

DISPOSITION OF TIER 3 PRIORITY PERSISTENT POLLUTANTS - SUMMARY

CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
15972-60-8	Alachlor	Herbicide	One request for retention ¹ (C-018) and one (C-049) for removal. New information supports a lower value for "P." ² DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
120-12-7	Anthracene	Dyes; Combustion by-product	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1
1861-40-1	Benfluralin	Herbicide (turf grass)	One request for retention (C-018) and one (C-041) for removal. New information supports a lower value for "P." DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
82657-04-3	Bifenthrin	Pyrethroid pesticide	One request (C-018) for retention and two (C-059, C-060) for removal. New information supports original finding of "P", "B", and "T", but with lower value for "P." This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
56-35-9	Bis (tributyltin) oxide (TBTO, hexabutyldistannoxane)	Biocide (anti-fouling paints)	Per C-008, traditional uses were cancelled in the U.S. in 2005 and internationally in 2008. Current use in Oregon is limited to poultry house disinfection. Now largely a legacy pollutant. Classified as a PBT substance by the ECB. ³	Retained in Tier 2
1897-45-6	Chlorothalonil	Fungicide	One request for retention (C-056) and one (C-054) for removal. New information supports a lower value for "P." DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
2921-88-2	Chlorpyrifos	Insecticide	No requests for retention and one (C-041) for removal. New information indicates BCF >1000, unless deuration is considered, which it is not. This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
540-97-6	Cyclohexasiloxane, dodecamethyl-(D6)	Cosmetic ingredient	No requests for retention and one (C-058) for removal. New information indicates this chemical is not “P”, “B”, or “T.” Given a revised K _{OW} , DEQ would exclude “T” on the basis of the solubility limit. Canada, with an approach similar to DEQ’s, also concluded that this chemical is not “P”, “B”, or “T.” ⁴ DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
541-02-6	Cyclopentasiloxane, decamethyl-(D5)	Cosmetic ingredient	No requests for retention and one (C-058) for removal. New information indicates this chemical is not “P”, “B”, or “T.” Given a revised K _{OW} , DEQ could exclude “T” on the basis of the solubility limit. However, Canada, with an approach similar to DEQ’s, has concluded that this chemical is “P”, “B”, and “T” (“...it is possible that toxicity may manifest at the solubility limit if sufficient exposure and sensitive species were present.”). ⁵ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained at Tier 1
556-67-2	Cyclotetrasiloxane, octamethyl-(D4)	Cosmetic ingredient	No requests for retention and one (C-058) for removal. New information indicates this chemical is neither “P” nor “B”. Canada, with an approach similar to DEQ’s, has concluded that this chemical is “P” and “T”, while “B” is equivocal (but possibly >1000). ⁶ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
68359-37-5	Cyfluthrin	Pyrethroid pesticide	One request (C-018) for retention and one (C-059) for removal. New information supports original finding of “T”, but not of “P” or B”. DEQ notes that this chemical, because of its affinity for sediment and its toxicity, could pose a significant threat to benthic communities and - the base of food webs involving fish species. ^{7,8,9} DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
52315-07-8	Cypermethrin	Pyrethroid pesticide	One request (C-018) for retention and one (C-059) for removal. New information supports original finding of “T”, but not of “P” or B”. DEQ does note that this chemical, because of its affinity for sediment and its toxicity, could pose a significant threat to benthic communities and - the base of food webs involving fish species. ^{8,9} DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
52918-63-5	Deltamethrin (decamethrin)	Pyrethroid pesticide	One request (C-018) for retention and one (C-059) for removal. New information supports original finding of “P” and “T”, but with lower values for “P.” This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
84-61-7	Di-cyclohexyl phthalate (DCHP)	Plasticizer	One request for retention (C-018) and none for removal. As noted by C-026, EPISuite v4.00 uses an incorrect water solubility value. When this value is corrected, this chemical’s chronic toxicity threshold is at or below solubility limit. DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
128-39-2	Di-tert-butylphenol, 2,6-	Chemical intermediate	One request for retention (C-018) and one (C-043) for removal. New information indicates this chemical is neither “P” nor “B”. This information is consistent with assessments by Environment Canada and other governments. DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
66230-04-4	Esfenvalerate	Pyrethroid pesticide	No requests for retention and two (C-059, C-061) for removal. New information supports original finding of “B” and “T”, but with lower value for “P.” DEQ notes that this chemical, because of its affinity for sediment and its toxicity, could pose a significant threat to benthic communities and - the base of food webs involving fish species. ^{8,9,25} This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
55283-68-6	Ethalfluralin	Herbicide	No requests for retention and one (C-041) for removal. New information supports a lower value for “P.” DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
57-63-6	Ethinyl estradiol, 17a-	Hormone	One request for retention (C-018) and one (C-037) for removal. New information that exposures would be insufficient to cause “T” ¹⁰ ; no additional information on “P” or “B” was offered. Although it can produce effects at very low concentrations, ¹¹ other information suggests that this chemical does not meet the “P” criterion. ¹²	Removed
13356-08-6	Fenbutatin-oxide	Acaricide	No requests for retention or removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1
120068-37-3	Fipronil	Insecticide	One request (C-018) for retention and one (C-052) for removal. New information indicates chemical is no longer “P.” However, there is evidence to suggest that degradates of this chemical are more toxic and more persistent in sediment than the parent compound. ¹³ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
98967-40-9	Flumetsulam	Herbicide	No requests for retention and one (C-041) for removal. New information supports a lower value for "T." DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
1222-05-5	Galaxolide (HHCB)	Fragrance	One request for retention (C-018) and one (C-036) for removal. New information indicates that this chemical is neither "P" nor "B" because it is not classified as a PBT by European regulatory authorities. ¹⁴ However, ECB fact sheet gives BCF to 1600 L/kg (consistent with EPISuite estimates) and aquatic toxicity <1.0 mg/L, which meet SB 737 "B" and "T" criteria. ¹⁵ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
58-89-9	Hexachlorocyclohexane, gamma-(Lindane)	OC pesticide	Per C-008, its use as agricultural pesticide was cancelled in 2006 and its last use as a seed treatment will be in 2009. Current use in FDA-regulated lice creams and shampoos is being phased-out; such products may no longer be available in Oregon. It may soon be a legacy pollutant.	Retained in Tier 2
465-73-6	Isodrin	Insecticide	Per C-008, all uses in U.S. were cancelled by U.S. EPA years ago (same as with aldrin and endrin). Now strictly a legacy pollutant.	Retained in Tier 2
91465-08-6	Lambda-cyhalothrin	Pyrethroid pesticide	No requests for retention and two (C-054, C-059) for removal. New information supports original finding of "T", but not of "P", but adds a finding of "B". This revised information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
15323-35-0	Musk indane	Fragrance	One request for removal (C-036) and none for retention. Environmental and toxicological information on this specific chemical appear limited. The suggestion was made to compare it with AHTN, which is structurally similar. Retained due to limited chemical-specific data on PBT characteristics.	Retained in Tier 1

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
81-14-1	Musk ketone	Fragrance	One request for retention (C-018) and one (C-036) for removal. ECB risk assessment indicates BCF >1000 and fish chronic toxicity <1.0 mg/L, which meet SB 737 "B" and "T" criteria. ¹⁶ Also evidence of reproductive toxicity in fish. ¹⁷ P&G has removed it from major high volume uses, limited new uses, and is replacing it when products are discontinued or reformulated. ¹⁸ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
145-39-1	Musk tibetene	Fragrance	One request for retention (C-018) and none for removal. Per C-036, chemical is prohibited for use due to a lack of information.	Retained in Tier 1
81-15-2	Musk xylene	Fragrance	No requests for retention or removal. Per C-036, chemical is prohibited for use due to environmental concerns.	Retained in Tier 1
88671-89-0	Myclobutanil	Fungicide	No requests for retention and one (C-041) for removal. New information supports a lower value for "T" and an unchanged value for "P." This chemical is considered toxic to humans (a reproductive toxin ^{19,20}) and thus still meets the "T" criterion. ²¹ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
140-66-9	Octylphenol, 4-tert-	Chemical intermediate Detergent degradate	One request for retention (C-018) and one (C-043) for removal. New information indicates this chemical is neither "P" nor "B." This information is consistent with assessments by Environment Canada and other governments. DEQ agrees that this chemical no longer meets persistent pollutant criteria.	Removed

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
42874-03-3	Oxyfluorfen	Herbicide (weeds)	No requests for retention and one (C-041) for removal. New information supports a lower value for "P" and an unchanged value for "B." This chemical is considered toxic to humans (RfD ≤ 0.003 mg/kg/d) and thus still meets the "T" criterion. ²¹ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
40487-42-1	Pendimethalin	Herbicide (crabgrass germination)	No requests for retention and one (C-052) for removal. New information indicates chemical is no longer "P" or "B", but no specific value is given for "B." DEQ agrees that the "P" criterion is not met, but other information suggests that the BCF may be >5000 , unless depuration is considered, which it is not, thus the "B" criterion is still met. ^{22,23} This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
87-86-5	Pentachlorophenol (PCP)	Pesticide	No requests for retention and one (C-023) for removal. New information indicates chemical is no longer "P." DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
375-85-9	Perfluoroheptanoic acid (PFHpA)	Anti-stain coatings	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1
375-95-1	Perfluorononanoic acid (PFNA)	Anti-stain coatings	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1
1763-23-1	Perfluorooctane sulfonic acid (PFOS)	Anti-stain coatings	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
335-67-1	Perfluorooctanoic acid (PFOA)	Anti-stain coating	One request for retention (C-018) and one for removal (C-057). The “P” of this chemical is not in question. New information contested its categorization as “B” and “T.” Based on BCF <1000, DEQ agrees that it does not meet the “B” criterion; however, a chronic NOEC for sub-lethal responses in fish <1.0 mg/L is within the SB 737 “T” criterion. There is also “...suggestive evidence of carcinogenicity...” ²⁴ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
52645-53-1	Permethrin	Pyrethroid pesticide	No requests for retention and one (C-059) for removal. New information supports original finding of “T”, but not of “P” or B”. DEQ notes that this chemical could pose a significant threat to benthic communities and the base of food webs involving fish species. ^{7,8,9,25} DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
85-01-8	Phenanthrene	Dyes; Combustion by-product	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1
2312-35-8	Propargite	Insecticide	No requests for retention and one (C-028) for removal. New information indicates this chemical is neither “P” nor “B.” DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737.	Removed
80214-83-1	Roxithromycin	Antibiotic	One request for retention (C-018) and none for removal. No new information was offered to contest its current categorization as a persistent pollutant.	Retained in Tier 1

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CASRN	Chemical Name	Principal Use(s)	Comment	Disposition
1506-02-1	Tonalid (musk tetraline, AHTN)	Fragrance	No requests for retention and one (C-036) for removal. New information suggests this chemical is neither “P” nor “B” because it is not classified as a PBT by European regulatory authorities. ¹⁴ In concurrence with the ECB fact sheet, DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737. ²⁶	Removed
43121-43-3	Triadimefon	Fungicide	One request for retention (C-018) and one (C-022) for removal. The lack of “B” and a moderate “T” for this chemical are not in question. Based on commenter-supplied empirical data and assumptions, and DEQ’s default modeling assumptions, a revised overall persistence (P _{OV}) of 49d is suggested. DEQ agrees that this chemical no longer meets criteria for categorization as a persistent pollutant per SB 737. ²⁷	Removed
3380-34-5	Triclosan (2,4,4’-trichloro-2’-hydroxydiphenyl ether)	Consumer product antimicrobial	One request for retention (C-018) and one (C-020) for removal. New information did not address overall persistence or fate in sediment, where it may be a “persistent organic contaminant of estuarine sediment.” ²⁸ New information gave a BCF of 2532-7900 kg/L, values which meet the “B” criterion. New information gave fish toxicity values which meet the “T” criterion. ²⁹ Methyl triclosan, a breakdown product, also accumulates in fish. ³⁰ The parent compound bioaccumulates into earthworms from biosolids used as soil amendments ³¹ and also into wild dolphins. ³² This chemical is also capable of conversion to dioxin in water. ³³ This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1
1582-09-8	Trifluralin	Herbicide	One request for retention (C-018) and one (C-041) for removal. New information indicates BCF > 1000, unless depuration is considered, which it is not. This information does not contest its current categorization as a persistent pollutant per SB 737.	Retained in Tier 1

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LIST OF COMMENTERS

Commenter ID *	Commenter
C-008	Janet Fults/Steve Riley, Oregon Department of Agriculture (ODA)
C-018	Renee Hackenmiller-Paradis, Oregon Environmental Council (OEC)
C-020	Claudia Büche, Ciba Expert Services, Basel, Switzerland
C-022	Scott Kohne/Pat Kwiatkowski, Bayer CropScience, Folsom, CA
C-026	Kristy L. Morrison, American Chemistry Council, Arlington, VA
C-028	Tim Weiland, Chemtura Corp., Middlebury, CT
C-036	Don Salvito, Fragrance Materials Association of the United States
C-037	Daniel Caldwell, Johnson & Johnson
C-041	Brian Bret, Dow AgroSciences, Roseville, CA
C-043	Barbara Losey, Alkylphenols & Ethoxylates Research Council
C-052	Patricia Rice, BASF Corp., Research Triangle Park, NC
C-054	Danelle Farmer, Syngenta Crop Protection, Austin, TX
C-056	Jennifer McKinnis
C-057	Dr. Robert Hoke, DuPont
C-058	Tracy Guerrero, Silicones Environmental Health and Safety Council
C-059	Dr. Richard Allen, Pyrethroid Working Group
C-060	Chris Davis, FMC Corporation
C-061	Patricia Devine, DuPont Crop Protection

REFERENCES & NOTES

- ¹ Throughout, “request”, for either removal or retention, means that DEQ received sufficient new or revised, substantive, and verifiable scientific or technical information to evaluate the status of a given chemical.
- ² In EPISuite v4.00, overall persistence time (P_{OV}) is a measure of how long the chemical remains in the model environment; this has been referred to as the “residence time” of a chemical in the model environment (and can be converted to overall half-life by multiplying by $\ln(2)$). The only loss from the model environment was through biodegradation (no advection), based on a model estimate of ultimate biodegradation (complete breakdown of the parent compounds and its degradates) rather than primary degradation (transformation to an initial metabolite). DEQ chose this approach because it is the more conservative, in keeping with the goals of the priority-setting phase of a PBT evaluation.
- ³ European Chemicals Bureau, Results of the Evaluation of the PBT/VPVB Properties of Bis(tributyltin) oxide, PBT List No. 95, 2008.
- ⁴ Environment Canada/Health Canada, *Screening Assessment for the Challenge Dodecamethylcyclohexasiloxane (D6)*, November 2008.
- ⁵ Environment Canada/Health Canada, *Screening Assessment for the Challenge Decamethylcyclopentasiloxane (D5)*, November 2008.
- ⁶ Environment Canada/Health Canada, *Screening Assessment for the Challenge Octamethylcyclotetrasiloxane (D4)*, November 2008.
- ⁷ Brander et al., *Environmental Toxicology and Chemistry* 28(7): 1493-1499, 2009.
- ⁸ Holmes et al., *Environmental Science & Technology* 42: 7003-7009, 2009

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- 9 Hintzen et al., *Environmental Pollution* 157: 110-116, 2009.
- 10 DEQ's assessment of "T" is based on inherent toxicity (hazard) and not on risk of toxicity.
- 11 Caldwell et al., *Environmental Science & Technology* 42: 7046-7054, 2008.
- 12 Jürgens et al., *Environmental Toxicology and Chemistry* 21(3): 480-488, 2002.
- 13 Lin et al., *Environmental Toxicology and Chemistry* 28(7): 1462-1468, 2009.
- 14 Smith and Salvito, *Environmental Health Perspectives* 116(4): A154-A155, 2008.
- 15 European Chemicals Bureau, Results of the Evaluation of the PBT/VPVB Properties of HHCB, PBT
List No. 02, undated (accessed 2009).
- 16 European Chemicals Bureau, European Union Risk Assessment Report, EINECS No: 201-328-9
(musk ketone), 2005
- 17 Carlsson et al., *Marine Environmental Research*, 50(1-5): 237-241, 2000.
- 18 P&G Perspectives, "Use of Nitromusk Perfumes in P&G Products", www.pgperspectives.com
(accessed April 2009).
- 19 Rockett et al., *Reproductive Toxicology* 22(4): 647-658, 2006.
- 20 Goetz et al., *Toxicological Sciences* 95(1): 227-239, 2007.
- 21 If a chemical could be classified as toxic to humans (see Section 3.1 of the June 2009 report) and
was also "P" or "B", it was retained as a persistent pollutant.
- 22 U.S. EPA, Office of Pesticide Programs, *Pendimethalin: Analysis of Risks to Endangered and
Threatened Salmon and Steelhead*, 2004.
- 23 Zimmerman et al., *The Science of the Total Environment*, 248(2-3): 169-179, 2000.
- 24 U.S. EPA, *Draft Risk Assessment of the Potential Human Health Effects Associated with Exposure
to Perfluorooctanoic Acid and its Salts*, 2005.
- 25 Amweg et al., *Environmental Toxicology and Chemistry* 24(4): 966-972, 2005.
- 26 European Chemicals Bureau, Results of the Evaluation of the PBT/VPVB Properties of AHTN, PBT
List No. 01, undated (accessed 2009).
- 27 Regardless of its "T" for humans or fish, a chemical must also meet the "B" or "P" criterion to be
listed.
- 28 Miller et al., *Environmental Science & Technology* 42: 4570-4576, 2008.
- 29 Orvos et al., *Environmental Toxicology & Chemistry* 21(7): 1338-1349, 2002.
- 30 Balmer et al., *Environmental Science & Technology* 38: 390-395, 2004.
- 31 Kinney et al., *Environmental Science & Technology* 42: 1863-1870, 2008.
- 32 Fair et al., *Environmental Pollution* 157: 2248-2254, 2009.
- 33 Latch et al., *Journal of Photochemistry and Photobiology A: Chemistry*, 158(1): 63-66, 2003.