UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION,
PESTICIDES, AND TOXIC SUBSTANCES

DATE: June 1, 2006

ACTION MEMORANDUM

SUBJECT: Reassessment of Fifteen Exemptions from the Requirement of a Tolerance for Twelve Poorly Absorbed Chemicals:

FROM: Pauline Wagner, Chief Pauline Wagner 6/5/06
Inert Ingredient Assessment Branch
Registration Division (7505C)

TO: Lois A. Rossi, Director
Registration Division (7505C)

I. FQPA REASSESSMENT ACTION

Action: Reassessment of fifteen inert exemptions from the requirement of a tolerance for twelve chemicals. The reassessment decision is to maintain the inert ingredient tolerance exemptions "as-is."

Table 1. Tolerance Exemptions Being Reassessed in this Document

Citation as it Appears in the CFR				CAS Registry Number and Name
40 CFR 180[a]	Tolerance Exemption Expression	Limits	Uses	
930	Dimethylpolysiloxane (CAS Reg. No. 9013-00-6) NOTE: This CAS Reg. No. is incorrect and will be changed to 9016-00-6	---	Defoaming agent	9016-00-6 Polydimethylsiloxane
910	Ethyl esters of fatty acids derived from edible fats and oils	---	Solvent, cosolvent	111-62-6 Ethyl oleate
910	Methyl esters of fatty acids derived from edible fats and oils	---	Solvent, cosolvent	67762-38-3 Fatty acids, C16-18 and C18-unsatd, Me esters
910 and 930	Methyl esters of higher fatty acids conforming to 21 CFR 573.640	---	Antidusting agent, surfactant	67254-79-9 Fatty acids

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Citation as it Appears in the CFR				CAS Registry Number and Name
40 CFR 180[a]	Tolerance Exemption Expression	Limits	Uses	
920	Methyl oleate	---	Surfactant	112-62-9 9-Octadecenoic acid (9Z)-, methyl ester (9CI)
910	Methylated silicones	---	Antifoaming agent	See below

CAS Registry Numbers and Names for "Methylated silicones":

556-67-2
Cyclotetrasiloxane, octamethyl- (8CI, 9CI)

134180-76-0
Oxirane, methyl-, polymer with oxirane, mono[3-[1,3,3,3-tetramethyl-1- trimethylsilyl)oxy]disiloxanyl]propyl] ether (9CI)

125997-17-3
Poly(oxy-1,2-ethanediyl), a-acetyl-w-[3-[1,3,3,3-tetramethyl-1- [(trimethylsilyl)oxy]disiloxanyl]propoxy]- (9CI)

27306-78-1
Poly(oxy-1,2-ethanediyl), a-methyl-w-[3-[1,3,3,3-tetramethyl-1-[(trimethylsilyl)oxy]disiloxanyl]propoxy]- (9CI)

67674-67-3
Poly(oxy-1,2-ethanediyl), a-[3-[1,3,3,3-tetramethyl-1- [(trimethylsilyl)oxy]disiloxanyl]propyl]-w-hydroxy- (9CI)
[(trimethylsilyl)oxy]disiloxanyl]propyl] ether (9CI)

68037-81-0
Siloxanes and Silicones, di-Ph, Me Ph, polymers with Me Ph silsesquioxanes

68937-54-2
Siloxanes and Silicones, di-Me, 3-hydroxypropyl Me, ethoxylated

68938-54-5
Siloxanes and Silicones, di-Me, 3-hydroxypropyl Me, ethers with polyethylene glycol mono-Me ether

68037-66-1
Siloxanes and Silicones, di-Me, Me Ph, polymers with Me Ph silsesquioxanes

117272-76-1
Siloxanes and Silicones, 3-hydroxypropyl Me, ethers with polyethylene glycol mono-Me ether

67762-87-2
Siloxanes and Silicones, di-Me, 3-hydroxypropyl Me, ethers with polyethylene-polypropylene glycol mono-Bu ether

68554-64-3
Siloxanes and Silicones, di-Me, polymers with Me silsesquioxanes and polypropylene glycol mono-Bu ether

68937-56-4
Siloxanes and Silicones, di-Me, [(methylsilylidyne)tris(oxy)]tris-, hydroxy-terminated, ethers with polyethylene-

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Citation as it Appears in the CFR				CAS Registry Number and Name
40 CFR 180[a]	Tolerance Exemption Expression	Limits	Uses	
polypropylene glycol mono-Bu ether 67762-85-0 Siloxanes and Silicones, di-Me, 3-hydroxypropyl Me, ethers with polyethylene-polypropylene glycol mono-Me ether 63148-55-0 Siloxanes and Silicones, di-Me, hydroxy-terminated, ethoxylated 68440-66-4 Siloxanes and Silicones, di-Me, 3-hydroxypropyl Me, ethers with polypropylene glycol mono-Bu ether 68037-65-0 Siloxanes and Silicones, di-Me, di-Ph, Me Ph, polymers with Me Ph silsesquioxanes 87244-72-2 Siloxanes and Silicones, polyoxyalkylene- 68554-70-1 Silsesquioxanes, Me				
910	Mineral oil, U.S.P., or conforming to 21 CFR 172.878 or 178.3620(a) (CAS Reg. No. 8012-95-1).	---	Diluent, carrier, and solvent	8012-95-1 Hydrocarbon oils
930	Mineral oil, U.S.P., or conforming to 21 CFR 172.878 or 178.3620(a), (b).	---	Solvent, diluent	8012-95-1 Hydrocarbon oils
910 and 930	Polyethylene glycol [a-hydro-w-hydroxypoly(oxyethylene)]; mean molecular weight (in amu) 194 to 9,500 conforms to 21 CFR 178.3750	---	Surfactants, related adjuvants of surfactants	25322-68-3 Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy- (9CI)
910	Petrolatum, conforming to 21 CFR 172.880	---	Coating agent	8009-03-8 Petrolatum
910	Petroleum wax, conforming to 21 CFR 172.886(d)	---	Coating agent	None
910	Synthetic paraffin and its succinic derivatives conforming to 21 CFR 172.275	---	Carrier, binder, and carrying agent	None
910	Synthetic petroleum wax, conforming to 21 CFR 172.888	---	Binder, carrier, and coating agent	8002-74-2 Paraffin waxes and Hydrocarbon waxes (CA INDEX NAME)

a. Residues listed in 40 CFR 180.910, 920, and 930 are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest (910), applied to growing crops only (920), and applied to animals (930).

II. MANAGEMENT CONCURRENCE

I concur with the reassessment of the fifteen exemptions from the requirement of a tolerance for twelve poorly absorbed chemicals. I consider the fifteen tolerance exemptions to be reassessed for purposes of FFDCA's section 408(q) as of the date of my signature, below. A Federal Register Notice regarding this tolerance exemption reassessment decision will be published in the near future.

Lois A. Rossi, Director
Registration Division

Date: 6/5/06

cc: Debbie Edwards, SRRD
Joe Nevola, SRRD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION,
PESTICIDES, AND TOXIC SUBSTANCES

June 1, 2006

MEMORANDUM

SUBJECT: Reassessment of Fifteen Exemptions from the Requirement of a Tolerance for Twelve Poorly Absorbed Chemicals:

- Dimethylpolysiloxane
- Ethyl esters of fatty acids derived from edible fats and oils
- Methyl esters of fatty acids derived from edible fats and oils
- Methyl esters of higher fatty acids
- Methyl oleate
- Methylated silicones
- Mineral oil
- Polyethylene glycol
- Petrolatum
- Petroleum wax
- Synthetic paraffin and its succinic derivatives
- Synthetic petroleum wax

FROM: Karen Angulo
Inert Ingredient Assessment Branch (IIAB)
Registration Division (7505C)

TO: Pauline Wagner, Chief
Inert Ingredient Assessment Branch (IIAB)
Registration Division (7505C)

BACKGROUND

Attached is the science assessment for 15 exemptions from the requirement of a tolerance for 12 poorly absorbed chemicals. This assessment summarizes available information on the use, physical/chemical properties, toxicological effects, and exposure profile for these chemicals. The purpose of this document is to reassess the 15 existing exemptions from the requirement of a tolerance for residues of these chemicals as required under the Food Quality Protection Act (FQPA).

EXECUTIVE SUMMARY

This report evaluates the 15 exemptions from the requirement of a tolerance for 12 poorly absorbed chemicals detailed in Table 1 in this document.

Limited toxicological data are available for these chemicals. EPA's Structural Activity Team (SAT) reviewed these inert ingredients for potential health effects of concern. These chemicals tend to have large molecular weights, and some are not discrete chemicals but describe polymers and groups of chemicals that fall within a range (example: C14 to C22). The molecular weight of a chemical can affect the human body's ability to absorb it after exposure. The SAT concluded that absorption by any route (oral, inhalation, and dermal) would be "poor" to "nil" for these chemicals when molecular weight fractions were under 1,000, and "nil" when their molecular weight fractions are over 1,000. No significant health concerns were identified by the SAT. For dimethylpolysiloxane, the SAT noted that there is uncertain concern for oncogenicity based on one study (increase in islet cell tumors in male rats at the top dose level of 1000 mg/kg), but considered the evidence to be at most marginal/suggestive. For all of the other chemicals, the SAT rated them as "low" for human health effect concerns. Therefore, because the absorption of these chemicals by the human body is considered poor to nil, and there is low concern for human health effects, no further exposure assessment is necessary.

For the 15 exemptions from the requirement of a tolerance for 12 poorly absorbed chemicals, after taking into consideration all available information, it has been determined that there is a reasonable certainty that no harm to any population subgroup will result from aggregate exposure to these chemicals when considering exposure through food commodities and all other non-occupational sources for which there is reliable information. Therefore, it is recommended that the 15 exemptions from the requirement of a tolerance established for residues of these chemicals when used as inert ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest and when applied to animals in adherence with their current tolerance exemptions and limitations can be considered reassessed as safe under section 408(q) of the FFDCA. An ecotoxicity and ecological risk characterization will be conducted in the future for these chemicals.

I. Introduction

This report evaluates the 15 exemptions from the requirement of a tolerance for 12 poorly absorbed chemicals as detailed in Table 1, below.

II. Pesticide inert ingredient tolerance exemptions.

Table 1. Tolerance Exemptions Being Reassessed in this Document

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910	Ethyl esters of fatty acids derived from edible fats and oils	---	Solvent, cosolvent	111-62-6 Ethyl oleate
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910 and 930	Methyl esters of higher fatty acids conforming to 21 CFR 573.640	---	Antidusting agent, surfactant	67254-79-9 Fatty acids
920	Methyl oleate	---	Surfactant	112-62-9 9-Octadecenoic acid (9Z)-, methyl ester (9CI)
910	Methylated silicones	---	Antifoaming agent	See below

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910	Petroleum wax, conforming to 21 CFR 172.886(d)	---	Coating agent	None
910	Synthetic paraffin and its succinic derivatives conforming to 21 CFR 172.275	---	Carrier, binder, and carrying agent	None
910	Synthetic petroleum wax, conforming to 21 CFR 172.888	---	Binder, carrier, and coating agent	8002-74-2 Paraffin waxes and Hydrocarbon waxes (CA INDEX NAME)

a. Residues listed in 40 CFR 180.910, 920, and 930 are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest (910), applied to growing crops only (920), and applied to animals (930).

III. Metabolism and the SAT's Findings.

Limited toxicological data are available for these chemicals. The SAT reviewed all of these inert ingredients for potential health effects of concern. These chemicals have large molecular weights, and some are not discrete chemicals but describe polymers and groups of chemicals that fall within a range (example: C14 to C22). The molecular weight of a chemical can affect the human body's ability to absorb it after exposure. The SAT concluded that absorption by any route (oral, inhalation, and dermal) would be "poor" to "nil" for these chemicals when molecular weight fractions

were under 1,000, and "nil" when their molecular weight fractions are over 1,000. For dimethylpolysiloxane, the SAT noted that there is uncertain concern for oncogenicity based on one study (increase in islet cell tumors in male rats at the top dose level of 1000 mg/kg), but considered the evidence to be at most marginal/suggestive. For all of the other chemicals, the SAT rated them as "low" for human health effect concerns.

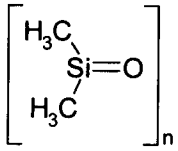
IV. Chemical Specific Information

A. Dimethylpolysiloxane.

The CFR citation for dimethylpolysiloxane's inert ingredient tolerance exemption reads "Dimethylpolysiloxane (CAS Reg. No. 9013-00-6)." This CAS Reg. No. is incorrect and will be corrected to read "9016-00-6."

Dimethylpolysiloxane is a clear, colorless, viscous liquid that is used in a wide variety of commercial products, including defoaming agents (oil processing), flow/gloss improvers (paints, varnishes), silicone greases and lubricants (motors, instruments, precision bearings), hydraulic/dielectric/heat-transfer/diffusion pump oils, textile/paper sizing, and in consumer products such as cosmetics and gastrointestinal agents (e.g., Mylanta, Phazyme, Maalox, etc.) (HSDB).

The molecular weight of dimethylpolysiloxane is between 71,800 and 547,100 (HSDB). The Joint FAO/WHO Expert Committee on Food Additives (JECFA) (1990) said that dimethylpolysiloxane "Consists of fully methylated linear siloxane polymers containing repeating units of the formula $(CH_3)_2SiO$, with trimethylsiloxy end-blocking units of the formula $(CH_3)_3SiO$-." The chemical's structure is:



The SAT concluded "Absorption of the low molecular weight fraction (< 1000) is poor all routes. There is uncertain concern for oncogenicity based on a study submitted as FYI-1477. There was an increase in islet cell tumors in male rats at the top dose level of 1000 mg/kg. The evidence was considered to be at most marginal/suggestive."

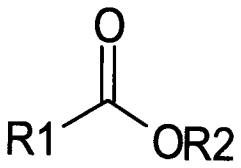
The World Health Organization's International Programme on Chemical Safety (INCHEM) evaluated dimethylpolysiloxane for acceptable daily intake (ADI) in 1975. According to the INCHEM, "Short-term studies have been carried out in several species, including one study on an emulsion of dimethylpolysiloxane. An adequate long-term study with dimethylpolysiloxane has been carried out in the rat. None of these studies has revealed any significant toxicity." The metabolic studies indicate that the orally administered dimethylsiloxanes are mainly excreted unchanged in the feces. INCHEM determined that the level causing no toxicological effect (Lowest Observed Effect

Level) in the rat is 0.1% (= 1,000 ppm) in the diet (equivalent to 150 mg/kg bw), and the estimated ADI for man is 0-1.5 mg/kg bw.

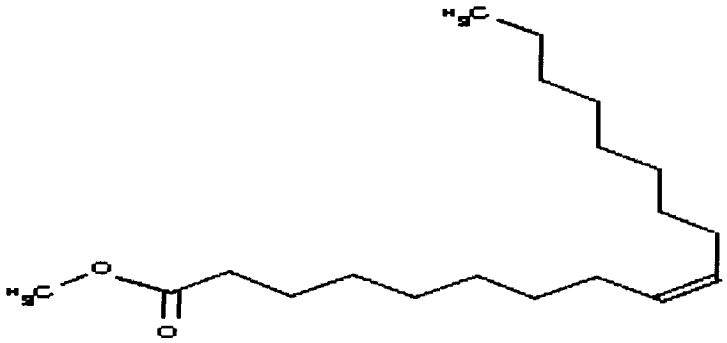
B. Fatty Acid Esters.

This section discusses four inert ingredients: 1) ethyl esters of fatty acids derived from edible fats and oils, 2) methyl esters of fatty acids derived from edible fats and oils, 3) methyl esters of higher fatty acids, and 4) methyl oleate.

Fatty acid esters are widely used in the manufacture of detergents, emulsifiers, wetting agents, stabilizers, textiles treatment, inks, rubbers, waxes, resins, lubricants, plasticizers, etc. (HSDB). Fats and oils (which differ only in that fats are solid and oils are liquid at room temperature) are complex mixtures of triglycerides whose fatty acid compositions vary with the organism. A triglyceride is a lipid in which three fatty acid molecules are esterified by a glycerol backbone. A fatty acid is a carboxylic acid with a long-chain hydrocarbon side group (Voet, et al. 1999).



The diagram above depicts an ester. "Ethyl" and "methyl" esters of fatty acids are broad categories of chemicals. In the above diagram of the general structure of an ester, R1 would be an ethyl group (SCH_2CH_3) for an ethyl ester, and R1 would be a methyl group (SCH_{23}) for methyl esters. For both ethyl and methyl esters, R2 is a long-chain hydrocarbon group (an 18-carbon chain is common) with single and/or double bonds. Methyl oleate is an example of a fatty acid ester. Its molecular formula is C19-H36-O2, its molecular weight is 296.49, and it has the following chemical structure (TOXNET):



Limited toxicological data are available for these chemicals. The SAT concluded that these chemicals "are expected to have poor absorption [by] all routes". Possible degradation products include methanol and ethanol, but risks of concern are not anticipated from the expected small quantities of these

degradates. The SAT concluded that "these chemicals were given low concern for potential health effects."

FDA permits the use of methyl esters of higher fatty acids as a direct food additive in animal feeds under 21 CFR 573.640. In addition, FDA under 21 CFR 172.225 permits the use of methyl and ethyl esters of fatty acids produced from edible fats and oils as a direct food additive for human consumption as a coating or film in dehydrating grapes to produce raisins.

C. Petrolatum, Mineral Oil, and Petroleum Waxes.

The section discusses five inert ingredients: 1) petrolatum, 2) mineral oil, 3) petroleum wax, 4) synthetic paraffin and its succinic derivatives, and 5) synthetic petroleum wax.

Commercial and consumer use of these chemicals typically includes pharmaceutical preparations (processing aids, intestinal lubricants), cosmetics (cold creams, hair preparations), food packaging and processing, chemical and plastics industry (processing medium, extenders, plasticizers), lubricating firearms & machinery, leather grease, shoe polish, and modeling clays (HSDB).

These substances are generally described as paraffinic hydrocarbons and liquid hydrocarbons from petroleum with carbon chain lengths ranging from 25 to 85 carbons. Estimated molecular weights range from over 1,000 to approximately 5,000. Descriptions of representative chemicals for this group can be found in EPA's Substance Registry System (SRS). For example, the SRS describes petrolatum as "A complex combination of hydrocarbons obtained as a semi-solid from dewaxing paraffinic residual oil. It consists predominantly of saturated crystalline and liquid hydrocarbons having carbon numbers predominantly greater than C25." SRS describes synthetic petroleum wax (i.e., paraffin waxes and hydrocarbon waxes) as "A complex combination of hydrocarbons obtained from petroleum fractions (by solvent crystallization or the sweating process) or from the catalytic hydrogenation of carbon monoxide (the Fischer-Tropsch Process). It consists predominantly of straight chain hydrocarbons having carbon numbers predominantly greater than C20."

Under 21 CFR 573, FDA permits the use of petrolatum (573.720) and mineral oil (573.720) as direct food additives in animal feeds. Under 21 CFR 172, FDA permits the use of the following chemicals as multipurpose direct food additives for human consumption:

- Petroleum wax (172.886) and synthetic petroleum wax (172.888). Examples of use include chewing gum base, protective coating for cheese and raw fruits and vegetables, defoamer in food, and component of microcapsules for spice-flavoring substances)
- Petrolatum (172.880). Examples of use include protective coating on raw fruits and vegetables; as release, sealing, and polishing agents; and as a lubricant in bakery and confectionary products as well as dehydrated fruits and vegetables.

Limited toxicological data are available for these chemicals. The SAT concluded that these chemicals "are all expected to have "nil" absorption [by] all routes if there is less than 5% with molecular weights less than 1,000. For the lower molecular weight fraction absorption is expected to be poor [by] all routes." The SAT also concluded "these chemicals were given low concern for potential health effects."

D. Polyethylene Glycol.

Polyethylene glycol (PEG) is used in numerous commercial applications, including lubricants in rubber and metal-forming operations, in food, food packaging, paints, paper coatings, plasticizers, solvents, dispersing agents, polishes, cosmetics, and hair-care and pharmaceutical products (ointments, suppository base) (HSDB).

The molecular formula for PEG is (C2-H4-O)mult-H2-O (ChemID). PEG chemicals have an extensive range of molecular weights. It is common to refer to a PEG by its molecular weight, for example "PEG 200" has a molecular weight of 200. The inert ingredient tolerance exemption expression is "Polyethylene glycol [a-hydro-w-hydroxypoly(oxyethylene)]; mean molecular weight (in amu) 194 to 9,500 conforms to 21 CFR 178.3750". Therefore, the molecular weight of PEGs used as inert ingredients in pesticide products must fall between 194 and 9,500.

FDA permits the use of PEGs as direct food additives, as shown in Table 2 below:

Table 2: FDA Direct Food Additive Uses for Polyethylene Glycol

Name	21 CFR	Use Pattern
Polyethylene glycol (mean molecular weight 200–9,500)	172.820	Polyethylene glycol may be used as a multi-purpose food additive, except in milk or preparations intended for addition to milk, as: a coating, binder, plasticizing agent, and/or lubricant in tablets used for food; an adjuvant to improve flavor and as a bodying agent in nonnutritive sweeteners identified in 21 CFR 180.37; an adjuvant in dispersing vitamin and/or mineral preparations; and a coating on sodium nitrite to inhibit hygroscopic properties.
Propylene glycol	582.4666	Propylene glycol is generally recognized as safe (GRAS) when used as an emulsifying agent and in accordance with good manufacturing or feeding practice

INCHEM evaluated the safety of polyethylene glycol. LD_{50} values in the rat ranged from 28 g/kg bw for PEG 200 to greater than 50 g/kg bw for PEG 9,000. In rabbits, prolonged skin contact of PEG 1500 and 4000 in dosages of 10 g/kg bw showed no deleterious effects on internal organs.

For long-term studies on the rat, INCHEM reported the following:

1. "Dosages of 0.06 g/kg/day of PEG 1500 or of 0.02 g/kg/day of PEG 4000 did not cause any significant adverse effects (mortality, frequency of infection,

life-span, fluid consumption, body weight gain, kidney and liver weights, frequency of size of litters, blood cytology, urinary albumen and sugars, occurrence of neoplasm, and micropathology) in albino rats when administered in the drinking water over a two-year period."

2. "Groups of 20 male and 20 female rats were fed 4.0, 2.0, 1.0, 0.5 and 0% of PEG 200 in their diet for two years and observed for food consumption, mortality rate, number of infections, life-span, growth rate, liver and kidney weights, gross pathological condition of organs, blood haematocrit values, and incidence of neoplasms. The results indicated that, even at 4.0% dose level, PEG 200 produced no significant deviations from the control rats during the two-year feeding study".

In 1979, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) established an Acceptable Daily Intake (ADI) of 0-10 mg/kg bw for PEGs.

The SAT concluded that "Absorption is expected to be nil all routes based on a molecular weight of 3500." The SAT also concluded that the chemical has a "low concern for potential health effects." In a study on G.I. absorption in rats of a number of PEGs over a five-hour period, PEGs 4000 to 6000 showed no absorption from the rat intestine, while PEGs 1000 and 1540 showed a slight absorption amounting to less than 2% of the total dose. (INCHEM)

In a Cosmetic Ingredient Review (CIR) on PEGs, the results from a 2-year chronic study on rats using PEG 75, which showed minor evidence of toxicity (rats of both sexes fed 8% PEG-75 grew slightly less that control rats). In another study, subchronic toxicity in the rat was shown to be dose dependent in the low molecular weight PEGs 6, 8, 32, and 75, (reduced body weight gain and increased renal and hepatic weights). For PEG 150, only the rats fed a concentration of 24% had signs of toxicity, and it was concluded that PEG-150 was distinctly less toxic than the lower molecular weight PEGs. For PEGs ranging from 200 to 4,000, there was no relationship between molecular weight and toxicity. (CIR) It is noted that the lowest molecular weight permitted under the inert ingredient tolerance exemption is PEG 194.

E. Methylated silicones

"Methylated silicones" is a general description of large silicone-based polymers. They have widespread use in a variety food and consumer products, including fermentation processes, instant coffee production, paper coatings and sizing, diet soft drinks, waste yeast tanks, food washing solutions, adhesives, textiles, deasphalting, boiler treatments, detergents, cleaning solutions, surfactants, cosmetic products, and polishes (HSDB).

Limited relevant toxicological data are available for methyl silicone-related chemicals. Results from the limited animal studies show no clinical signs of toxicity or histologic changes when male and female beagle dogs or CD rats were fed 800 mg silicon/kg/day as the dioxide for 1 month (HSDB).

For methylated silicones, the SAT concluded that "Absorption of the low molecular weight fraction (MW < 1000) is expected to be poor all routes. Nil absorption for the fraction with a molecular weight greater than 1000." The SAT also concluded that the chemicals have "low concern for potential health effects."

V. Special Considerations for Infants and Children

The chemicals reviewed in this document (Table 1) are of low concern for human health effects based on their poor or nil absorption by the human body. Based on this information there is no concern, at this time, for increased sensitivity to infants and children to these chemicals when used as inert ingredients in pesticide formulations. For the same reason, a safety factor analysis has not been used to assess risk and, therefore, the additional tenfold safety factor for the protection of infants and children is also unnecessary.

VI. Exposure Assessment

These chemicals are used in agricultural and residential pesticide products, therefore, there is the potential for dietary (food and drinking water) and residential (dermal and inhalation) exposure. According to the SAT, absorption of these chemicals by the human body is considered poor to nil via any route of exposure. Therefore, no exposure assessment is necessary.

VII. Aggregate Exposures

In examining aggregate exposure, the Federal Food, Drug, and Cosmetic Act (FFDCA) section 408 directs EPA to consider available information concerning exposures from the pesticide residue in food and all other nonoccupational exposures, including drinking water from ground water or surface water and exposure through pesticide use in gardens, lawns, or buildings (residential and other indoor uses).

For the chemicals reviewed in this document (Table 1), a qualitative assessment for all pathways of human exposure (food, drinking water, and residential) is appropriate given the lack of human health concerns associated with exposure to these chemicals when used as inert ingredients in pesticide formulations.

VIII. Cumulative Exposure

Section 408(b)(2)(D)(v) of FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance, the Agency consider "available information" concerning the cumulative effects of a particular pesticide's residues and "other substances that have a common mechanism of toxicity."

Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, EPA has not made a common mechanism of toxicity finding as to the chemicals reviewed in this document (Table 1) and any other substances, and these materials do not appear to produce a toxic metabolite produced

by other substances. For the purposes of this tolerance action, therefore, EPA has not assumed that these chemicals have a common mechanism of toxicity with other substances. For information regarding EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such chemicals, see the policy statements released by EPA's Office of Pesticide Programs concerning common mechanism determinations and procedures for cumulating effects from substances found to have a common mechanism on EPA's website at http://www.epa.gov/pesticides/cumulative/.

IX. Human Health Risk Characterization

Limited toxicological data are available for these chemicals. EPA's SAT reviewed these inert ingredients for potential health effects of concern. These chemicals tend to have large molecular weights, and some are not discrete chemicals but describe polymers and groups of chemicals that fall within a range (example: C14 to C22). The molecular weight of a chemical can affect the human body's ability to absorb it after exposure. The SAT concluded that absorption by any route (oral, inhalation, and dermal) would be "poor" to "nil" for these chemicals when molecular weight fractions were under 1,000, and "nil" when their molecular weight fractions are over 1,000. No significant health concerns were identified by the SAT. For dimethylpolysiloxane, the SAT noted that there is uncertain concern for oncogenicity based on one study (increase in islet cell tumors in male rats at the top dose level of 1000 mg/kg), but considered the evidence to be at most marginal/suggestive. For all of the other chemicals, the SAT rated them as "low" for human health effect concerns. Therefore, because the absorption of these chemicals by the human body is considered poor to nil, and there is low concern for human health effects, no exposure assessment is necessary.

Taking into consideration all available information on the chemicals reviewed in this document (Table 1), it has been determined that there is a reasonable certainty that no harm to any population subgroup will result from aggregate exposure to these chemicals when considering exposure through food commodities and all other non-occupational sources for which there is reliable information. Therefore, it is recommended that the 15 exemptions from the requirement of a tolerance established for residues of these chemicals when used as inert ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest and when applied to animals in adherence with their current tolerance exemptions and limitations can be considered reassessed as safe under section 408(q) of the FFDCA

X. Ecotoxicity and Ecological Risk Characterization.

Ecotoxicity and ecological risk characterization will be conducted in the future.

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