(3) Where tolerances are established for both terpene polychlorinates (chlorinated mixture of camphene, pinene, and related terpenes, containing 65–66 percent chlorine) and toxaphene (chlorinated camphene containing 67–69 percent chlorine) on the same raw agricultural commodities, the total amount of such pesticides shall not yield more residue than that permitted by the larger of the two tolerances, calculated as a chlorinated terpene of molecular weight 396.6 containing 67 percent chlorine.

(4) Where a tolerance is established for more than one pesticide containing arsenic found in, or on a raw agricultural commodity, the total amount of such pesticide shall not exceed the highest established tolerance calculated as As_2O_3.

(5) Where tolerances are established for more than one member of the class of dithiocarbamates listed in paragraph (e)(3) of this section on the same raw agricultural commodity, the total residue of such pesticides shall not exceed that permitted by the highest tolerance established for any one member of the class, calculated as zinc ethylenebisdithiocarbamate.

(6) Where tolerances are established for residues of both *S,S,S*-tributyl phosphorotrithioate and tributyl phosphorotrithioite in or on the same raw agricultural commodity, the total amount of such pesticides shall not yield more residue than that permitted by the higher of the two tolerances,

calculated as *S*,*S*,*S*-tributyl phosphorotrithioate.

(7) Where tolerances are established for residues of α-naphthaleneacetamide and/or α-naphthaleneacetic acid in or on the same raw agricultural commodity, the total amount of such pesticides shall not yield more residue than that permitted by the higher of the two tolerances, calculated as α-naphthaleneacetic acid.

(8) Where tolerances are established for residues of *O*,*S*-dimethyl phosphoramidothioate, resulting from the use of acephate (*O*,*S*-dimethyl acetylphos-phoramidothioate) and/or *O*,*S*-dimethylphosphoramidothioate on the same agricultural commodity, the total amount of *O*,*S*-dimethyl-phosphoramidothioate shall not yield more residue than that permitted by the higher of the two tolerances.

(9) Where a tolerance is established for more than one pesticide having the metabolites 1-(3,4-dichlorophenyl)-3-methylurea (DCPMU) and 3,4-dichlorophenylurea (DCPU) found in or on a raw agricultural commodity, the total amount of such residues shall not exceed the highest established tolerance for a pesticide having these metabolites.

(10) Where a tolerance is established for more than one pesticide having as metabolites compounds containing the benzimidazole moiety found in or on a raw agricultural commodity, the total amount of such residues shall not exceed the highest established tolerance for a pesticide having these metabolites.

(11) Where a tolerance is established for triclopyr, chloropyrifos, and chlorpyrifos-methyl having the common metabolite 3,5,6-trichloro-2-pyridinol on the same raw agricultural commodity, the total amount of such residues shall not exceed the highest established tolerance for any of the pesticides having the metabolites.

(12) Where tolerances are established for more than one pesticide having the metabolite 3,5,6-trichloro-2-pyridinol found in or on the raw agricultural commodity, the total amount of such residues shall not exceed the highest established tolerance for a pesticide having this metabolite.

(13) Where tolerances are established for residues of both 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1*H*-1,2,4-triazol-1-yl)-2-butanone (triadimefon) and beta-(4-chlorophenoxy)-alpha-(1,1-dimethylethyl)-1*H*-1,2,4-triazole-1-ethanol (triadimenol) including its butanediol metabolite, 4-(4-chlorophenoxy)-2,2-dimethyl-4-(1*H*-1,2,4-triazol-1-yl)-1,3-butanediol, in or on the same raw agricultural commodity and its products thereof, the total amount of such residues shall not yield more residue than that permitted by the higher of the two tolerances.

(14) Where tolerances are established for residues of methomyl, resulting from the use of thiodicarb and/or methomyl on the same raw agricultural commodity, the total amount of methomyl shall not yield more residue than that permitted by the higher of the two tolerances.

(e) Except as noted in paragraphs (e)(1) and (2) of this section, where residues from two or more chemicals in the same class are present in or on a raw agricultural commodity the tolerance for the total of such residues shall be the same as that for the chemical having the lowest numerical tolerance in this class, unless a higher tolerance level is specifically provided for the combined residues by a regulation in this part.

(1) Where residues from two or more chemicals in the same class are present in or on a raw agricultural commodity and there are available methods that permit quantitative determination of each residue, the quantity of combined residues that are within the tolerance may be determined as follows:

(i) Determine the quantity of each residue present.

(ii) Divide the quantity of each residue by the tolerance that would apply if it occurred alone, and multiply by 100 to determine the percentage of the permitted amount of residue present.

(iii) Add the percentages so obtained for all residues present.

(iv) The sum of the percentages shall not exceed 100 percent.

(2) Where residues from two or more chemicals in the same class are present in or on a raw agricultural commodity and there are available methods that

permit quantitative determinations of one or more, but not all, of the residues, the amounts of such residues as may be determinable shall be deducted from the total amount of residues present and the remainder shall have the same tolerance as that for the chemical having the lowest numerical tolerance in that class. The quantity of combined residues that are within the tolerance may be determined as follows:

(i) Determine the quantity of each determinable residue present.

(ii) Deduct the amounts of such residues from the total amount of residues present and consider the remainder to have the same tolerance as that for the chemical having the lowest numerical tolerance in that class.

(iii) Divide the quantity of each determinable residue by the tolerance that would apply if it occurred alone and the quantity of the remaining residue by the tolerance for the chemical having the lowest numerical tolerance in that class and multiply by 100 to determine the percentage of the permitted amount of residue present.

(iv) Add the percentages so obtained for all residues present.

(v) The sum of the percentages shall not exceed 100 percent.

(3) The following pesticides are members of the class of dithiocarbamates:

A mixture of 5.2 parts by weight of ammoniates of [ethylenebis (dithiocarbamato)] zinc with 1 part by weight ethylenebis [dithiocarbamic acid] bimolecular and trimolecular cyclic anhydrosulfides and disulfides.
2-Chloroallyl diethyldithiocarbamate.
Coordination product of zinc ion and maneb containing 20 percent manganese, 2.5 percent zinc, and 77.5 percent ethylenebisdithiocarbamate.
Ferbam.
Maneb.
Manganous dimethyldithiocarbamate.
Sodium dimethyldithiocarbamate.
Thiram.
Zineb.
Ziram.

(4) The following are members of the class of chlorinated organic pesticides:

Aldrin.
BHC (benzene hexachloride).
1,1-Bis(*p*-chlorophenyl)-2,2,2-trichloroethanol.
Chlorbenside (*p*-chlorobenzyl *p*-chlorophenyl sulfide).
Chlordane.
Chlorobenzilate (ethyl 4,4′-dichlorobenzilate).
p-Chlorophenoxyacetic acid.
p-Chlorophenyl-2,4,5-trichlorophenyl sulfide.
2,4-D (2,4-dichlorophenoxyacetic acid).
DDD (TDE).
DDT.
1,1-Dichloro-2,2-bis(*p*-ethylphenyl) ethane.
2,6-Dichloro-4-nitroaniline.
2,4-Dichlorophenyl *p*-nitrophenyl ether.
Dieldrin.
Dodecachlorooctahydro-1,3,4-metheno-2*H*-cyclobuta[*cd*]pentalene.
Endosulfan (6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-6,9-methano-2,4,3-benzodioxathiepin-3-oxide).
Endosulfan sulfate (6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-6,9-methano-2,4,3-benzodioxathiepin-3,3-dioxide).
Heptachlor (1,4,5,6,7,8,8-heptachlor-3a,4,7, 7a-tetrahydro-4,7-methanoindene).
Heptachlor epoxide (1,4,5,6,7,8,8-heptachloro-2,3-epoxy-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene).
Hexachlorophene (2,2′-methylenebis(3,4,6-trichlorophenol) and its monosodium salt.
Isopropyl 4,4′-dichlorobenzilate.
Lindane.
Methoxychlor.
Ovex (*p*-chlorophenyl *p*-chlorobenzenesulfonate).
Sesone (sodium 2,4-dichlorophenoxyethyl sulfate, SES).
Sodium 2,4-dichlorophenoxyacetate.
Sodium trichloroacetate.
Sulphenone (*p*-chlorophenyl phenyl sulfone).
Terpene polychlorinates (chlorinated mixture of camphene, pinene, and related terpenes 65-66 percent chlorine).
2,3,5,6-Tetrachloronitrobenzene.
Tetradifon (2,4,5,4′-tetrachlorodiphenyl sulfone).
Toxaphene (chlorinated camphene).
Trichlorobenzoic acid.
Trichlorobenzyl chloride.

(5) The following are members of the class of cholinesterase-inhibiting pesticides:

Acephate (*O,S*-dimethyl acetylphosphoramidothioate) and its cholinesterase-inhibiting metabolite *O,S*-dimethyl phosphoramidothioate.
Aldicarb (2-methyl-2-(methylthio) propionaldehyde *O*-(methylcarbamoyl)oxime) and its chlorinesterase-inhibiting metabolites 2-methyl-2-(methylsulfinyl)propionaldehyde *O*-(methycarbamoyl) oxime and 2-methyl-2-(methylsulfonyl)propionaldehyde *O*-(methylcarbamoyl)oxime.
4-*tert*-Butyl-2-chlorophenyl methyl methyl phosphoramidate.
S-[(*tert*-Butylthio)methyl] *O,O*-diethyl phosphorodithioate and its cholinesterase-inhibiting metabolites.

Carbaryl (1-naphthyl *N*-methylcarbamate).
Carbofuran (2,3,-dihydro-2,2-dimethyl-7-benzofuranyl-*N*-methylcarbamate).
Carbofuran metabolite (2,3-dihydro-2,2-dimethyl-3-hydroxy-7-benofuranyl *N*-methylcarbamate).
Carbophenothion (*S*-[(*p*-chlorophenyl) thiolmethyl] *O*,*O*-diethyl phosphorodithioate) and its cholinesterase-inhibiting metabolites.
Chlorpyrifos (*O*,*O*-diethyl *O*-(3,5,6-trichloro-2-pyridyl)phosphorothioate).
Chlorpyrifos-methyl (*O*,*O*-dimethyl-*O*-(3,5,6-trichloro-2-pyridyl) phosphorothioate.
2-Chloro-1-(2,4,5-trichlorophenyl)vinyl dimethyl phosphate.
2-Chloro-1-(2,4-dichlorophenyl) vinyl diethyl phosphate.
Coumaphos (*O*,*O*-diethyl *O*-3-chloro-4-methyl-2-oxo-2*H*-1-benzopyran-7-yl phosran-7-yl phosphate).
Coumaphos oxygen analog (*O*,*O*-diethyl *O*-3-chloro-4-methyl-2-oxo-2*H*-1-benzopyphorothioate).
Dialifor (*S*-(2-chloro-1-phthalimidoethyl) *O*,*O*-diethyl phosphorodithioate).
Dialifor oxygen analog (*S*-(2-chloro-1-phthalimidoethyl) *O*,*O*-diethyl phosphorothioate).
Demeton (a mixture of *O*,*O*-diethyl *O*-(and *S*) [2-ethylthio)ethyl] phosphorothioates).
Ethiolate (*S*-ethyl diethylthiocarbamate).
2,2-Dichlorovinyl dimethyl phosphate.
O,*O*-Diethyl *S*-[2-(ethylthio)ethyl] phosphorodithioate and its cholinesterase-inhibiting metabolites.
O,*O*-Diethyl *O*-(2-diethylamino-6-methyl-4-pyrimidinyl) phosphorothioate and its oxygen analog diethyl 2-diethylamino-6-methyl-4-pyrimidinyl phosphate.
O,*O*-Diethyl *O*-(2-isoprophyl-4-methyl-6-pyrimidinyl) phosphorothioate.
O,*O*-Diethyl *O*-[*p*-(methylsulfinyl)phenyl] phosphorothioate and its cholinesterase-inhibiting metabolites.
Diethyl 2-pyrazinyl phosphate.
O,*O*-Diethyl *O*-2-pyrazinyl phosphorothioate.
S-(*O*,*O*-Diisopropyl phosphorodithioate) of *N*-(2-mercaptoethyl) benzenesulfonamide
S-(*O*,*O*-Diisopropyl phosphorodithioate) of *N*-(2-mercaptoethyl) benzenesulfonamide
2-(Dimethylamino)-5.6-dimethyl-4-pyrimidinyl dimethylcarbamate and its metabolites 5,6-dimethyl-2-(formylmethylamino)-4-pyrimidinyl dimethylcarbamate and 5,6-dimethyl-2-(methylamino)-4-pyrimidinyl dimethylcarbamate (both calculated as parent).
Dimethoate (*O*,*O*-dimethyl *S*-(*N*-methylcarbamoylmethyl) phosphorodithioate).
Dimethoate oxygen analog (*O*,*O*-dimethyl *S*-(*N*-methylcarbamoylmethyl) phosphorothioate).
O,*O*-Dimethyl *O*-*p*-(dimethylsulfamoyl) phenyl phosphate.
O,*O*-Dimethyl *O*-*p*-(dimethylsulfamoyl) phenyl phosphorothioate.
3,5-Dimethyl-4-(methylthio) phenyl methylcarbamate.
O,*O*-Dimethyl *S*-[4-oxo-1,2,3-benzotriazin-3-(4*H*)-ylmethyl] phosphorodithioate.
Dimethyl phosphate of 3-hydroxy-*N*,*N*-dimethyl-*cis*-crotonamide.
Dimethyl phosphate of 3-hydroxy-*N*-methyl-*cis*-crotonamide.
Dimethyl phosphate of α-methylbenzyl 3-hydroxy-*cis*-crotonate.
O,*O*-Dimethyl 2,2,2-trichloro-1-hydroxyethyl phosphonate.
O,*O*-Dimethyl phosphorodithioate, *S*-ester with 4-(mercaptomethyl)-2-methozy-Δ2-1,3,4-thiadiazolin-5-one.
Dioxathion (2,3-*p*-dioxanedithiol *S*,*S*-bis (*O*,*O*-diethylphosphorodithioate)) containing approximately 70 percent *cis* and *trans* isomers and approximately 30 percent related compounds.
EPN.
Ethephon ((2- - chloroethyl) phosphonic acid).
Ethion.
Ethion oxygen analog (*S*-[[(diethoxyphosphinothioyl)thio] methyl] *O*,*O*-diethyl phosphorothioate).
O- Ethyl *O*-[4-(methylthio) phenyl] *S*-propyl phosphorodithioate and its cholinesterase-inhibiting metabolites.
O-Ethyl *S*,*S*-dipropylphosphorodithioate.
Ethyl 3-methyl-4-(methylthio)phenyl (1-methylethyl) phosphoramidate and its cholinesterase-inhibiting metabolites.
O-Ethyl *S*-phenyl ethylphosphonodithioate.
O-Ethyl *S*-phenyl ethylphosphonothiolate.
m-(1-Ethylpropyl)phenyl methylcarbamate.
S-[2-Ethylsulfinyl)ethyl] *O*,*O*-dimethyl phosphorothioate and its cholinesterase-inhibiting metabolites, (primarily *S*-[2-(ethyl-sulfonyl)ethyl] *O*,*O*-dimethyl phosphorothioate).
Fenthion (*O*,*O*-dimethyl *O*-[3-methyl-4-(methylthio)phenyl]phosphorothioate and its cholinesterase-inhibiting metabolites.
Malathion.
N-(Mercaptomethyl)phthalimide *S*-(*O*,*O*-dimethyl phosphorodithioate).
N-(Mercaptomethyl)phthalimide *S*-(*O*,*O*-dimethyl phosphorothioate).
Methomyl (*S*-methyl *N*-[(methylcarbamoyl)oxy]thioacetimidate).
1-Methoxycarbonyl-1-propen-2-yl dimethyl phosphate and its beta isomer.
m-(1-Methylbutyl)phenyl methylcarbamate.
Methyl parathion.
Naled (1,2-dibromo-2,2-dichloroethyl dimethyl phosphate).
Oxamyl (methyl N′,N′-dimethyl-N-[(methylcarbamoyl)oxy]-1-thiooxamimidate)
Parathion.
Phorate (*O*,*O*-diethyl *S*-(ethylthio)methyl phosphorodithioate) and its cholinesterase-inhibiting metabolites.

Phosalone (*S*-(6-chloro-3-mercaptomethyl)-2-benzoxazolinone) *O*,*O*-diethyl phosphorodithioate).
Phosphamidon (2-chloro-2-diethylcarbamoyl-1-methylvinyl dimethyl phosphate) including all of its related cholinesterase-inhibiting compounds.
Pirimiphos-methyl *O*-[2-diethylamino-6-methyl-pyrimidinyl) *O*,*O*-dimethyl phosphorothioate
Ronnel.
Schradan (octamethylpyrophosphoramide).
Tetraethyl pyrophosphate.
O,*O*,*O*′,*O*′-Tetramethyl *O*,*O*′-sulfinyldi-*p*-phenylene phosphorothioate.
O,*O*,*O*′,*O*′-Tetramethyl *O*,*O*′-thiodi-*p*-phenylene phosphorothioate.
Tributyl phosphorotritlioite.
S,*S*,*S*-Tributyl phosphorothrithioate.
3,4,5-Trimethylphenyl methylcarbamate and its isomer 2,3,5-trimethylphenyl methylcarbamate.

(6) The following pesticides are members of the class of dinitrophenols:

2,4-Dinitro-6-octylphenyl crotonate and 2,6-dinitro-4-octylphenyl crotonate, mixture of.
4,6-Dinitro-*o*-cresol and its sodium salt.
Dinoseb (2-*sec*-butyl-4,6-dinitrophenol) and its alkanolamine, ammonium, and sodium salts.

[41 FR 8969, Mar. 2, 1976, as amended at 41 FR 10605, Mar. 12, 1976; 41 FR 20660, May 20, 1976; 41 FR 51401, Nov. 22, 1976; 42 FR 6582, Feb. 3, 1977; 43 FR 12682, Mar. 27, 1978; 49 FR 44465, Nov. 7, 1984; 49 FR 45852, Nov. 21, 1984; 50 FR 18485, May 1, 1985; 50 FR 26684, June 27, 1985; 51 FR 28228, Aug. 6, 1986; 54 FR 31835, Aug. 2, 1989; 57 FR 1649, Jan. 15, 1992; 58 FR 65555, Dec. 15, 1993]

§ 180.4 Exceptions.

The substances listed in this section are excepted from the definitions of ''pesticide chemical'' and ''pesticide chemical residue'' under FFDCA section 201(q)(3) and are therefore exempt from regulation under FFDCA section 402(a)(2)(B) and 408. These substances are subject to regulation by the Food and Drug Administration as food additives under FFDCA section 409.

(a) Inert ingredients in food packaging impregnated with an insect repellent when such inert ingredients are the components of the food packaging material (e.g., paper and paperboard, coatings, adhesives, and polymers).

(b) [Reserved]

[63 FR 10720, Mar. 4, 1998]

§ 180.5 Zero tolerances.

A zero tolerance means that no amount of the pesticide chemical may remain on the raw agricultural commodity when it is offered for shipment. A zero tolerance for a pesticide chemical in or on a raw agricultural commodity may be established because, among other reasons:

(a) A safe level of the pesticide chemical in the diet of two different species of warm-blooded animals has not been reliably determined.

(b) The chemical is carcinogenic to or has other alarming physiological effects upon one or more of the species of the test animals used, when fed in the diet of such animals.

(c) The pesticide chemical is toxic, but is normally used at times when, or in such manner that, fruit, vegetables, or other raw agricultural commodities will not bear or contain it.

(d) All residue of the pesticide chemical is normally removed through good agricultural practice such as washing or brushing or through weathering or other changes in the chemical itself, prior to introduction of the raw agricultural commodity into interstate commerce.

§ 180.6 Pesticide tolerances regarding milk, eggs, meat, and/or poultry; statement of policy.

(a) When establishing tolerances for pesticide residues in or on raw agricultural commodities, consideration is always given to possible residues of those pesticide chemicals or their conversion products entering the diet of man through the ingestion of milk, eggs, meat, and/or poultry produced by animals fed agricultural products bearing such pesticide residues. In each instance an evaluation of all available data will result in a conclusion either:

(1) That finite residues will actually be incurred in these foods from feed use of the raw agricultural commodity including its byproducts; or

(2) That it is not possible to establish with certainty whether finite residues will be incurred, but there is a reasonable expectation of finite residues; or

(3) That it is not possible to establish with certainty whether finite residues will be incurred, but there is no reasonable expectation of finite residues.