Chapter NR 233

PESTICIDE CHEMICALS

Subchapter I — General Provisions

NR 233.01 Purpose. The purpose of this chapter is to establish effluent limitations, performance standards and pretreatment standards for discharges of process wastes from the pesticide chemicals point source category and its subcategories.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.02 Applicability. This chapter applies to any pesticide chemicals facility that discharges or may discharge a pollutant to waters of the state or that introduces or may introduce pollutants into a publicly owned treatment works.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.03 General definitions. In addition to the definitions in ss. NR 205.03, 205.04 and 211.03, the following definitions apply to the terms used in this chapter:

(1) "Active ingredient" means an ingredient of a pesticide which is intended to prevent, destroy, repel or mitigate any pest.

(1e) "Appropriate pollution control technology" means the wastewater treatment technology listed in Table 10 for a particular pesticide active ingredient including an emulsion breaking step prior to the listed technology when emulsions are present in the wastewater to be treated.

(1o) "Equivalent system" means a wastewater treatment system that is demonstrated in literature, treatability tests, or self–monitoring data to remove a similar level of pesticide active ingredient or priority pollutant as the applicable appropriate pollution control technology listed in Table 10.

(2) "Existing source" means any point source, except a new source as defined in sub. (3), from which pollutants are or may be discharged either to waters of the state or into a publicly owned treatment works.

(2e) "Formulation of pesticide products" means the process of mixing, blending, or diluting one or more of the pesticide active ingredients with one or more active or inert ingredients, without an intended chemical reaction, to obtain a manufacturing use product or an end use product.

(2o) "Group one mixtures" means any product whose only pesticide active ingredient is:

(a) Any common food or food constituent.

(b) Any non–toxic household item.

(c) Any substance that is generally recognized as safe by the U.S. food and drug administration as provided in 21 CFR 170.30, Parts 182, 184, and 186 in accordance with good manufacturing practices as defined by 21 CFR Part 182.

(d) Any product exempt from the federal insecticide, fungicide, rodenticide act as provided in 40 CFR 152.25.

(2p) "Group 2 mixtures" means those chemicals listed in Table 9.

(2q) "Inorganic wastewater treatment chemicals" means inorganic chemicals that are commonly used in wastewater treatment systems to aid in the removal of pollutants through physical and chemical technologies such as chemical precipitation, flocculation, neutralization, chemical oxidation, hydrolysis, or adsorption.

(2r) "Interior wastewater" means any wastewater that is generated from cleansing or rinsing the interior of pesticide formulating, packaging, or repackaging equipment, raw material drums, shipping containers, or bulk storage tanks. Also included is cooling water that comes into direct contact with pesticide active

ingredients during the formulating, packaging, or repackaging process.

(2u) "Microbial pesticides" means registered pesticide active ingredients that are biological control agents listed in 40 CFR 152.20(a)(3) including protozoa, algae, fungi, bacteria and viruses.

(3) "New source" means any point source for which the commencement of construction occurred after April 10, 1992, in subchs. II and III and after April 14, 1994 for subchs. IV and VI and from which pollutants are or may be discharged either to waters of the state or into a publicly owned treatment works.

(3e) "Packaging of pesticide products" means enclosing or placing a formulated pesticide product into a marketable container.

(4) "Pest" means:

(a) Any insect, rodent, nematode, fungus or weed.

(b) Any other form of terrestrial or aquatic plant or animal life.

(c) Any virus, bacteria or other micro–organism, except viruses, bacteria or other micro–organisms on or in living man or other living animals, which the administrator declares to be a pest under the Federal Insecticide, Fungicide and Rodenticide Act, 7 USC 136 et.seq.

(5) "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest.

(6) "Pesticide chemicals" means the sum of all active ingredients manufactured at each facility covered by this chapter.

(6e) "PFPR/manufacturing facility" means a pesticide formulating, packaging, or repackaging facility that also performs pesticide manufacturing on–site and commingles their PFPR process wastewaters and pesticide manufacturing process wastewaters.

(6o) "Pool chemicals" means pesticide products that are intended to disinfect or sanitize, reduce or mitigate growth or development of microbiological organisms in the water of swimming pools, hot tubs, spas, or other such areas in the household or institutional environment as provided in the directions for use on the product label.

(7) "Priority pollutants" means the toxic pollutants listed in s. NR 215.03.

(8) "Refilling establishment" means an establishment where the activity of repackaging a pesticide product occurs.

(9) "Repackaging of pesticide products" means the transfer of a pesticide formulation or pesticide active ingredients from one container to another without a change in composition of the formulation or the labeling content for sale or distribution.

(10) "Sanitizer products" means pesticide products that are intended to disinfect or sanitize, reduce or mitigate growth or development of microbiological organisms on inanimate surfaces in the household, institutional, or commercial environments and whose labeled directions for use result in the product being discharged to a POTW. This definition also includes sanitizer solutions as defined by 21 CFR 178.1010 and pool chemicals as defined in this section. This definition does not include liquid chemical sterilants, including sporicidals, exempted by s. NR 233.30 (3) (f) or industrial preservatives and water treatment microbiocides other than pool chemicals.

(11) "Stand–alone PFPR facility" means a PFPR facility where either no pesticide manufacturing occurs or pesticide manufacturing process wastewaters are not commingled with PFPR process wastewaters. Facilities may formulate, package, repackage, or manufacture other non–pesticide chemical products and be considered a stand–alone PFPR facility.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97; cr. (1e), (1o), (2e) to (2u), (3e), (6e), (6o), (8) to (11), am. (3), Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.04 Compliance dates. (1) Any existing source subject to this chapter which discharges to waters of the state shall achieve:

(a) The effluent limitations representing BPT by July 1, 1977; and

(b) The effluent limitations representing BAT by July 1, 1984.

(2) Any new source subject to this chapter which discharges to waters of the state shall achieve NSPS at the commencement of discharge.

(3) Any existing source subject to subchs. II and III which introduces process wastewater pollutants into a POTW shall achieve PSES by September 28, 1996.

(3e) Any existing source subject to subchs. IV and VI which introduces process wastewater pollutants into a POTW shall achieve PSES by November 6, 1999.

(4) Any new source subject to this chapter which introduces process wastewater pollutants into a POTW shall achieve PSNS at the commencement of discharge.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97; am. (3), cr. (3e), Register, May, 2001, No. 545, eff. 6–1–01.

Subchapter II — Organic Pesticide Chemicals Manufacturing Subcategory

NR 233.10 Applicability; description of the organic pesticide chemicals manufacturing subcategory. (1) For the purpose of calculating and applying effluent limitations for COD, BOD_5, and TSS, and applying pH limits under BPT in s. NR 233.12, BCT in s. NR 233.13, and NSPS in s. NR 233.15:

(a) This subchapter applies to discharges resulting from the manufacture of organic pesticide active ingredients and organo–tin pesticide active ingredients except those listed in par. (b).

(b) This subchapter does not apply to the following:

Allethrin	Naphthalene acetic acid
Benzyl benzoate	Propargite
Bisethlyxanthogen	1,8 Naphthalic anhydride
Chlorophacinone	Quinmethionate
Coumafuryl	Rotenone
Dimethyl phthalate	Sulfoxide
Diphacinone	Triazine compounds, both
Endothall acid	symmetrical and
EXD (Herbisan)	asymmetrical
Gibberellic acid	Warfarin and similar
Glyphosate	anticoagulants.

(c) The effluent limitations of this subchapter for BOD_5 and TSS, but not COD, apply to the manufacturers of the following:

Ametryn	Prometryn
Atrazine	Propazine
Cyanazine	Simazine
Glyphosate	Terbuthylazine
Hexazinone	Terbutryn
Prometon	

(2) For the purpose of calculating BPT effluent limitations in s. NR 233.12 for organic pesticide chemicals, this subchapter applies to discharges resulting from the manufacture of the following organic active ingredients:

2,4–D	Fenuron
2,4,5–T	Fenuron–TCA
Aldrin	Heptachlor
Aminocarb	Lindane
Azinphos methyl	Linuron
Barban	Malathion
BHC	Methiocarb
Captan	Methoxychlor
Carbaryl	Mexacarbate
Chlordane	Mirex

Chlorpropham	Monuron
Diazinon	Monuron–TCA
DDD	Neubron
DDE	Parathion ethyl
DDT	Parathion methyl
Demeton–O	PCNB
Demeton–S	Perthane
Dicamba	Propham
Dichloran	Propoxur
Dicofol	Siduron
Dieldrin	Silvex
Disulfoton	Swep
Diuron	Toxaphene
Endosulfan	Trifluralin
Endrin	

(3) This subchapter does not apply to the intermediates used to manufacture the active ingredients, and active ingredients used solely in experimental pesticides. BPT coverage in this subchapter does not apply to insecticidal pathogenic organisms such as bacillus thuringiensis, insect growth hormones, plant extracts such as pyrethrins, sex attractants and botanicals such as Rotenone.

(4) A plant that manufactures a pesticide active ingredient listed in Table 1 shall comply with the BAT effluent limitations, new source performance standards, and pretreatment standards both for that ingredient listed in Table 2 or Table 3, and for priority pollutants listed in Tables 4, 5 and 6. The limitations apply as follows:

(a) Table 4 – BAT and NSPS – applies to existing and new direct discharge point sources that use end–of–pipe biological treatment.

(b) Table 5 – BAT and NSPS – applies to existing and new direct discharge point sources that do not use end–of–pipe biological treatment.

(c) Table 6 – PSES and PSNS – applies to existing and new sources that discharge to POTWs.

(5) (a) The discharge quantity for lead and total cyanide shall be determined by multiplying the concentrations listed in the applicable tables times the flow from the non–complexed lead–bearing waste streams for lead and times the flow from non–complexed cyanide–bearing waste streams for total cyanide.

(b) This subchapter does not apply to discharges of cyanide in cyanide–bearing waste streams if:

1. The department or control authority determines that the cyanide limitations and standards are not achievable due to elevated levels of non–amenable cyanide, that is not oxidized by chlorine treatment, that result from the unavoidable complexing of cyanide at the process source of the cyanide–bearing waste stream and establishes an alternative total cyanide or amenable cyanide limitation that reflects the best available technology economically achievable.

2. The determination under subd. 1 shall be based upon a review of relevant engineering, production, and sampling and analysis information, including measurements of both total and amenable cyanide in the waste stream.

3. An analysis of the extent of complexing in the waste stream, based on the information in subds. 1 and 2, and its impact on cyanide treatability shall be set forth in writing and, for direct dischargers, be contained in the fact sheet required by 40 CFR 124.8.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.11 Specialized definitions. The following definitions apply to the terms used in this subchapter:

(1) "Organic active ingredients" means carbon–containing active ingredients used in pesticides, excluding metallo–organic active ingredients.

(2) "Organic pesticide chemicals" means the sum of all organic active ingredients listed in s. NR 233.10 (2) which are manufactured at a facility subject to this subchapter.

(3) "Total organic active ingredients" means the sum of all organic active ingredients covered by s. NR 233.10 (1) which are manufactured at a facility subject to this subchapter.

(4) (a) "Process wastewater flow" means the sum of the average daily flow from the following wastewater streams:

Process stream and product washes
Equipment and floor washers
Water used as solvent for raw materials
Water used as reaction medium
Spent acids
Spent bases
Contact cooling water
Water of reaction
Air pollution control blowdown
Stream jet blowdown
Vacuum pump water
Pump seal water
Safety equipment cleaning water
Shipping container cleanout
Safety shower water
Contaminated storm water
Product/process laboratory quality control wastewater

(b) Does not mean wastewaters from the production of intermediate chemicals.

(5) "Process wastewater pollutants" means those pollutants present in process wastewater flow.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of BPT:

BPT Effluent Limitations

Effluent characteristics	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days may not exceed
COD	13.000	9.0000
BOD_5	7.400	1.6000
TSS	6.100	1.8000
Organic pesticide chemicals	.010	.0018
pH	(1)	(1)

[1]Within the range of 6.0 to 9.0.

Note: For COD, BOD_5 and TSS, metric units: Kilogram/1,000 kg of total organic active ingredients. English units: Pound/1000 lb. of total organic active ingredients.

For organic pesticide chemicals, metric units: Kilogram/1,000 kg of organic pesticide chemicals. English units: Pound/1,000 lb. of organic pesticide chemicals.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve effluent limitations representing the degree of effluent reduction attainable by the application of BCT: The limitations for BOD_5, TSS, and pH are the same as those specified in the table in s. NR 233.12.

BCT Effluent Limitations

Pollutant or pollutant property	Maximum for any one day[2]	Average of daily values may not exceed[2]
BOD_5	7.400	1.6000
TSS	6.100	1.8000
pH	([1])	([1])

[1]Within the range 6.0 to 9.0

[2]Metric units: Kilogram pollutant/1,000 kg of total organic active ingredients. English units: Pound pollutant/1,000 lb of total organic active ingredients

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.14 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available control technology economically achievable (BAT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve effluent limitations representing the degree of effluent reduction attainable by the application of BAT as specified in s. NR 233.10 (4). For the priority pollutants, sources shall achieve discharges not exceeding the quantity or mass determined by multiplying the process wastewater flow times the appropriate concentrations listed in Table 4 or Table 5.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.15 New source performance standards (NSPS). (1) Any new source subject to this subchapter which discharges process wastewater pollutants shall achieve the NSPS specified in s. NR 233.10 (4), and subject to s. NR 233.10 (1) shall meet the following standards for BOD_5, TSS, COD and pH:

New Source Performance Standards

Pollutant or pollutant property	Maximum for any one day[2]	Average of daily values may not exceed[2]
COD	9.360	6.480
BOD_5	5.328	1.1520
TSS	4.392	1.2960
pH	([1])	([1])

[1]Within the range 6.0 to 9.0

[2]Metric units: Kilogram pollutant/1,000 kg of total organic active ingredients. English units: Pound pollutant/1,000 lb of total organic active ingredients

(2) Any new source subject to this subchapter which discharges priority pollutants may not exceed the quantity or mass determined by multiplying the process wastewater flow times the appropriate concentrations listed in Table 4 or Table 5.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.16 Pretreatment standards for existing sources (PSES). Except as provided in s. NR 211.13, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve PSES as specified in s. NR 233.10 (4). For the priority pollutants, sources shall achieve discharges not exceeding the quantity or mass determined by multiplying the process wastewater flow subject to this subchapter times the concentrations listed in Table 6. If mass limitations have not been developed as required, the source shall achieve discharges not exceeding the concentration limitations listed in Table 6.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.17 Pretreatment standards for new sources (PSNS). Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and shall achieve PSNS as specified in s. NR 233.10 (4). For the priority pollutants, sources shall achieve discharges not exceeding the quantity or mass determined by multiplying the process wastewater flow subject to this subchapter times the concentrations listed in Table 6. If mass limitations have not been developed as required, the source shall achieve discharges not exceeding the concentration limitations listed in Table 6.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

Subchapter III — Metallo–Organic Pesticide Chemicals Manufacturing Subcategory

NR 233.20 Applicability; description of the metallo–organic pesticides chemicals manufacturing subcategory. This subchapter applies to discharges resulting from the manufacture of metallo–organic active ingredients containing mercury, cadmium, arsenic or copper. This subchapter does not apply to the manufacture of intermediates used to manufacture the active ingredients.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.21 Specialized definitions. "Metallo–organic active ingredients" means carbon containing active ingredients containing one or more metallic atoms in the structure.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

NR 233.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to the provisions of this subchapter may not discharge process wastewater pollutants into waters of the state.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97.

Subchapter IV — Pesticide Formulating, Packaging and Repackaging Subcategory

NR 233.30 Applicability; description of the pesticide formulating, packaging and repackaging subcategory. (1) This subchapter is applicable to discharges resulting from all pesticide formulating, packaging, and repackaging operations except as provided in subs. (2) to (6).

(2) This subchapter does not apply to repackaging of agricultural pesticides performed at refilling establishments as described in s. NR 233.50.

(3) This subchapter does not apply to wastewater discharges from any of the following:

(a) The operation of employee showers and laundry facilities.

(b) The testing of fire protection equipment.

(c) The testing and emergency operation of safety showers and eye washes.

(d) Storm water.

(e) Department of transportation aerosol leak test baths or batch baths where no cans have burst from the time of the last water change–out.

(f) On–site laboratories from cleaning analytical equipment, glassware, and rinsing the retain sample container, except that this subchapter applies to the initial rinse of the retain sample container.

(4) This subchapter does not apply to wastewater discharges from the formulation, packaging, or repackaging of any of the following:

(a) Sanitizer products including pool chemicals.

(b) Microbial pesticides.

(c) Inorganic wastewater treatment chemicals.

(d) Group one and group 2 mixtures as defined under s. NR 233.03 (2o) and (2p).

(5) This subchapter does not apply to wastewater discharges from the development of new formulations of pesticide products and the associated efficacy and field testing at on–site and stand–alone research and development laboratories where the resulting pesticide product is not produced for sale.

(6) This subchapter does not apply to wastewater discharges from the formulation, packaging, or repackaging of liquid chemical sterilant products for use on a critical or semi–critical device as defined in s. 201 of the federal food, drug, and cosmetic act and in s. 2(u) of the federal insecticide, fungicide, rodenticide act.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97; r. and recr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.305 Specialized definitions. The following definitions apply to the terms used in this subchapter:

(1) "Initial certification statement" means a written submission to the department or control authority which shall be signed by the responsible corporate officer as defined in 40 CFR 122.22 or s. NR 211.15 (10) and which:

(a) Lists and describes those product families, process lines, or process units for which the PFPR facility is implementing the pollution prevention alternative.

(b) Describes the PFPR facility specific practices for each product family, process line, or process unit which are to be practiced as part of the pollution prevention alternative.

(c) Describes any justification allowing modification to the practices listed in Table 8.

(d) Lists the treatment system being used to obtain a pollution prevention alternative discharge as defined in this section.

(2) "On–site compliance paperwork" means data or information maintained in the offices of the PFPR facility which supports the initial and periodic certification statements and which:

(a) Lists and describes those product families, process lines, or process units for which the facility is implementing the pollution prevention alternative.

(b) Describes the facility specific practices for each product family, process line, or process unit which are to be practiced as part of the pollution prevention alternative.

(c) Describes any justification allowing modification to the practices listed in Table 8.

(d) Includes a written discussion demonstrating that the treatment system being used contains the appropriate pollution control technologies or equivalent systems for removing the pesticide active ingredients which may be found in the wastewater.

(e) Establishes a method for demonstrating to the department or control authority that the treatment system is well operated and maintained.

(f) Includes a discussion of the rationale for choosing the method of demonstration.

(3) "Periodic certification statement" means a written submission to the department or control authority which states that the pollution prevention alternative as set forth in the WPDES permit or pretreatment control mechanism is being implemented. Any modification of the practices listed in Table 8 must be justified. The periodic certification statement shall be signed by the responsible corporate officer as defined in 40 CFR 122.22 or s. NR 211.15 (10).

(4) (a) "Pollution prevention allowable discharge for indirect dischargers excluding interior wastewater, leak and spill clean–up water, and floor wash" means the quantity or concentrations of pollutants in PFPR process wastewaters that remain after a facility has demonstrated that it is using the specified practices of the pollution prevention alternative as listed in Table 8.

(b) "Pollution prevention allowable discharge for indirect dischargers including interior wastewater, leak and spill cleanup water, and floor wash" means the quantity or concentrations of pollutants in PFPR process wastewaters that remain after a facility has demonstrated that it is using the specified practices of the pollution prevention alternative as listed in Table 8. Additionally the wastewaters shall have been pretreated using appropriate pollution control technologies as defined in s. NR 233.03 (1e), a pesticide manufacturer's treatment system, or an equivalent system, used individually or in any combination to achieve a sufficient level of pollutant reduction. Pretreatment requirements may be modified or waived by the control authority to the extent that removal credits have been granted in accordance with s. NR 211.13, provided the granting of the credits does not result in pass through or interference as defined in s. NR 211.03 and complies with the provisions of s. NR 211.10. The facility shall demonstrate that the appropriate pollution control technology is properly maintained and operated.

(5) "Pollution prevention allowable discharge for direct dischargers" in this subchapter means the quantity or concentrations of pollutants in PFPR process wastewaters that remain after a facility has demonstrated that it is using the specified practices of the pollution prevention alternative as listed in Table 8. Additionally the wastewaters shall have been treated using appropriate pollution control technologies, as defined in s. NR 233.03 (1e), a pesticide manufacturer's treatment system, or an equivalent system, used individually or in any combination to achieve a sufficient level of pollutant reduction. The facility shall demonstrate that the appropriate pollution control technology is properly maintained and operated.

(6) "Process wastewater," for this subchapter, means all wastewater associated with pesticide formulating, packaging and repackaging except for sanitary water, non–contact cooling water and those wastewaters excluded from the applicability of the rule in s. NR 233.30.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.31 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). (1) Except as provided in 40 CFR 125.30 to 125.32 or in sub. (2), any existing point source subject to the provisions of this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the BPT. There may be no discharge of process wastewater pollutants to waters of the state.

(2) Any existing facility subject to this subchapter may have a pollution prevention allowable discharge, as defined in s. NR 233.305 (5), of wastewater pollutants into waters of the state if the discharger agrees to WPDES permit conditions as follows:

(a) The discharger shall meet the requirements of the pollution prevention alternatives listed in Table 8 or the listed modified requirements based on best professional judgment.

(b) The discharger shall notify the department at the time of renewal or modification of its permit, of its intent to utilize the pol-

lution prevention alternative by submitting an initial certification statement as described in s. NR 233.305 (1).

(c) The discharger shall submit to the department a periodic certification statement as described in s. NR 233.305 (3) once each year of operation.

(d) The discharger shall maintain at the office of the facility and make available for inspection the on–site compliance paperwork as described in s. NR 233.305 (2).

(3) For existing PFPR/manufacturing facilities, that are also subject to s. NR. 233.12 or 233.22, the department may not provide additional discharge allowances for those pesticide active ingredients in the pesticide formulating, packaging and repackaging wastewaters that are also manufactured at the same facility.

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97; r. and recr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). Any existing point source subject to this section shall comply with the requirements contained in s. NR 233.31.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available control technology economically achievable (BAT). Any existing point source subject to this section shall comply with the requirements contained in s. NR 233.31.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.34 New source performance standards (NSPS). Any new source subject to this section shall comply with the requirements contained in s. NR 233.31.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.35 Pretreatment standards for existing sources (PSES). (1) Except as provided in ss. NR 211.13 and 211.14 or in sub. (2), any existing source subject to this subchapter and which introduces pollutants into a publicly owned treatment works shall comply with ch. NR 211 and achieve PSES as follows. There may be no discharge of process wastewater pollutants.

(2) Except as provided in ss. NR 211.13 and 211.14, any existing source subject to sub. (1) which introduces pollutants into a publicly owned treatment works shall comply with ch. NR 211 and may have a pollution prevention allowable discharge of wastewater pollutants, as defined in s. NR 233.305 (4) if the discharger agrees to a control mechanism or pretreatment agreement conditions as follows:

(a) The discharger shall meet the requirements of the pollution prevention alternatives listed in Table 8 or the listed modified requirements based on best professional judgment.

(b) The discharger shall notify its control authority at the time of renewing or modifying its individual control mechanism or pretreatment agreement of its intent to utilize the pollution prevention alternative by submitting to the control authority an initial certification statement as described in s. NR 233.305 (1).

(c) The discharger shall submit to its control authority a periodic certification statement as described in s. NR 233.305 (3) during the months of June and December of each year of operation.

(d) The discharger shall maintain at the offices of the facility and make available for inspection the on–site compliance paperwork as described in s. NR 233.305 (2).

(3) Except as provided in ss. NR 211.13 and 211.14, any existing source subject to s. NR 233.35 (2) may submit a request to the control authority to waive pretreatment of floor wash or a non–reusable final rinse of a triple rinse. A request may be submitted if the concentrations of pesticide active ingredients and priority pollutants in those wastewater sources have been demonstrated to be too low to be effectively pretreated at the facility. The department may waive pretreatment for these 2 wastewaters only if the existing source makes the demonstrations and is in compliance with s. NR 211.10.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.36 Pretreatment standards for new sources (PSNS). Any new source subject to this section shall comply with the requirements of s. NR 233.35.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

Subchapter V — Test Methods for Pesticide Pollutants

NR 233.40 Identification of test procedures. (1) Table 7 names the pesticide active ingredients subject to this chapter, together with the chemical abstracts service (CAS) number used for identification and the analytical method designation.

(2) Except as provided in s. NR 219.033, the discharge parameter values required under the clean water act shall be determined by one of the analytical methods cited in Table 7.

(3) Except where identical to Table 7, pesticide manufacturers may not use the analytical methods cited in ch. NR 219, Tables B, C and D.

Note: The full texts of the analytical methods cited in table 7 are contained in the "Methods For The Determination of Nonconventional Pesticides In Municipal and Industrial Wastewater, Volume I," EPA 821–R–93–010A (August 1993 Revision I) and "Volume II", EPA 821–R–93–010B (August 1993) (the "Compendium").

History: Cr. Register, March, 1997, No. 495, eff. 4–1–97; **CR 13–112: am. (2) Register May 2015 No. 713, eff. 6–1–15; correction in (2) made under s. 13.92 (4) (b) 7., Stats., Register May 2015.**

Subchapter VI — Repackaging of Agricultural Pesticides Performed at Refilling Establishments

NR 233.50 Applicability; description of repackaging of agricultural pesticides performed by refilling establishments subcategory. (1) This subchapter is applicable to discharges resulting from all repackaging of agricultural pesticides performed by refilling establishments as defined in s. NR 233.03, whose primary business is wholesale or retail sales, and where no pesticide manufacturing, formulating or packaging occurs, except as provided in subs. (2) to (4).

(2) This subchapter does not apply to wastewater discharges from custom application or custom blending, as defined in 40 CFR 167.3.

(3) This subchapter does not apply to wastewater discharges from any of the following:

(a) The operation of employee showers and laundry facilities.

(b) The testing of fire protection equipment.

(c) The testing and emergency operation of safety showers and eye washes.

(d) Storm water.

(4) This subchapter does not apply to wastewater discharges from the repackaging of microbial pesticides or group one mixtures, as defined under s. NR 233.03 or non–agricultural pesticide products.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.51 Special definitions. "Process wastewater," for this subchapter, means all wastewater except for sanitary water and those wastewaters excluded from the applicability of the rule in s. NR 233.50.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.52 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable pollutant control technology (BPT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall

achieve effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable pollutant control technology. Process wastewater pollutants may not be discharged.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollution control technology. Process wastewater pollutants may not be discharged.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.54 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Process wastewater pollutants may not be discharged.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.55 New source performance standards (NSPS). Any new source subject to this subchapter may not discharge process wastewater pollutants.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.56 Pretreatment standards for existing sources (PSES). Except as provided in ss. NR 211.13 and 211.14, no later than November 6, 1999, any existing source subject to this subchapter shall comply with ch. NR 211 and achieve the pretreatment standards for existing sources as follows. There may be no discharge of process wastewater pollutants.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

NR 233.57 Pretreatment standards for new sources (PSNS). Except as provided in ss. NR 211.13 and 211.14, any new source subject to this subchapter shall comply with ch. NR 211 and achieve the pretreatment standards for new sources as follows. There may be no discharge of process wastewater pollutants.

History: Cr. Register, May, 2001, No. 545, eff. 6–1–01.

Table 1
List of Organic Pesticide Active Ingredients

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
1	10501	Dicofol (1,1–Bis(chlorophenyl)–2,2,2–trichloroethanol	00115–32–2
2	51501	Maleic Hydrazide	00123–33–1
3	42002	EDB (1,2–Ethylene dibromide)	00106–93–4
4	82901	Vancide TH (1,3,5–Triethylhexahydro–s–triazine)	07779–27–3
5	29001	Dichloropropene	00542–75–6
7	17901	Dowicil 75 (1–(3–Chloroallyl) –3,5,7–triaza–1–azoniaadamantanechloride)	04080–31–3
8	109901	Triadimefon	43121–43–3
9	44901	Hexachlorophene (nabac)	00070–30–4
10	55004	Tetrachlorophene	01940–43–8
11	55001	Dichlorophene	00097–23–4
12	84001	Dichlorvos	00062–73–7
13	102401	Landrin–2 (2,3,5–trimethylphenylmethylcarbamate)	02686–99–9
14	82601	Fenac (2,3,6–Trichlorophenylacetic acid)	00085–34–7
14	(1)	Fenac Salts and Esters	(1)
15	82001	2,4,5–T (2,4,5–Trichlorophenoxyacetic acid)	00093–76–5
15	(1)	2,4,5–T Salts and Esters	(1)
16	30001	2,4–D (2,4–Dichlorophenoxyacetic acid)	00094–75–7
16	(1)	2,4–D Salts and Esters	(1)
17	30801	2,4–DB (2,4–Dichlorophenoxybutyric acid)	00094–82–6
17	(1)	2,4–DB Salts and Esters	(1)
18	80811	Anilazine (2,4–Dichloro–6–(o–chloroanilino)–s–triazine)	00101–05–3
19	36001	Dinocap	39300–45–3
20	31301	Dichloran (2,6–dichloro–4–nitroaniline)	00099–30–9
21	8707	Busan 90 (2–Bromo–4–hydroxyacetophenone)	02491–38–5
22	15801	Mevinphos	07786–34–7
23	39001	Sulfallate (2–chloroallyldiethyldithiocarbamate)	00095–06–7
24	84101	Chlorfenvinphos	00470–90–6
25	10010	Cyanazine	21725–46–2
26	19101	Propachlor	01918–16–7
27	30501	MCPA (2–Methyl–4–chlorophenoxyacetic acid)	00094–74–6
27	(1)	MCPA Salts and Esters	(1)
28	99901	Octhilinone	26530–20–1
29	67703	Pindone	00083–26–1
30	31401	Dichlorprop (2–(2,4–Dichlorophenoxy) propionic acid)	00120–36–5
30	(1)	Dichlorprop Salts and Esters	(1)
31	31501	MCPP (2–(2–Methyl–4–chlorophenoxy) propionic acid)	00093–65–2
31	(1)	MCPP Salts and Esters	(1)
32	60101	Thiabendazole	00148–79–8
33	80815	Belclene 310 (2–(methylthio)–4–(ethylamino)–6–(1,2–dimethylamino)–s–triazine)	22936–75–0
34	21201	Cloprop (2–(m–Chlorophenoxy) propionic acid)	00101–10–0
34	(1)	Cloprop Salts and Esters	(1)

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
35	35603	TCMTB (2–(Thiocyanomethylthio) benzothiazole)	21564–17–0
36	99001	HAE (2–((Hydroxymethyl)amino) ethanol)	34375–28–5
37	6770	Chlorophacinone	03691–35–8
38	102401	Landrin–1 (3,4,5–trimethylphenylmethylcarbamate)	02686–99–9
39	101701	Pronamide	23950–58–5
40	100501	Methiocarb	02032–65–7
41	28201	Propanil	00709–98–8
42	107801	3–Iodo–2–propynyl butylcarbamate	55406–53–6
43	86001	3–(a–Acetonylfurfuryl)–4–hydroxycoumarin (Coumafuryl)	00117–52–2
43	([1])	Coumafuryl Salts and Esters	([1])
44	37507	DNOC (4,6–dinitro–o–cresol)	00534–52–1
45	101101	Metribuzin	21087–64–9
46	19401	CPA (4–chlorophenoxyacetic acid)	00122–88–3
46	([1])	CPA Salts and Esters	([1])
47	19201	MCPB (4–(2–Methyl–4–chlorophenoxy) butyric acid)	00094–81–5
47	([1])	MCPB Salts and Esters	([1])
48	44401	Aminocarb (4–(dimethylamino)–m–tolylmethylcarbamate)	02032–59–9
49	84701	Etridiazole	02593–15–9
50	55501	Ethoxyquin	00091–53–2
51	59804	Quinoliol sulfate (8–Quinoliol sulfate)	00134–31–6
52	103301	Acephate	30560–19–1
53	114401	Acifluorfen	50594–66–6
53	114402	Acifluorfen Salts and Esters	62476–59–9
54	90501	Alachlor	15972–60–8
55	98301	Aldicarb	00116–06–3
56	69105	Hyamine 3500 (Alkyl* dimethyl benzyl ammonium chloride* (50% C14, 40% C12, 10% C16))	68424–85–1
57	4001	Allethrin (all isomers and allethrin coil)	00584–79–2
58	80801	Ametryn	00834–12–8
59	106201	Amitraz	33089–61–1
60	80803	Atrazine	01912–24–9
61	105201	Bendiocarb	22781–23–3
62	99101	Benomyl and Carbendazim	17804–35–2
63	8901	Benzene Hexachloride	00608–73–1
64	9501	Benzyl benzoate	00120–51–4
65	10101	Lethane 384 (Beta–Thiocyanoethyl esters of mixed fatty acids containing from 10–18 carbons)	00301–11–1
66	104301	Bifenox	42576–02–3
68	12301	Bromacil	00314–40–9
68	12302	Bromacil, lithium	53404–19–6
69	35301	Bromoxynil	01689–84–5
69	35302	Bromoxynil octanoate	01689–99–2
70	112301	Butachlor	23184–66–9
70	101401	Giv–gard (beta–Bromo–beta–nitrostyrene)	07166–19–0

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
73	81701	Captafol	02425–06–1
74	81301	Captan	00133–06–2
75	56801	Carbaryl (Sevin)	00063–25–2
76	90601	Carbofuran	01563–66–2
77	90602	Carbosulfan	55285–14–8
78	29901	Chloramben	00133–90–4
78	(1)	Chloramben Salts and Esters	(1)
79	58201	Chlordane	00057–74–9
80	27301	Chloroneb	02675–77–6
81	81501	Chloropicrin	00076–06–2
82	81901	Chlorothalonil	01897–45–6
83	25501	Chloroxuron	01982–47–4
84	83701	Stirofos	00961–11–5
85	59102	Chlorpyrifos methyl	05598–13–0
86	59101	Chlorpyrifos	02921–88–2
87	14504	Mancozeb	08018–01–7
90	109301	Fenvalerate	51630–58–1
91	43401	Cycloheximide	00066–81–9
92	28901	Dalapon (2,2–dichloropropionic acid)	00075–99–0
92	(1)	Dalapon Salts and Esters	(1)
93	27501	Dienochlor	02227–17–0
94	57601	Demeton (O,O–Diethyl O–(and S–) (2–ethylthio)ethyl) phosphorothioate)	08065–48–3
95	104801	Desmedipham	13684–56–5
96	14502	Diammonium ethylenebisdithiocarbamate	03566–10–7
97	11301	DBCP (Dibromo–3–chloropropane)	00096–12–8
98	29801	Dicamba (3,6–Dichloro–o–anisic acid)	01918–00–9
98	(1)	Dicamba Salts and Esters	(1)
99	29601	Dichlone (Phygon)	00117–80–6
100	103401	Thiophanate ethyl	23564–06–9
101	32101	Perthane (Diethyl diphenyl dichloroethane and related compounds)	00072–56–0
102	86501	EXD (Diethyl dithiobis (thionoformate))	00502–55–6
103	57801	Diazinon	00333–41–5
104	108201	Diflubenzuron	35367–38–5
105	69122	Benzethonium chloride	00121–54–0
106	35001	Dimethoate	00060–51–5
107	53501	Parathion methyl	00298–00–0
108	35201	Dicrotophos	00141–66–2
109	58801	Crotoxyphos	07700–17–6
110	78701	DCPA (Dimethyl 2,3,5,6–tetrachloroterephthalate)	01861–32–1
111	57901	Trichlorofon	00052–68–6
112	37505	Dinoseb	00088–85–7
113	37801	Dioxathion	00078–34–2
114	67701	Diphacinone	00082–66–6
115	36601	Diphenamid	00957–51–7

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
116	38501	Diphenylamine	00122–39–4
116	47201	MGK 326 (Dipropyl isocinchomeronate)	00113–48–4
118	63301	Nabonate (Disodium cyanodithioimidocarbonate)	00138–93–2
119	35505	Diuron	00330–54–1
120	44303	Metasol DGH (Dodecylguanidine hydrochloride)	13590–97–1
121	44301	Dodine (dodecylquanidine acetate)	02439–10–3
122	79401	Endosulfan (Hexachlorohexahydromethano–2,4,3–benzdioxathiepin–3–oxide)	00115–29–7
123	38901	Endothall	00145–73–3
123	([1])	Endothall Salts and Esters	([1])
124	41601	Endrin	00072–20–8
125	113101	Ethalfluralin	55283–68–6
126	58401	Ethion	00563–12–2
127	41101	Ethoprop	13194–48–4
128	100601	Fenamiphos	22224–92–6
129	28801	Chlorobenzilate	00510–15–6
130	41405	Butylate	02008–41–5
131	59901	Famphur	00052–85–7
132	206600	Fenarimol	60168–88–9
133	53301	Fenthion	00055–38–9
134	34801	Ferbam	14484–64–1
135	35503	Fluometuron	02164–17–2
136	75002	Fluoroacetamide	00640–19–7
137	81601	Folpet	00133–07–3
138	103601	Glyphosate (N–(Phosphonomethyl) glycine)	01071–83–6
138	([1])	Glyphosate Salts and Esters	([1])
139	103602	Glyphosine	02439–99–8
140	44801	Heptachlor	00076–44–8
141	115601	Cycloprate	54460–46–7
142	107201	Hexazinone	51235–04–2
143	109401	Isofenphos	25311–71–1
144	100201	Isopropalin	33820–53–0
145	47601	Propham	00122–42–9
146	97401	Karbutilate	04849–32–5
147	9001	Lindane	00058–89–9
148	35506	Linuron	00330–55–2
149	39504	Malachite green (Ammonium(4–(p–(dimethylamino) – alpha–phenylbenzylidine)–2,5–cyclohexadien–1–ylidene)–dimethyl chloride)	00569–64–2
150	57701	Malathion	00121–75–5
151	14505	Maneb	12427–38–2
152	34802	Manganous dimethyldithiocarbamate	15339–36–3
153	114001	Mefluidide (N–(2,4–dimethyl–5–((trifluoromethyl) sulfonyl)–amino) phenyl acetamide)	53780–34–0
153	([1])	Mefluidide Salts and Esters	([1])

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
154	101201	Methamidophos	10265–92–6
155	100301	Methidathion	00950–37–8
156	90301	Methomyl	16752–77–5
157	105401	Methoprene	40596–69–8
158	34001	Methoxychlor	00072–43–5
159	69134	Methylbenzethonium chloride	15716–02–6
160	53201	Methylbromide	00074–83–9
162	69129	Hyamine 2389 (Methyldodecylbenzyl trimethyl ammonium chloride 80% and methyldodecylxylylene bis (trimethylammoniumchloride) 20%)	01399–80–0
163	68102	Methylenebisthiocyanate	06317–18–6
164	54101	Quinmethionate	02439–01–2
165	108801	Metolachlor	51218–45–2
166	44201	Mexacarbate	00315–18–4
167	14601	Metiram	09006–42–2
168	35502	Monuron TCA	00140–41–0
169	35501	Monuron	00150–68–5
170	103001	Napropamide	15299–99–7
171	80301	Deet	00134–62–3
172	14503	Nabam	00142–59–6
173	34401	Naled	00300–76–5
174	35801	Norea	18530–56–8
175	105801	Norflurazon	27314–13–2
176	30701	N–1–Naphthylphthalimide	05333–99–3
176	30702	Naptalam (N–1–Naphthylphthalamic acid)	00132–66–1
176	30703	Naptalam Salts and Esters	00132–67–2
177	57001	MGK 264 (N–2–Ethylhexyl bicycloheptene dicarboximide)	00136–45–8
178	84301	Benfluralin	01861–40–1
179	79501	Sulfotepp	03689–24–5
180	79101	Aspon	03244–90–4
181	36501	Coumaphos	00056–72–4
182	32701	Fensulfothion	00115–90–2
183	32501	Disulfoton	00298–04–4
184	105901	Fenitrothion	00122–14–5
185	59201	Phosmet	00732–11–6
186	58001	Azinphos Methyl	00086–50–0
187	58702	Oxydemeton methyl	00301–12–2
192	([1])	Organo–tin pesticides	([1])
194	104201	Oryzalin	19044–88–3
195	103801	Oxamyl	23135–22–0
196	111601	Oxyfluorfen	42874–03–3
197	111501	Bolstar (Sulprofos)	35400–43–2
198	219900	Sulprofos Oxon	38527–90–1
199	41801	Santox (O–Ethyl O–(p–nitrophenyl) phenylphosphonothioate)	02104–64–5
200	41701	Fonofos	00944–22–9

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
201	47802	Propoxur (o–Isopropylphenylmethylcarbamate)	00114–26–1
202	57501	Parathion	00056–38–2
203	108501	Pendimethalin	40487–42–1
204	56502	Pentachloronitrobenzene	00082–68–8
205	63001	Pentachlorophenol	00087–86–5
206	63003	Pentachlorophenol Salts and Esters	00131–52–2
207	108001	Perfluidone	37924–13–3
208	109701	Permethrin	52645–53–1
209	98701	Phenmedipham	13684–63–4
210	64501	Phenothiazine	00092–84–2
211	64103	Phenylphenol	00090–43–7
212	57201	Phorate	00298–02–2
213	97701	Phosalone	02310–17–0
214	18201	Phosphamidon	13171–21–6
215	5101	Picloram	01918–02–1
215	5104	Picloram Salts and Esters	02545–60–0
216	67501	Piperonyl butoxide	00051–03–6
217	69183	PBED (Busan 77) (Poly (oxyethylene (dimethylimino) ethylene (dimethylimino) ethylene dichloride)	31512–74–0
218	34803	Busan 85 (Potassium dimethyldithiocarbamate)	00128–03–0
219	102901	Busan 40 (Potassium N–hydroxymethyl–N–methyldithiocarbamate)	51026–28–9
220	39002	KN Methyl (Potassium N–methyldithiocarbamate)	00137–41–7
221	101301	Metasol J26 (Potassium N–(alpha–(nitroethyl) benzyl)–ethylenediamine)	53404–62–9
222	111401	Profenofos	41198–08–7
223	80804	Prometon	01610–18–0
224	80805	Prometryn	07287–19–6
225	97601	Propargite	02312–35–8
226	80808	Propazine	00139–40–2
227	77702	Propionic acid	00079–09–4
228	119301	Propamocarb and Propamocarb HCL	24579–73–5
229	69004	Pyrethrin coils	00121–21–1
230	69001	Pyrethrin I	
231	69002	Pyrethrum (other than pyrethrins)	08003–34–7
232	69006	Pyrethrin II	00121–29–9
233	97801	Resmethrin	10453–86–8
234	58301	Ronnel	00299–84–3
235	71003	Rotenone	00083–79–4
236	74801	DEF (S,S,S–Tributyl phosphorotrithioate)	00078–48–8
237	35509	Siduron	01982–49–6
238	82501	Silvex (2–(2,4,5–Trichlorophenoxypropionic acid))	00093–72–1
238	([1])	Silvex Salts and Esters	([1])
239	80807	Simazine	00122–34–9
240	103901	Bentazon	25057–89–0
241	34804	Carbam–S (Sodium dimethyldithiocarbanate)	00128–04–1

EPA Census Code	Pesticide Code	Pesticide Name	CAS No.
242	75003	Sodium monofluoroacetate	00062–74–8
243	39003	Vapam (Sodium methyldithiocarbamate)	00137–42–8
244	57101	Sulfoxide	00120–62–7
245	41301	Cycloate	01134–23–2
246	41401	EPTC (S–Ethyl dipropylthiocarbamate)	00759–94–4
247	41402	Molinate	02212–67–1
248	41403	Pebulate	01114–71–2
249	41404	Vernolate	01929–77–7
250	35604	HPTMS (S–(2–Hydroxypropyl) thiomethanesulfonate)	29803–57–4
251	9801	Bensulide	00741–58–2
252	105501	Tebuthiuron	34014–18–1
253	59001	Temephos	03383–96–8
254	12701	Terbacil	05902–51–2
255	105001	Terbufos	13071–79–9
256	80814	Terbuthylazine	05915–41–3
257	80813	Terbutryn	00886–50–0
258	63004	Tetrachlorophenol	25167–83–3
258	63007	Tetrachlorophenol Salts and Esters	([1])
259	35602	Dazomet	00533–74–4
260	102001	Thiophanate methyl	23564–05–8
261	79801	Thiram	00137–26–8
262	80501	Toxaphene	08001–35–2
263	74901	Merphos (Tributyl phosphorotrithioate)	00150–50–5
264	36101	Trifluralin	01582–09–8
265	86002	Warfarin (3–(a–Acetonylbenzyl)–4–hydroxycoumarin)	00081–81–2
265	([1])	Warfarin Salts and Esters	([1])
266	51705	Zinc MBT (Zinc 2–mercaptobenzothiazolate)	00155–04–4
267	14506	Zineb	12122–67–7
268	34805	Ziram	00137–30–4
269	78802	S–(2,3,3–trichloroallyl) diisopropyl–thiocarbamate	02303–17–5
270	69005	Phenothrin	26002–80–2
271	69003	Tetramethrin	07696–12–0
272	18301	Chloropropham	00101–21–3

[1]Multiple compounds for active ingredient.

Table 2
Organic Pesticide Active Ingredient Effluent Limitations
BAT AND PSES

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
2,4–D	1.97×10^{-3}	6.40×10^{-4}	
2,4–D Salts and Esters	([1])	([1])	
2,4–DB Salts and Esters	([1])	([1])	
Acephate	6.39×10^{-4}	1.97×10^{-4}	
Acifluorfen	2.45	9.30×10^{-1}	
Alachlor	5.19×10^{-3}	1.54×10^{-3}	
Aldicarb	7.23×10^{-4}	3.12×10^{-4}	
Ametryn	7.72×10^{-3}	2.53×10^{-3}	
Atrazine	5.12×10^{-3}	1.72×10^{-3}	
Azinphos Methyl	2.74×10^{-2}	1.41×10^{-2}	
Benfluralin	3.22×10^{-4}	1.09×10^{-4}	1
Benomyl and Carbendazim	3.50×10^{-2}	8.94×10^{-3}	2
Bolstar	1.69×10^{-2}	8.72×10^{-3}	
Bromacil	3.83×10^{-1}	1.16×10^{-1}	
Bromacil, lithium	([1])	([1])	
Bromoxynil	3.95×10^{-3}	1.27×10^{-3}	
Bromoxynil octanoate	3.95×10^{-3}	1.27×10^{-3}	
Busan 40 (Potassium N–hydroxymethyl–N–methyldithiocarbamate)	5.74×10^{-3}	1.87×10^{-3}	
Busan 85 (Potassium dimethyldithiocarbamate)	5.74×10^{-3}	1.87×10^{-3}	
Butachlor	5.19×10^{-3}	1.54×10^{-3}	
Captafol	4.24×10^{-6}	1.31×10^{-6}	
Carbam–S (Sodium dimethyldithiocarbamate)	5.74×10^{-3}	1.87×10^{-3}	
Carbaryl	1.60×10^{-3}	7.30×10^{-4}	
Carbofuran	1.18×10^{-4}	2.80×10^{-5}	
Chloroneb	8.16×10^{-2}	3.31×10^{-2}	
Chlorothalonil	1.51×10^{-3}	4.57×10^{-4}	
Chlorpyrifos	8.25×10^{-4}	2.43×10^{-4}	
Cyanazine	1.03×10^{-2}	3.33×10^{-3}	
Dazomet	5.74×10^{-3}	1.87×10^{-3}	
DCPA	7.79×10^{-2}	2.64×10^{-2}	
DEF (S,S,S–Tributyl phosphorotrithioate)	1.15×10^{-2}	5.58×10^{-3}	
Diazinon	2.82×10^{-3}	1.12×10^{-3}	
Dichlorprop Salts and Esters	([1])	([1])	
Dichlorvos	9.60×10^{-5}	2.95×10^{-5}	
Dinoseb	4.73	1.43	
Dioxathion	3.40×10^{-2}	1.29×10^{-2}	
Disulfoton	7.33×10^{-3}	3.79×10^{-3}	

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
Diuron	3.15×10^{-2}	1.40×10^{-2}	
Endothall Salts and Esters	([1])	([1])	
Endrin	2.20×10^{-2}	5.10×10^{-3}	
Ethalfluralin	3.22×10^{-4}	1.09×10^{-4}	1
Ethion	5.51×10^{-3}	1.57×10^{-3}	
Fenarimol	1.02×10^{-1}	3.61×10^{-2}	
Fensulfothion	1.48×10^{-2}	7.64×10^{-3}	
Fenthion	1.83×10^{-2}	9.45×10^{-3}	
Fenvalerate	5.40×10^{-3}	2.08×10^{-3}	
Heptachlor	8.80×10^{-3}	2.90×10^{-3}	
Isopropalin	7.06×10^{-3}	2.49×10^{-3}	1
KN Methyl (Potassium N−methyldithiocarbamate)	5.74×10^{-3}	1.87×10^{-3}	
Linuron	2.69×10^{-3}	1.94×10^{-3}	
Malathion	2.35×10^{-4}	9.55×10^{-5}	
MCPA Salts and Esters	([1])	([1])	
MCPP Salts and Esters	([1])	([1])	
Merphos	1.15×10^{-2}	5.58×10^{-3}	
Methamidophos	1.46×10^{-2}	7.53×10^{-2}	
Methomyl	3.82×10^{-3}	1.76×10^{-3}	
Methoxychlor	3.23×10^{-3}	1.31×10^{-3}	
Metribuzin	1.36×10^{-2}	7.04×10^{-3}	
Mevinphos	1.44×10^{-4}	5.10×10^{-5}	
Nabam	5.74×10^{-3}	1.87×10^{-3}	
Nabonate	5.74×10^{-3}	1.87×10^{-3}	
Naled	([1])	([1])	
Norflurazon	7.20×10^{-4}	3.10×10^{-4}	
Organo−tin pesticides	1.72×10^{-2}	7.42×10^{-3}	3
Parathion	7.72×10^{-4}	3.43×10^{-4}	
Parathion methyl	7.72×10^{-4}	3.43×10^{-4}	
PCNB	5.75×10^{-4}	1.90×10^{-4}	
Pendimethalin	1.17×10^{-2}	3.62×10^{-3}	
Pernetgrub	2.32×10^{-3}	6.06×10^{-5}	
Phorate	3.12×10^{-4}	9.37×10^{-5}	
Phosmet	([1])	([1])	4
Prometon	7.72×10^{-3}	2.53×10^{-3}	
Prometryn	7.72×10^{-3}	2.53×10^{-3}	
Pronamide	6.64×10^{-4}	2.01×10^{-4}	
Propachlor	5.19×10^{-3}	1.54×10^{-3}	
Propanil	1.06×10^{-3}	4.84×10^{-4}	
Propazine	7.72×10^{-3}	2.53×10^{-3}	

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
Pyrethrin I and Pyrethrin II	1.24×10^{-2}	3.33×10^{-3}	
Simazine	7.72×10^{-3}	2.53×10^{-3}	
Stirofos	4.10×10^{-3}	1.35×10^{-3}	
TCMTB	3.89×10^{-3}	1.05×10^{-3}	
Tebuthiuron	9.78×10^{-2}	3.40×10^{-2}	
Terbacil	3.83×10^{-1}	1.16×10^{-1}	
Terbufos	4.92×10^{-4}	1.26×10^{-4}	
Terbuthylazine	7.72×10^{-3}	2.53×10^{-3}	
Terbutryn	7.72×10^{-3}	2.53×10^{-3}	
Toxaphene	1.02×10^{-2}	3.71×10^{-3}	
Triadimefon	6.52×10^{-2}	3.41×10^{-2}	
Trifluralin	3.22×10^{-4}	1.09×10^{-4}	1
Vapam (Sodium methyldithiocarbamate)	5.74×10^{-3}	1.87×10^{-3}	
Ziram (Zinc dimethyldithiocarbanate)	5.74×10^{-3}	1.87×10^{-3}	

[1]No discharge of process wastewater pollutants.

Notes:

1 Monitor and report as total Trifluralin.

2 Pounds of product include Benomyl and any Carbendazim production not converted to Benomyl.

3 Monitor and report as total tin.

4 Applies to purification by recrystalization portion of the process.

Table 3
Organic Pesticide Active Ingredient Effluent Limitations
NSPS and PSNS

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
2,4–D	1.42×10^{-3}	4.61×10^{-4}	
2,4–D Salts and Esters	([1])	([1])	
2,4–DB Salts and Esters	([1])	([1])	
Acephate	6.39×10^{-4}	1.97×10^{-4}	
Acifluorfen	1.77	6.69×10^{-1}	
Alachlor	3.74×10^{-3}	1.11×10^{-3}	
Aldicarb	5.21×10^{-4}	2.25×10^{-4}	
Ametryn	5.56×10^{-3}	1.82×10^{-3}	
Atrazine	3.69×10^{-3}	1.24×10^{-3}	
Benfluralin	3.22×10^{-4}	1.09×10^{-4}	1
Benomyl and Carbendazom	2.52×10^{-2}	6.44×10^{-3}	2
Bolstar	1.22×10^{-2}	6.28×10^{-3}	
Bromacil	2.76×10^{-1}	8.36×10^{-2}	
Bromacil, lithium	([1])	([1])	
Bromoxynil	2.84×10^{-3}	9.14×10^{-4}	
Bromoxynil Octanoate	2.84×10^{-3}	9.14×10^{-4}	
Busan 40 (Potassium N–hydroxymethyl–N–methyldithiocarbamate)	4.14×10^{-3}	1.35×10^{-3}	
Busan 85 (Potassium dimethyldithiocarbamate)	4.14×10^{-3}	1.35×10^{-3}	
Butachlor	3.74×10^{-3}	1.11×10^{-3}	
Captafol	4.24×10^{-6}	1.31×10^{-6}	
Carbam–S (Sodium dimethyldithiocarbanate)	4.14×10^{-3}	1.35×10^{-3}	
Carbaryl	1.18×10^{-3}	5.24×10^{-4}	
Carbofuran	1.18×10^{-4}	2.80×10^{-5}	
Chloroneb	5.87×10^{-2}	2.39×10^{-2}	
Chlorothalonil	1.09×10^{-3}	3.29×10^{-4}	
Chlorpyrifos	5.94×10^{-4}	1.75×10^{-4}	
Cyanazine	7.42×10^{-3}	2.40×10^{-3}	
Dazomet	4.14×10^{-3}	1.35×10^{-3}	
DCPA	5.61×10^{-2}	1.90×10^{-2}	
DEF (S,S,S–Tributyl phosphorotrithioate)	1.15×10^{-2}	5.58×10^{-3}	
Diazinon	2.05×10^{-3}	8.13×10^{-4}	
Dichlorprop Salts and Esters	([1])	([1])	
Dichlorvos	6.88×10^{-5}	2.13×10^{-5}	
Dinoseb	3.41	1.03	
Dioxathion	2.54×10^{-2}	9.31×10^{-3}	
Disulfoton	5.28×10^{-3}	2.72×10^{-3}	
Diuron	2.27×10^{-2}	1.01×10^{-2}	

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
Endothall Salts and Esters	(1)	(1)	
Endrin	1.57×10^{-2}	3.69×10^{-3}	
Ethalfluralin	3.22×10^{-4}	1.09×10^{-4}	1
Ethion	3.97×10^{-3}	1.33×10^{-3}	
Fenarimol	1.02×10^{-1}	3.61×10^{-2}	
Fensulfothion	1.06×10^{-2}	5.50×10^{-3}	
Fenthion	1.32×10^{-2}	6.79×10^{-3}	
Fenvalerate	3.91×10^{-3}	1.50×10^{-3}	
Guthion	1.97×10^{-2}	1.02×10^{-2}	
Heptachlor	6.31×10^{-3}	2.06×10^{-3}	
Isopropalin	5.07×10^{-3}	1.82×10^{-3}	
KN Methyl (Potassium N–methyldithiocarbamate)	4.14×10^{-3}	1.35×10^{-3}	
Linuron	1.94×10^{-3}	1.40×10^{-3}	
Malathion	1.69×10^{-4}	6.88×10^{-5}	
MCPA Salts and Esters	(1)	(1)	
MCPP Salts and Esters	(1)	(1)	
Merphos	1.15×10^{-2}	5.58×10^{-3}	
Methamidophos	1.05×10^{-2}	5.42×10^{-3}	
Methomyl	2.75×10^{-2}	1.27×10^{-3}	
Methoxychlor	2.34×10^{-3}	9.25×10^{-4}	
Metribuzin	9.80×10^{-3}	5.06×10^{-3}	
Mevinphos	1.03×10^{-4}	3.69×10^{-5}	
Nabam	4.14×10^{-3}	1.35×10^{-3}	
Nabonate	4.14×10^{-3}	1.35×10^{-3}	
Naled	(1)	(1)	
Norflurazon	7.20×10^{-4}	3.10×10^{-4}	
Organo–tin pesticides	1.25×10^{-2}	5.36×10^{-3}	3
Parathion Ethyl	5.56×10^{-4}	2.45×10^{-4}	
Parathion Methyl	5.56×10^{-4}	2.45×10^{-4}	
PCNB	4.16×10^{-4}	1.38×10^{-4}	
Pendimethalin	1.17×10^{-2}	3.62×10^{-3}	
Permethrin	1.68×10^{-4}	4.39×10^{-5}	
Phorate	3.12×10^{-4}	9.37×10^{-5}	
Phosmet	(1)	(1)	4
Prometon	5.56×10^{-3}	1.82×10^{-3}	
Prometym	5.56×10^{-3}	1.82×10^{-3}	
Pronamide	4.78×10^{-4}	1.45×10^{-4}	
Propachlor	3.74×10^{-3}	1.11×10^{-3}	
Propanil	7.63×10^{-4}	3.48×10^{-4}	
Propazine	5.56×10^{-3}	1.82×10^{-3}	

Pesticide	kg/kkg (lb/1,000 lb) Pounds of pollutant per 1000 lbs. product		Notes
	Daily maximum may not exceed	Monthly average may not exceed	
Pyrethrin I and Pyrethrin II	8.91×10^{-3}	2.40×10^{-3}	
Simazine	5.89×10^{-3}	1.91×10^{-3}	
Stirofos	2.95×10^{-3}	9.72×10^{-4}	
TCMTB	2.80×10^{-9}	7.54×10^{-4}	
Tebuthiuron	9.78×10^{-2}	3.41×10^{-2}	
Terbacil	2.76×10^{-1}	8.36×10^{-2}	
Terbufos	4.92×10^{-4}	1.26×10^{-4}	
Terbuthylazine	5.56×10^{-3}	1.82×10^{-3}	
Terbutryn	5.56×10^{-3}	1.82×10^{-3}	
Toxaphene	7.35×10^{-3}	2.67×10^{-3}	
Triadimefon	4.69×10^{-2}	2.46×10^{-2}	
Trifluralin	3.22×10^{-4}	1.09×10^{-4}	1
Vapam (Sodium methyldithiocarbamate)	4.14×10^{-3}	1.35×10^{-3}	
Ziram (Zinc dimethyldithiocarbanate)	4.14×10^{-3}	1.35×10^{-3}	

[1]No discharge of process wastewater pollutants.

Notes:

1 Monitor and report as total Trifluralin.

2 Pounds of product include Benomyl and any Carbendazim production not converted to Benomyl.

3 Monitor and report as total tin.

4 Applies to purification by recrystalization portion of the process.

Table 4
BAT and NSPS effluent Limitations for Priority Pollutants For Direct Discharge Point Sources That Use End−of−Pipe Biological Treatment

Pollutant	(Micrograms per liter (µg/l)) Daily maximum may not exceed	Monthly average may not exceed
1,1−Dichloroethylene	25	16
1,1,1−Trichloroethane	54	21
1,2−Dichloroethane	211	68
1,2−Dichloropropane	230	153
1,2−Dichlorobenzene	163	77
1,2−trans−Dichloroethylene	54	21
1,3−Dichloropropene	44	29
1,4−Dichlorobenzene	28	15
2−chlorophenol	98	31
2,4−Dichlorophenol	112	39
2,4−Dimethylphenol	36	18
Benzene	136	37
Bromodichloromethane	380	142
Bromomethane	380	142
Chlorobenzene	28	15
Chloromethane	190	86
Cyanide (Total)	640	220
Dibromochloromethane	794	196
Dichloromethane	89	40
Ethylbenzene	108	32
Lead (Total)	690	320
Naphthalene	59	22
Phenol	26	15
Tetrachloroethylene	56	22
Tetrachloromethane	38	18
Toluene	80	26
Tribromomethane	794	196
Trichloromethane	46	21

Table 5

BAT and NSPS Effluent Limitations for Priority Pollutants For Direct Discharge Point Sources That Do Not Use End−of−Pipe Biological Treatment

Pollutant	(Micrograms per liter (µg/l)) Daily maximum may not exceed	Monthly average may not exceed
1,1−Dichloroethylene	60	22
1,1,1−Trichloroethane	59	22
1,2−trans−Dichloroethylene	66	25
1,2−Dichlorobenzene	794	196
1,2−Dichloropropane	794	196
1,2−Dichloroethane	574	180
1,3−Dichloropropene	794	196
1,4−Dichlorobenzene	380	142
2,4−Dimethylphenol	47	19
Benzene	134	57
Bromodichloromethane	380	142
Bromomethane	380	142
Chlorobenzene	380	142
Chloromethane	295	110
Cyanide (Total)	640	220
Dibromochloromethane	794	196
Dichloromethane	170	36
Ethylbenzene	380	142
Lead (Total)	690	320
Naphthalene	47	19
Phenol	47	19
Tetrachloroethylene	164	52
Tetrachloromethane	380	142
Toluene	74	28
Tribromomethane	794	196
Trichloromethane	325	111

Table 6
PSES and PSNS For Priority Pollutants

Pollutant	(Micrograms per liter (µg/l)) Daily maximum may not exceed	Monthly average may not exceed
1,1−Dichloroethylene	60	22
1,1,1−Trichloroethane	59	22
1,2−trans−Dichloroethylene	66	25
1,2−Dichlorobenzene	794	196
1,2−Dichloropropane	794	196
1,2−Dichloroethane	574	180
1,3−Dichloropropene	794	196
1,4−Dichlorobenzene	380	142
Benzene	134	57
Bromodichloromethane	380	142
Bromomethane	380	142
Chlorobenzene	380	142
Chloromethane	295	110
Cyanide (Total)	640	220
Dibromochloromethane	794	196
Dichloromethane	170	36
Ethylbenzene	380	142
Lead (Total)	690	320
Naphthalene	47	19
Tetrachloroethylene	164	52
Tetrachloromethane	380	142
Toluene	74	28
Tribromomethane	794	196
Trichloromethane	325	111

Table 7
Test Methods For Pesticide Active Ingredients

EPA Survey Code	Pesticide Name	CAS. No.	EPA Analytical Method No.(s)
8	Triadimefon	43121–43–3	507/633/525.1/1656
12	Dichlorvos	00062–73–7	1657/507/622/525.1
16	2,4–D; 2,4–D Salts and Esters (2,4–Dichlorophenoxyacetic acid)	00094–75–7	1658/515.1/615/515.2/555
17	2,4–DB; 2,4–DB Salts and Esters (2,4–Dichlorophenoxybutyric acid)	00094–82–6	1658/515.1/615/515.2/555
22	Mevinphos	07786–34–7	1657/507/622/525.1
25	Cyanazine	21725–46–2	629/507
26	Propachlor	01918–16–7	1656/508/608.1/525.1
27	MCPA; MCPA Salts and Esters (2–Methyl–4–chlorophenoxy–acetic acid)	0094–74–6	1658/615/555
30	Dichlorprop; Dichlorprop Salts and Esters (2–(2,4–Dichlorophenoxy) propionic acid)	00120–36–5	1658/515.1/615/515.2/555
31	MCPP; MCPP Salts and Esters (2–(2–Methyl–4–chlorophenoxy) propionic acid)	00093–65–2	1658/615/555
35	TCMTB (2–(Thiocyanomethylthio) benzothiazole)	21564–17–0	637
39	Pronamide	23950–58–5	525.1/507/633.1
41	Propanil	00709–98–8	632.1/1656
45	Metribuzin	21087–64–9	507/633/525.1/1656
52	Acephate	30560–19–1	1656/1657
53	Acifluorfen	50594–66–6	515.1/515.2/555
54	Alachlor	15972–60–8	505/507/645/525.1/1656
55	Aldicarb	00116–06–3	531.1
58	Ametryn	00834–12–8	507/619/525.1
60	Atrazine	01912–24–9	505/507/619/525.1/1656
62	Benomyl	17804–35–2	631
68	Bromacil; Bromacil Salts and Esters	00314–40–9	507/633/525.1/1656
69	Bromoxynil	01689–84–5	1625/1661
69	Bromoxynil octanoate	01689–99–2	1656
70	Butachlor	23184–66–9	507/645/525.1/1656
73	Captafol	02425–06–1	1656
75	Carbaryl (Sevin)	00063–25–2	531.1/632/553
76	Carbofuran	01563–66–2	531.1/632
80	Chloroneb	02675–77–6	1656/508/608.1/525.1
82	Chlorothalonil	01897–45–6	508/608.2/525.1/1656
84	Stirofos	00961–11–5	1657/507/622/525.1
86	Chlorpyrifos	02921–88–2	1657/508/622

EPA Survey Code	Pesticide Name	CAS. No.	EPA Analytical Method No.(s)
90	Fenvalerate	51630–58–1	1660
103	Diazinon	00333–41–5	1657/507/614/622/525.1
107	Parathion methyl	00298–00–0	1657/614/622
110	DCPA (Dimethyl 2,3,5,6–tetrachloroterephthalate)	01861–32–1	508/608.2/525.1/515.1 515.2/1656
112	Dinoseb	00088–85–7	1658/515.1/615/515.2/555
113	Dioxathion	00078–34–2	657/614.1
118	Nabonate (Disodium cyanodithiomidocarbonate)	00138–93–2	630.1
119	Diuron	00330–54–1	632/553
123	Endothall	00145–73–3	548/548.1
124	Endrin	00072–20–8	1656/505/508/608/617/525.1
125	Ethalfluralin	55283–68–6	[1]1656/[1]627
126	Ethion	00563–12–2	1657/614/614.1
127	Ethoprop	13194–48–4	1657/507/622/525.1
132	Fenarimol	60168–88–9	507/633.1/525.1/1656
133	Fenthion	00055–38–9	1657/622
138	Glyphosate (N–(Phosphonomethyl) glycine)	01071–83–6	547
140	Heptachlor	00076–44–8	1656/505/508/608/617/525.1
144	Isopropalin	33820–53–0	1656/627
148	Linuron	00330–55–2	553/632
150	Malathion	00121–75–5	1657/614
154	Methamidophos	10265–92–6	1657
156	Methomyl	16752–77–5	531.1/632
158	Methoxychlor	00072–43–5	1656/505/508/608.2/617/525.1
172	Nabam	00142–59–6	630/630.1
173	Naled	00300–76–5	1657/622
175	Norflurazon	27314–13–2	507/645/525.1/1656
178	Benfluralin	01861–40–1	[1]1656/[1]627
182	Fensulfothion	00115–90–2	1657/622
183	Disulfoton	00298–04–4	1657/507/614/622/525.1
185	Phosmet	00732–11–6	1657/622.1
186	Azinphos Methyl	00086–50–0	1657/614/622
192	Organo–tin pesticides	12379–54–3	Ind–01/200.7/200.9
197	Bolstar	35400–43–2	1657/622
203	Parathion	00056–38–2	1657/614
204	Pendimethalin	40487–42–1	1656
205	Pentachloronitrobenzene	00082–68–8	1656/608.1/617

EPA Survey Code	Pesticide Name	CAS. No.	EPA Analytical Method No.(s)
206	Pentachlorophenol	00087–86–5	625/1625/515.2/555 515.1/525.1
208	Permethrin	52645–53–1	608.2/508/525.1/1656/1660
212	Phorate	00298–02–2	1657/622
218	Busan 85 (Potassium dimethyldithiocarbamate)	00128–03–0	630/630.1
219	Busan 40 (Potassium N–hydroxy–methyl–N–methyldithio-carbamate)	51026–28–9	630/630.1
220	KN Methyl (Potassium N–methyldithiocarbamate)	00137–41–7	630/630.1
223	Prometon	01610–18–0	507/619/525.1
224	Prometryn	07287–19–6	507/619/525.1
226	Propazine	00139–40–2	507/619/525.1/1656
230	Pyrethrin I	00121–21–1	1660
232	Pyrethrin II	00121–29–9	1660
236	DEF (S,S,S–Tributylphosphorotrithioate)	00078–48–8	1657
239	Simazine	00122–34–9	505/507/619/525.1/1656
241	Carbam–S (Sodium dimethyldithiocarbamate)	00128–04–1	630/630.1
243	Vapam (Sodium methyldithiocarbamate)	00137–42–8	630/630.1
252	Tebuthiuron	34014–18–1	507/525.1
254	Terbacil	05902–51–2	507/633/525.1/1656
255	Terbufos	13071–79–9	1657/507/614.1/525.1
256	Terbuthylazine	05915–41–3	619/1656
257	Terbutryn	00886–50–0	507/619/525.1
259	Dazomet	00533–74–4	630/630.1/1659
262	Toxaphene	08001–35–2	1656/505/508/608/617/525.1
263	Merphos (Tributyl phosphorotrithioate)	00150–50–5	1657/507/525.1/622
264	Trifluralin	01582–09–8	1656/508/617/627/525.1
268	Ziram (Zinc dimethyldithiocarbamate)	00137–30–4	630/630.1

[1]Monitor and report as total Trifluralin.

Note: The Wisconsin administrative code corresponds to the code of federal regulations according to the following table:

State Code	Code of Federal Regulations
s. NR 205.03	40 CFR 401.11
s. NR 205.04	40 CFR 401.11
ch. NR 211	40 CFR Part 403
s. NR 211.03	40 CFR 403.3
s. NR 211.13	40 CFR 403.7
s. NR 215.03	40 CFR Part 423, Appendix A
ch. NR 219	40 CFR Part 136
ch. NR 233	40 CFR Part 455

Table 8
List of Pollution Prevention Alternative Practices

Practice	Modification allowed when:
1. Water conservation practices shall be used. These practices may include, but are not limited to using spray nozzles or flow reduction devices on hoses, low volume high pressure rinsing equipment, floor scrubbing machines, mops and buckets, and counter current staged drum rinsing stations.	Rinsing narrow transfer lines or piping where sufficient rinsing is better achieved by flushing with water.
2. Good housekeeping shall be practiced to include: (a) Perform preventative maintenance on all valves and fittings and repair leaky valves and fittings in a timely manner; (b) Use drip pans under any valves or fittings where hoses or lines are routinely connected and disconnected, collect for reuse when possible; and (c) Perform quick cleanup of leaks and spills in outdoor bulk storage or process areas.	
3. Dry production areas shall be swept or vacuumed prior to rinsing with water.	
4. Interiors of dry formulation equipment shall be cleaned with dry carrier prior to any water rinse. The carrier material shall be stored and reused in future formulation of the same or compatible product or properly disposed of as solid waste.	
5. If operating continuous overflow department of transportation aerosol leak test baths, operation shall include some recirculation.	
6. If operating air pollution control wet scrubbers, then operate as recirculating scrubbers. Periodic blowdown is allowed as needed.	Facility demonstrates that they would not be able to meet resource conservation recovery act or clean air act requirements.
7. When performing rinsing of raw material drums, storage drums, or shipping containers that contained liquid pesticide active ingredients or inert ingredients for the formulation of water–based products, the facility shall comply with one of the following: (a) Reuse the drum or shipping container rinsate directly into the formulation at the time of formulation. (b) Store for use in future formulation of same or compatible product. (c) Use a staged drum rinsing station involving counter current rinsing.	(a) The drum or shipping container holds an inert ingredient only and the facility can demonstrate that, after using water conservation practices, the large concentration of inert ingredient in the formulation creates more volume than could feasibly be reused. (b) The facility can demonstrate that the concentration of the inert in the formulation is so small that the reuse would cause a formulation to exceed the ranges allowed in the confidential statement of formula pursuant to 40 CFR 158.155.
8. When performing rinsing of raw material drums, storage drums, or shipping containers that contained liquid pesticide active ingredients or inert ingredients for the formulation of solvent–based products, the facility shall reuse the drum or shipping container rinsate directly into the formulation at the time of formulation or store for use in future formulation of same or compatible product.	(a) The drum or shipping container holds inert an ingredient only and the facility can demonstrate that, after using water conservation practices, the large concentration of inert ingredient in the formulation creates more volume than could feasibly be reused; or (b) The facility can demonstrate that the concentration of the inert in the formulation is so small that the reuse would cause a formulation to exceed the ranges allowed in the confidential statement of formula; or (c) Drums or shipping containers are going to a drum refurbisher or recycler who will only accept drums rinsed with water.

Practice	Modification allowed when:
9. Shall dedicate PFPR production equipment by water–based versus solvent–based products. Dedicated solvent–based or water–based equipment may be used on a non–routine basis for non–dedicated operations. However the facility may not discharge the solvent or aqueous changeover rinsate as part of their pollution prevention allowable discharge (i.e., the facility must achieve zero discharge of those process wastewater pollutants).	Facility has installed and is using a solvent recovery system for the changeover rinsate. It also may be used for other solvent recovery.
10. Shall store the rinsate from interior rinsing. This does not include drum or shipping container rinsate for reuse in future formulation of same or compatible product.	(a) Facility has evidence of biological growth or other product deterioration over a typical storage period; (b) Facility has space limitations, but must still store rinsates for most frequently produced products; (c) Manufacturer or formulator contracting for toll formulating has directed otherwise, i.e., send back to them or send for off–site disposal; (d) Facility is dropping registration or production of the formulation and there is no compatible formulation for reuse of the rinsates or facility can provide reasonable explanation of why it does not anticipate formulation of same or compatible formulation within the next 12 months; (e) Facility only performs packaging of the pesticide product from which interior rinsate is generated; or (f) Facility has demonstrated that it must use a detergent to clean the equipment.

[1]A modification to the list of practices on this table that an individual facility shall comply with to be eligible for the pollution prevention alternative is allowed with acceptable justification. This justification is listed on this table and as approved by the permitting or control authority using best practical judgment or best engineering judgment after submittal by the facility of a request for modification. A modification, for purposes of this table, means that a facility would no longer have to perform a listed practice or would need to comply with a modified practice. However, the modification only applies to the specific practice for which the modification has been justified and to no other listed practices. Facilities are required to thoroughly discuss all modifications in the on–site compliance paperwork as described in this subchapter in the limitations and standards as in s. NR 233.305(2).

[2]After following the practices above, some wastewaters for indirect dischargers may require pretreatment prior to discharge to POTWs. See definition of pollution prevention allowable discharge for indirect dischargers as defined in s. NR 233.305.

[3]After following the practices above, all wastewaters for direct dischargers shall require treatment prior to discharge directly to the state's waters. See definition of pollution prevention allowable discharge for direct dischargers as defined in s. NR 233.305.

[4]Additional information and guidance on implementing these pollution prevention practices as well as evaluating compliance with these practices will be available in a pollution prevention guidance manual for the PFPR industry.

Table 9
Group 2 Mixtures

Shaughnessey Code	Chemical name[1]
002201	Sabadilla alkaloids.
006501	Aromatic petroleum derivative solvent.
006602	Heavy aromatic naphtha.
016601[2]	Dry ice.
022003	Coal tar.
025001	Coal tar neutral oils.
025003	Creosote oil (Note: Derived from any source).
025004	Coal tar creosote.
031801	Ammonium salts of C8–18 and C18' fatty acids.
055601	BNOA.
063501	Kerosene.
063502	Mineral oil––includes paraffin oil from 063503.
063503	Petroleum distillate, oils, solvent, or hydrocarbons; also p.
063506	Mineral spirits.
067003	Terpineols (unspec.).
067205	Pine tar oil.
067207	Ester gum.
067302	Amines, N–coco alkyltrimethylenedi–, acetates.
069152	Amines, coco alkyl, hydrochlorides.
070801	Red Squill glycoside.
071004	Cube Resins other than rotenone.
071501	Ryania speciosa, powdered stems of.
072602[2]	Silica gel.
072605[2]	Silicon dioxide.
079014	Turkey red oil.
079021	Potassium salts of fatty acids.
079029	Fatty alcohols (52–61% C10, 39–46% C8, 0–3% C6, 0–3% C12).
079034	Methyl esters of fatty acids (100% C8–C12).
079059	Fatty alcohols (54.5% C10, 45.1% C8, 0.4% C6).
086803	Xylene range aromatic solvent.
107302	Polyhedral inclusion bodies of Douglas fir tussock moth nucl.
107303	Polyhedral inclusion bodies of gypsy moth nucleopolyhedrosis.
107304	Polyhedral inclusion bodies of n. sertifer.
116902	Gibberellin A4 mixt. with Gibberellin A7.
117001	Nosema locustae.
128888	Lactofen (ANSI).
128934[2]	Nitrogen, liquid.
129029	Bergamot Oil.
224600	Diethanolamides of the fatty acids of coconut oil (coded 079).
505200	Isoparaffinic hydrocarbons.

[1] Shaughnessey codes and chemical names are taken directly from the FATES database. Several chemical names are truncated because the chemical names listed in the FATES database are limited to 60 characters.

[2] EPA does not believe this pesticide active ingredient will persist in sanitary streams long enough to reach a POTW.

Table 10
List of Appropriate Treatment Technologies[1]

This table contains those pollutant control technologies, such as hydrolysis. chemical oxidation, precipitation, and activated carbon adsorption, which have been used for estimating compliance costs on a pesticide active ingredient basis. In general, these treatment technologies have been determined to be effective in treating pesticide containing wastewaters in literature, in bench or pilot scale treatability studies or in the pesticide manufacturing effluent guidelines. These are the same technologies that are presented as part of the universal treatment system. However, these technologies are pesticide active ingredient specific and may need to be used in conjunction with one another to provide treatment for all pesticide active ingredients used at a facility over a period of time. In addition, facilities may experience difficulties treating wastewaters that contain emulsions, therefore, "appropriate" treatment for emulsified wastewaters must include an emulsion breaking step. For pesticide active ingredients whose technology is listed as "pollution prevention", the permitting authority or control authority can determine if additional treatment is necessary through best professional judgment or best engineering judgment, respectively.

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Dicofol	001	10501	DDT	Hydrolysis
Maleic Hydrazide	002	51501	Hydrazide	Activated Carbon
EDB	003	42002	EDB	Activated Carbon
Vancide TH	004	82901	s–Triazine	Activated Carbon
1,3–Dichloropropene	005	29001	EDB	Hydrolysis
Thenarsazine Oxide	006	12601	Organoarsenic	Precipitation
Dowicil 75	007	17901	NR4	Activated Carbon
Triadimefon	008	109901	s–Triazine	Activated Carbon
Hexachlorophene	009	44901	Chlorophene	Activated Carbon
Tetrachlorophene	010		Chlorophene	Activated Carbon
Dichlorophene	011	55001	Chlorophene	Activated Carbon
Dichlorvos	012	84001	Phosphate	Hydrolysis
Landrin–2	013		Carbamate	Activated Carbon
2,3,6–T, S&E or Fenac	014	82605	2,4–D	Activated Carbon
2,4,5–T and 2,4,5–T, S&E	015	(*)	2,4–D	Activated Carbon
2,4–D (2,4–D, S&E)	016	(*)	2,4–D	Chemical Oxidation
2,4–DB, S&E	017	(*)	2,4–D	Activated Carbon
Dyrene or Anilazine	018	80811	s–Triazine	Activated Carbon
Dinocap	019	36001	Phenylcrotonate	Activated Carbon
Dichloran or DCNA	020	31301	Aryl Halide	Activated Carbon
Busan 90	021	8707	Miscellaneous Organic	Activated Carbon
Mevinphos	022	15801	Phosphate	Hydrolysis
Sulfallate	023		Dithiocarbamate	Activated Carbon
Chlorfenvinphos	024	84101	Phosphate	Activated Carbon
Cyanazine or Bladex	025	100101	s–Triazine	Activated Carbon
Propachlor	026	19101	Acetanilide	Activated Carbon
MCPA, S&E	027	(*)	2,4–D	Activated Carbon
Octhilinone	028	99901	Heterocyclic	Activated Carbon
Pindone	029	67703	Miscellaneous Organic	Activated Carbon
Dichlorprop, S&E	030	(*)	2,4–D	Activated Carbon
MCPP, S&E or Mecoprop	031	(*)	2,4–D	Activated Carbon

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Thiabendazole	032	60101	Heterocyclic	Activated Carbon
Belclene 310	033	80815	s–Triazine	Activated Carbon
Chlorprop, S&E	034	21202	2,4–D	Activated Carbon
Busan 72 or TCMTB	035	35603	Heterocyclic	Hydrolysis
Chlorophacinone	037	67707	Miscellaneous Organic	Activated Carbon
Landrin–1	038		Carbamate	Activated Carbon
Pronamide	039	101701	Chlorobenzamide	Activated Carbon
Methiocarb or Mesurol	040	100501	Carbamate	Hydrolysis
Propanil	041	28201	Chloropropionanilide	Activated Carbon
Polyphase[6]	042	107801	Carbamate	Activated Carbon
Coumafuryl or Fumarin	043	86001	Coumarin	Activated Carbon
DNOC	044		Phenol	Activated Carbon
Metribuzin	045	101101	Triazathione	Activated Carbon
CPA, S&E	046	(*)	2,4–D	Activated Carbon
MCPB, S&E	047	19202	2,4–D	Activated Carbon
Aminocarb	048		Carbamate	Hydrolysis
Etridiazole	049	84701	Heterocyclic	Activated Carbon
Ethoxyquin	050	55501	Quinolin	Activated Carbon
Acephate or Orthene	052	103301	Phosphoroamidothioate	Activated Carbon
Acifluorfen	053	114402	Benzoic Acid	Activated Carbon
Alachlor	054	90501	Acetanilide	Activated Carbon
Aldicarb	055	98301	Carbamate	Hydrolysis
Allethrin	057	(*)	Pyrethrin	Activated Carbon
Ametryn	058	80801	s–Triazine	Activated Carbon
Amitraz	059	106201	Iminamide	Activated Carbon
Atrazine	060	80803	s–Triazine	Hydrolysis
Bendiocarb	061	105201	Carbamate	Hydrolysis
Benomyl	062	99101	Carbamate	Hydrolysis
BHC	063		Lindane	Hydrolysis
Benzyl Benzoate	064	9501	Ester	Activated Carbon
Lethane 60	065		Thiocyanate	Activated Carbon
Bifenox	066	104301	Nitrobenzoate	Activated Carbon
Biphenyl	067	17002	Aryl	Activated Carbon
Bromacil (Lithium Salt)	068	(*)	Uracil	Activated Carbon
Bromoxynil	069	(*)	Benzonitrile	Activated Carbon
Butachlor	070		Acetanilide	Activated Carbon
Giv–gard	071	101401	Miscellaneous Organic	Activated Carbon
Cacodylic Acid	072	(*)	Organoarsenic	Precipitation
Captafol	073		Phthalimide	Hydrolysis
Captan	074	81301	Phthalimide	Hydrolysis
Carbaryl	075	56801	Carbamate	Hydrolysis
Carbofuran	076	90601	Carbamate	Hydrolysis

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Carbosulfan	077		Carbamate	Activated Carbon
Chloramben	078	(*)	Benzoic Acid	Activated Carbon
Chlordane	079	58201	Tricyclic	Activated Carbon
Chloroneb	080	27301	Aryl Halide	Chemical Oxidation
Chloropicrin	081	81501	Alkyl Halide	Chemical Oxidation
Chlorothalonil	082	81901	Chloropropionanilide	Activated Carbon
Chloroxuron	083		Urea	Activated Carbon
Stirofos	084	83701	Phosphate	Hydrolysis
Chlorpyrifos Methyl	085	59102	Phosphorothioate	Hydrolysis
Chlorpyrifos	086	59101	Phosphorothioate	Chemical Oxidation
Mancozeb	087	14504	Dithiocarbamate	Activated Carbon
Bioquin (Copper)	088	24002	Organocopper	Precipitation
Copper EDTA	089	39105	Organocopper	Precipitation
Pydrin or Fenvalerate	090	109301	Pyrethrin	Activated Carbon
Cycloheximide	091		Cyclic Ketone	Activated Carbon
Dalapon	092	(*)	Alkyl Halide	Activated Carbon
Dienochlor	093	27501	HCp	Activated Carbon
Demeton	094		Phosphorothioate	Hydrolysis
Desmedipham	095	104801	Carbamate	Hydrolysis
Amobam	096		Miscellaneous Organic	Activated Carbon
DBCP	097		EDB	Activated Carbon
Dicamba	098	(*)	Aryl Halide	Activated Carbon
Dichlone	099	29601	Quinone	Activated Carbon
Thiophanate Ethyl	100	103401	Carbamate	Hydrolysis
Perthane	101		DDT	Activated Carbon
EXD	102		Dithiocarbamate	Activated Carbon
Diazinon	103	57801	Phosphorothioate	Hydrolysis
Diflubenzuron	104	108201	Urea	Activated Carbon
Dimethoate	106	35001	Phosphorodithioate	Hydrolysis
Parathion Methyl	107	53501	Phosphorothioate	Hydrolysis
Dicrotophos	108	35201	Phosphate	Activated Carbon
Crotoxyphos	109	58801	Phosphate	Activated Carbon
DCPA	110	78701	Aryl Halide	Activated Carbon
Trichlorofon	111	57901	Phosphonate	Activated Carbon
Dinoseb	112	37505	Phenol	Activated Carbon
Dioxathion	113	37801	Phosphorodithioate	Hydrolysis
Diphacinone	114	67701	Indandione	Activated Carbon
Diphenamide	115	36601	Acetamide	Activated Carbon
Diphenylamine	116	38501	Aryl Amine	Activated Carbon
MGK 326	117	47201	Ester	Activated Carbon
Nabonate	118	63301	Isocyanate	Chemical Oxidation
Diuron	119	35505	Urea	Activated Carbon

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Metasol DGH	120	44303	NR4	Activated Carbon
Dodine	121	44301	NR4	Activated Carbon
Endosulfan	122	79401	Tricyclic	Activated Carbon
Endothall (Endothall S&E)	123	(*)	Bicyclic	Activated Carbon
Endrin	124	41601	Tricyclic	Activated Carbon
Ethalfluralin	125	113101	Toluidine	Activated Carbon
Ethion	126	58401	Phosphorodithioate	Hydrolysis
Ethoprop	127	41101	Phosphorodithioate	Activated Carbon
Fenamiphos	128	100601	Phosphoroamidate	Activated Carbon
Chlorobenzilate	129	28801	Aryl Halide	Activated Carbon
Butylate	130	41405	Thiocarbamate	Activated Carbon
Famphur	131		Phosphorothioate	Hydrolysis
Fenarimol	132	206600	Pyrimidine	Activated Carbon
Fenthion or Baytex	133	53301	Phosphorothioate	Hydrolysis
Ferbam	134	34801	Dithiocarbamate	Activated Carbon
Fluometuron	135	35503	Urea	Activated Carbon
Fluoroacetamide	136		Acetamide	Activated Carbon
Folpet	137	81601	Phthalimide	Hydrolysis
Glyphosate (Glyphosate S&E)	138	(*)	Phosphoroamidate	Chemical Oxidation
Glyphosine	139		Phosphoroamidate	Activated Carbon
Heptachlor	140	44801	Tricyclic	Activated Carbon
Cycloprate	141		Thiocarbamate	Activated Carbon
Hexazinone	142	107201	s–Triazine	Activated Carbon
Isofenphos	143	109401	Phosphoroamidothioate	Activated Carbon
Isopropalin	144	100201	Toluidine	Activated Carbon
Propham	145		Carbamate	Hydrolysis
Karabutilate	146	97401	Carbamate	Hydrolysis
Lindane	147	9001	Lindane	Activated Carbon
Linuron	148	35506	Urea	Chemical Oxidation
Malachite Green	149	39504	NR4	Activated Carbon
Malathion	150	57701	Phosphorodithioate	Hydrolysis
Maneb	151	14505	Dithiocarbamate	Activated Carbon
Manam	152		Dithiocarbamate	Activated Carbon
Mefluidide	153	114002	Carbamate	Activated Carbon
Methamidophos	154	101201	Phosphoroamidothioate	Activated Carbon
Methidathion	155	100301	Phosphorodithioate	Activated Carbon
Methomyl	156	90301	Carbamate	Hydrolysis
Methoprene	157	(*)	Ester	Activated Carbon
Methoxychlor	158	34001	DDT	Hydrolysis
Methyl Bromide	160	53201	Alkyl Halide	Activated Carbon
Monosodium Methyl Arsenate	161	(*)	Organoarsenic	Precipitation
Nalco D–2303	163	68102	Thiocyanate	Activated Carbon

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Quinomethionate	164	54101	Miscellaneous Organic	Activated Carbon
Metolachlor	165	108801	Acetanilide	Activated Carbon
Mexacarbate	166		Carbamate	Hydrolysis
Metiram	167	14601	Dithiocarbamate	Activated Carbon
Monuron TCA	168	35502	Urea	Activated Carbon
Monuron	169	35501	Urea	Activated Carbon
Napropamide	170	103001	Carbamate	Activated Carbon
Deet	171	80301	Toluamide	Activated Carbon
Nabam	172	14503	Dithiocarbamate	Chemical Oxidation
Naled	173	34401	Phosphate	Hydrolysis
Norea	174		Urea	Activated Carbon
Norflurazon	175	105801	Heterocyclic	Activated Carbon
Naptalam or Neptalam	176	30703	Phthalamide	Activated Carbon
MGK 264	177	57001	Bicyclic	Activated Carbon
Benfluralin	178	84301	Toluidine	Activated Carbon
Sulfotepp	179	79501	Phosphorothioate	Activated Carbon
Aspon	180		Phosphorothioate	Activated Carbon
Coumaphos	181	36501	Phosphorothioate	Hydrolysis
Fensulfothion	182	32701	Phosphorothioate	Hydrolysis
Disulfoton	183	32501	Phosphorodithioate	Hydrolysis
Fenitrothion	184	105901	Phosphorothioate	Hydrolysis
Phosmet	185	59201	Phosphorodithioate	Hydrolysis
Azinphos Methyl (Guthion)	186	58001	Phosphorodithioate	Hydrolysis
Oxydemeton Methyl	187	58702	Phosphorothioate	Activated Carbon
Organo–Arsenic Pesticides	188		Organoarsenic	Precipitation
Organo–Cadmium Pesticides	189		Organocadmium	Precipitation
Organo–Copper Pesticides	190	(*)	Organocopper	Precipitation
Organo–Mercury Pesticides	191	(*)	Organomercury	Precipitation
Organo–Tin Pesticides	192	(*)	Organotin	Precipitation
o–Dichlorobenzene	193	59401	Aryl Halide	Activated Carbon
Oryzalin	194	104201	Sulfanilamide	Activated Carbon
Oxamyl	195	103801	Carbamate	Hydrolysis
Oxyfluorfen	196	111601	Miscellaneous Organic	Activated Carbon
Bolstar	197	111501	Phosphorodithioate	Activated Carbon
Sulprofos Oxon	198		Phosphorothioate	Hydrolysis
Santox (EPN)	199	41801	Phosphorodithioate	Hydrolysis
Fonofos	200	41701	Phosphorodithioate	Hydrolysis
Propoxur	201	47802	Carbamate	Hydrolysis
p–Dichlorobenzene	202	61501	Aryl Halide	Activated Carbon
Parathion Ethyl	203	57501	Phosphorothioate	Hydrolysis
Pendimethalin	204	108501	Benzeneamine	Activated Carbon
PCNB	205	56502	Aryl Halide	Activated Carbon

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
PCP or Penta	206	(*)	Phenol	Activated Carbon
Perfluidone	207		Sulfonamide	Activated Carbon
Permethrin	208	109701	Pyrethrin	Activated Carbon
Phenmedipham	209	98701	Carbamate	Hydrolysis
Nemazine	210	64501	Heterocyclic	Activated Carbon
Phorate	212	57201	Phosphorodithioate	Hydrolysis
Phosalone	213	97701	Phosphorodithioate	Hydrolysis
Phosphamidon	214	18201	Phosphate	Hydrolysis
Picloram	215	(*)	Pyridine	Activated Carbon
Piperonyl Butoxide	216	67501	Ester	Activated Carbon
PBED or WSCP (Busan 77)	217	69183	NR4	Activated Carbon
Busan 85 or Arylane	218	34803	Dithiocarbamate	Chemical Oxidation
Busan 40	219	102901	Dithiocarbamate	Chemical Oxidation
KN Methyl	220	39002	Dithiocarbamate	Chemical Oxidation
Metasol J26	221	101301	Miscellaneous Organic	Activated Carbon
Profenofos	222	111401	Phosphorothioate	Activated Carbon
Prometon or Caparol	223	80804	s–Triazine	Chemical Oxidation
Prometryn	224	80805	s–Triazine	Activated Carbon
Propargite	225	97601	Miscellaneous Organic	Activated Carbon
Propazine	226	80808	s–Triazine	Activated Carbon
Propionic Acid	227	77702	Alkyl Acid	Activated Carbon
Previcur N	228	119301	Carbamate	Hydrolysis
Pyrethrin Coils	229	69004	Pyrethrin	Activated Carbon
Pyrethrum I	230	69001	Pyrethrin	Hydrolysis
Pyrethrum II	231	69002	Pyrethrin	Hydrolysis
Pyrethrins	232	(*)	Pyrethrin	Hydrolysis
Resmethrin	233	(*)	Pyrethrin	Activated Carbon
Fenchlorphos or Ronnel	234	58301	Phosphorothioate	Hydrolysis
Mexide or Rotenone	235	71003	Miscellaneous Organic	Activated Carbon
DEF	236	74801	Phosphorotrithioate	Activated Carbon
Siduron or Tupersan	237	35509	Urea	Activated Carbon
Silvex	238	(*)	2,4–D	Activated Carbon
Simazine	239	80807	s–Triazine	Activated Carbon
Sodium Bentazon	240	103901	Heterocyclic	Chemical Oxidation
Carbam–S or Sodam	241	34804	Dithiocarbamate	Chemical Oxidation
Sodium Fluoroacetate	242	75003	Acetamide	Activated Carbon
Vapam or Metham Sodium	243	39003	Dithiocarbamate	Chemical Oxidation
Sulfoxide	244	57101	Miscellaneous Organic	Activated Carbon
Cycloate or Ro–Neet	245	41301	Thiocarbamate	Activated Carbon
EPrecipitationC or Eptam	246	41401	Thiocarbamate	Activated Carbon
Molinate	247	41402	Thiocarbamate	Activated Carbon
Pebulate or Tillman	248	41403	Thiocarbamate	Activated Carbon

Part A
Appropriate Treatment Technologies for Compounds With Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	PAI Code[3]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Vernolate or Vernam	249	41404	Thiocarbamate	Activated Carbon
HPrecipitationMS	250	35604	Thiosulphonate	Activated Carbon
Bensulide or Betesan	251	9801	Phosphorodithioate	Activated Carbon
Tebuthiuron	252	105501	Urea	Activated Carbon
Temephos	253	59001	Phosphorothioate	Hydrolysis
Terbacil	254	12701	Uracil	Activated Carbon
Terbufos or Counter	255	105001	Phosphorodithioate	Activated Carbon
Terbuthylazine	256	80814	s–Triazine	Activated Carbon
Terbutryn	257	80813	s–Triazine	Activated Carbon
Tetrachlorophenol	258	63004	Phenol	Activated Carbon
Dazomet	259	35602	Heterocyclic	Chemical Oxidation
Thiophanate Methyl	260	102001	Carbamate	Hydrolysis
Thiram	261	79801	Dithiocarbamate	Activated Carbon
Toxaphene	262	80501	Bicyclic	Activated Carbon
Merphos	263	74901	Phosphorotrithioate	Hydrolysis
Trifluralin or Treflan	264	36101	Toluidine	Activated Carbon
Warfarin	265	(*)	Coumarin	Activated Carbon
Zinc MBT	266	51705	Organozinc	Precipitation
Zineb	267	14506	Dithiocarbamate	Activated Carbon
Ziram	268	34805	Dithiocarbamate	Activated Carbon
Triallate	269	78802	Thiocarbamate	Activated Carbon
Phenothrin	270	69005	Pyrethrin	Activated Carbon
Tetramethrin	271	69003	Pyrethrin	Activated Carbon
Chloropropham	272	18301	Carbamate	Hydrolysis

Part B
Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
CFC 11	13	Alkyl Halide	Activated Carbon
CFC 12	14	Alkyl Halide	Activated Carbon
Polyethylene	152	Polymer	Activated Carbon
Acrolein	701	Alcohol	Activated Carbon
Dimethyl–m–dioxan–4–ol acetate	1001	Heterocyclic	Activated Carbon
Dodecyl alcohol	1509	Alcohol	Activated Carbon
Tetradecyl alcohol	1510	Alcohol	Activated Carbon
Rosin amine D acetate	4201	Alkyl Acid	Activated Carbon
Dihydroabietylamine acetate	4213	Alkyl Acid	Activated Carbon
Amitrole	4401	Heterocyclic	Activated Carbon
Allyl isothiocyanate	4901	Thiocyanate	Activated Carbon
AMS	5501	Inorganic	Pollution Prevention
Calcium sulfate	5602	Inorganic	Pollution Prevention

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Tartar emetic	6201	Inorganic	Pollution Prevention
Diphenylstibene 2– ethylhexanoate	6202	Aryl	Activated Carbon
Streptomycin	6306	Heterocyclic	Activated Carbon
Oxytetracycline hydrochloride	6308	Phthalamide	Activated Carbon
Streptomycin sesquisulfate	6310	Heterocyclic	Activated Carbon
Neomycin sulfate	6313	Benzeneamine	Activated Carbon
Antimycin A	6314	Heterocyclic	Activated Carbon
Calcium oxytetracycline	6321	Phthalamide	Activated Carbon
Espesol 3A	6601	Phosphorothioate	Activated Carbon
Arsenic acid	6801	Metallic	Precipitation
Arsenic acid anhydride	6802	Metallic	Precipitation
Arsenous acid anhydride	7001	Metallic	Precipitation
Copper oxychloride	8001	Metallic	Precipitation
Basic cupric sulfate	8101	Metallic	Precipitation
Basic copper III––zinc sulfate complex (Declare copper and.)	8102	Metallic	Precipitation
Bromophos	8706	Phosphorothioate	Activated Carbon
Benzyl bromoacetate	8710	Benzoic acid	Activated Carbon
Benzoic acid	9101	Benzoic acid	Activated Carbon
Benzyl diethyl ((2,6– xylylcarba-moyl)methyl) ammonium benzoate	9106	NR4	Activated Carbon
Benzyl alcohol	9502	Aryl	Activated Carbon
3–Chloro–p–toluidine hydrochloride	9901	Chloropropionanilide	Activated Carbon
Butoxyethoxy)ethyl thiocyanate	10002	Thiocyanate	Activated Carbon
2–Naphthol	10301	Phenol	Activated Carbon
Boric acid	11001	Inorganic	Pollution Prevention
Barium metaborate	11101	Inorganic	Pollution Prevention
Boron sodium oxide (B8Na2O13), tetra-hydrate (12280–03–4)	11103	Inorganic	Pollution Prevention
Sodium metaborate (NaBO2)	11104	Inorganic	Pollution Prevention
Boron sodium oxide (B8Na2O13) (12008–41–2)	11107	Inorganic	Pollution Prevention
Boron sodium oxide (B4Na2O7), penta-hydrate (12179–04–3)	11110	Inorganic	Pollution Prevention
Boron sodium oxide (B4Na2O7) (1330–43–4)	11112	Inorganic	Pollution Prevention
Polybutene	11402	Polymer	Activated Carbon
Polyisobutylene	11403	Polymer	Activated Carbon
Butyl cellosolve	11501	Alcohol	Activated Carbon
Butoxypolypropylene glycol	11901	Polymer	Activated Carbon
Neburon (ANSI)	12001	Chloropropionanilide	Activated Carbon
Methyltrimethylenedioxy)bis(4–methyl–1,3,2–dioxaborinane)	12401	Bicyclic	Activated Carbon
Oxybis(4,4,6–trimethyl–1,3,2– dioxabo-rinane)	12402	Bicyclic	Activated Carbon
Cadmium chloride	12902	Metallic	Precipitation

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Lead arsenate, basic	13502	Metallic	Precipitation
Lead arsenate	13503	Metallic	Precipitation
Sodium arsenate	13505	Metallic	Precipitation
Sodium arsenite	13603	Metallic	Precipitation
Potassium bromide	13903	Inorganic	Pollution Prevention
Camphor	15602	Bicyclic	Activated Carbon
Carbon disulfide	16401	Inorganic	Pollution Prevention
Carbon tetrachloride	16501	Alkyl Halide	Activated Carbon
Barban (ANSI)	17601	Carbamate	Activated Carbon
Chloro–2–propenyl)–3,5,7,triaza–1–azo niatricyclo(3.3.1.1)sup	17902	Tricyclic	Activated Carbon
Chlormequat chloride	18101	NR4	Activated Carbon
Chloromethoxypropylmercuric acetate	18401	Metallic	Precipitation
Allidochlor	19301	Acetanilide	Activated Carbon
Chromic acid	21101	Metallic	Precipitation
Chromic oxide	21103	Metallic	Precipitation
Cresol (unspec) (Cresylic acid)	22101	Phenol	Activated Carbon
Cresol	22102	Phenol	Activated Carbon
Copper (metallic)	22501	Metallic	Precipitation
Copper ammonium carbonate	22703	Metallic	Precipitation
Copper carbonate	22901	Metallic	Precipitation
Copper hydroxide	23401	Metallic	Precipitation
Copper chloride hydroxide(Cu2Cl(OH)3).	23501	Metallic	Precipitation
Copper oxychloride sulfate	23503	Metallic	Precipitation
Copper sulfate	24401	Metallic	Precipitation
Copper (from triethanolamine complex)	24403	Metallic	Precipitation
Copper as metallic (in the form of chelates of copper citrat)	24405	Metallic	Precipitation
Copper as elemental from copper–ethylenediamine complex.	24407	Metallic	Precipitation
Copper sulfate (anhydrous)	24408	Metallic	Precipitation
Copper(I) oxide	25601	Metallic	Precipitation
Cuprous thiocyanate	25602	Metallic	Precipitation
Cyclohexane	25901	Aryl	Activated Carbon
Cyclohexanone	25902	Cyclic Ketone	Activated Carbon
Dichlobenil	27401	Chloropropionanilide	Activated Carbon
Diquat dibromide	32201	NR4	Activated Carbon
Dimethrin (ANSI)	34101	Pyrethrin	Activated Carbon
Dicapthon	34502	Phosphorothioate	Activated Carbon
Ziram, cyclohexylamine complex	34806	Dithiocarbamate	Activated Carbon
Butyl dimethyltrithioperoxycarbamate	34807	Dithiocarbamate	Activated Carbon
Daminozide	35101	Acetanilide	Activated Carbon
Bis(trichloromethyl) sulfone	35601	Miscellaneous Organic	Activated Carbon
Bis(bromoacetoxy)–2–butene	35605	Alkyl Halide	Activated Carbon

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Dazomet, sodium salt	35607	Heterocyclic	Activated Carbon
Butonate	35701	Phosphonate	Activated Carbon
Trifluoro–4–nitro–m– cresol(**)=alpha,alpha,alpha–.	6201	Phenol	Activated Carbon
Triethanolamine dinoseb (2–sec–Butyl–4,6–dinitrophenol)	37506	Phenol	Activated Carbon
Sodium 4,6–dinitro–o–cresylate	37508	Phenol	Activated Carbon
Dinitrophenol	37509	Phenol	Activated Carbon
Alkanol* amine dinoseb (2–sec–butyl–4,6–dinitrophenol) *(s.	37511	Phenol	Activated Carbon
Sodium dinoseb (2–sec–Butyl–4,6– dinitrophenol)	37512	Phenol	Activated Carbon
Nitrilotriacetic acid, trisodium salt	39106	Acetamide	Activated Carbon
Trisodium(2– hydroxyethyl)ethylene diaminetriacetate	39109	Acetanilide	Activated Carbon
Ammonium ethylenediaminetetraacetate.	39117	Acetamide	Activated Carbon
Pentasodium diethylenetriaminepentaacetate	39120	Acetanilide	Activated Carbon
Ethyl–1,3–hexanediol	41001	Alcohol	Activated Carbon
Ethylene	41901	Miscellaneous Organic	Pollution Prevention
EDC	42003	EDB	Activated Carbon
Methylene chloride	42004	Alkyl Halide	Activated Carbon
Methoxyethanol	42202	Alcohol	Activated Carbon
Ethylene glycol	42203	Alcohol	Activated Carbon
Butylene glycol	42205	Alcohol	Activated Carbon
Ethylene oxide	42301	Miscellaneous Organic	Pollution Prevention
Copper(II) oxide	42401	Metallic	Precipitation
Cuprous and cupric oxide, mixed	42403	Metallic	Precipitation
Propylene oxide	42501	Miscellaneous Organic	Pollution Prevention
Formaldehyde	43001	Miscellaneous Organic	Pollution Prevention
Paraformaldehyde	43002	Polymer	Activated Carbon
Bis(2–butylene) tetrahydro–2– furaldehyde	43302	Tricyclic	Activated Carbon
Giberellic acid	43801	Tricyclic	Carbon Activated
Potassium gibberellate	43802	Tricyclic	Activated Carbon
Glutaral	43901	Alcohol	Activated Carbon
Copper citrate	44005	Metallic	Precipitation
Methyl nonyl ketone	44102	Miscellaneous Organic	Activated Carbon
Methyl–2–pentanone	44105	Miscellaneous Organic	Activated Carbon
Monosodium 2,2'–methylenebis (3,4,6–trichlorophenate)	44902	Chlorophene	Activated Carbon
Potassium 2,2'–methylene-bis(3,4,6–trichlorophenate)	44904	Chlorophene	Activated Carbon
Hexachloroepoxyoctahydro–endo, exo–dimethanoaphthalene 85%	45001	Tricyclic	Activated Carbon
Chlorhexidine diacetate	45502	Chloropropionanilide	Activated Carbon

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Hydrocyanic acid	45801	Inorganic	Activated Carbon
Hydroxyethyl octyl sulfide	46301	Alcohol	Activated Carbon
Heptadecenyl–2–(2–hydroxyethyl)– 2–i midazolinium chloride	46608	NR4	Activated Carbon
Hydroxyethyl)–2–alkyl–2– imidazoline (as in fatty acids of t.)	46609	NR4	Activated Carbon
IBA	46701	Bicyclic	Activated Carbon
Dihydropyrone	46801	Cyclic ketone	Activated Carbon
Butoxypolypropoxypolyethoxyetha–nol–iodine complex	46901	Polymer	Activated Carbon
Polyethoxypolypropoxyethanol– iodine complex	46904	Polymer	Activated Carbon
Use code no. 046904 (polyethoxypoly-propoxy ethanol–iodine complex).	46909	Polymer	Activated Carbon
Iodine–potassium iodide complex	46917	Inorganic	Pollution Prevention
Alkyl–omega hydroxypoly(oxyethylen e)– iodine complex *(100%.)	46921	Polymer	Activated Carbon
Lead acetate	48001	Metallic	Precipitation
Nickel sulfate hexahydrate	50505	Metallic	Precipitation
Maleic hydrazide, diethanolamine salt	51502	Hydrazide	Activated Carbon
Maleic hydrazide, potassium salt	51503	Hydrazide	Activated Carbon
Sodium 2–mercaptobenzothiolate	51704	Heterocyclic	Activated Carbon
Mercuric chloride	52001	Metallic	Precipitation
Mercurous chloride	52201	Metallic	Precipitation
Metaldehyde	53001	Miscellaneous Organic	Activated Carbon
Methylated naphthalenes	54002	Aryl	Activated Carbon
Sodium 2,2'–methylenebis (4– chloro-phenate)	55005	Chlorophene	Activated Carbon
Naphthalene	55801	Aryl	Activated Carbon
NAD	56001	Benzoic Acid	Activated Carbon
NAA (1–Naphthaleneacetic Acid)	56002	Benzoic Acid	Activated Carbon
Potassium 1–naphthaleneacetate	56003	Benzoic Acid	Activated Carbon
Ammonium 1–naphthaleneacetate	56004	Benzoic Acid	Activated Carbon
Sodium 1–naphthaleneacetate	56007	Benzoic Acid	Activated Carbon
Ethyl 1–naphthaleneacetate	56008	Benzoic Acid	Activated Carbon
Nitrophenol	56301	Phenol	Activated Carbon
Nicotine	56702	Pyridine	Activated Carbon
Carbophenothion (ANSI).	58102	Phosphorodithioate	Activated Carbon
Sodium 5–chloro–2–(4–chloro–2–(3–(3,4–dich-lorophenyl)ureido)	58802	Aryl Halide	Activated Carbon
Monocrotophos	58901	Phosphate	Activated Carbon
Chlordimeform	59701	Chloropropionanilide	Activated Carbon
Chlordimeform hydrochloride	59702	Chloropropionanilide	Activated Carbon
Thiabendazole hypophosphite	60102	Hydrazide	Activated Carbon
Hexachlorobenzene	61001	Lindane	Activated Carbon

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Butyl paraben	61205	Phenol	Activated Carbon
Paraquat dichloride	61601	Pyridine	Activated Carbon
Chloro–4–phenylphenol	62206	Chlorophene	Activated Carbon
Chloro–2–phenylphenol	62208	Chlorophene	Activated Carbon
Chloro–2–biphenylol, potassium salt	62209	Chlorophene	Activated Carbon
Chloro–2–phenylphenol	62210	Chlorophene	Activated Carbon
Chloro–2–phenylphenol, potassium salt	62211	Chlorophene	Activated Carbon
Sodium phenate	64002	Phenol	Activated Carbon
Butylphenol, sodium salt	64115	Phenol	Activated Carbon
Ammonium 2–phenylphenate	64116	Phenol	Activated Carbon
Chloro–2–cyclopentylphenol	64202	Chlorophene	Activated Carbon
Bithionolate sodium	64203	Chlorophene	Activated Carbon
Chloro–3–cresol	64206	Chlorophene	Activated Carbon
Sodium 2,4,5–trichlorophenate	64217	Chlorophene	Activated Carbon
Aluminum phosphide	66501	Inorganic	Pollution Prevention
Phosphorus	66502	Inorganic	Pollution Prevention
Magnesium phosphide	66504	Inorganic	Pollution Prevention
1–(Alkyl*amino)–3–aminopropane*(Fatty acids of coconut oil)	67301	Iminamide	Activated Carbon
Alkyl* amino)–3–aminopropane*(53%C12, 19%C14, 8.5%C16, 7%C8	67305	Iminamide	Activated Carbon
Alkyl*amino)–3–aminopropane benzoate*(fatty acids of coconut	67307	Iminamide	Activated Carbon
Alkyl* dipropoxyamine *(47% C12, 18% C14, 10% C18, 9% C10, 8	67308	Iminamide	Activated Carbon
Alkyl*amino)–3–aminopropane hydroxyacetate* (acids of coconut	67309	Iminamide	Activated Carbon
Alkyl* amino)–3–aminopropane*(42%C12, 26%C18, 15%C14, 8%C16.	67310	Iminamide	Activated Carbon
Alkyl*amino)–3–aminopropane diacetate* (fatty acids of coconut	67313	Iminamide	Activated Carbon
Octadecenyl–1,3–propanediamine monogluconate	67316	Acetamide	Activated Carbon
Alkyl* amine acetate *(5%C8, 7%C10, 54%C12, 19%C14, 8%C16,	67329	Iminamide	Activated Carbon
Pindone sodium salt	67704	Indandione	Activated Carbon
Diphacinone, sodium salt	67705	Indandione	Activated Carbon
Isovaleryl–1,3–indandione, calcium salt.	67706	Indandione	Activated Carbon
Methyl isothiocyanate	68103	Thiocyanate	Pollution Prevention
Potassium dichromate	68302	Inorganic	Pollution Prevention
Sodium chromate	68303	Inorganic	Pollution Prevention
Sodium dichromate	68304	Metallic	Precipitation
Alkenyl* dimethyl ethyl ammonium bromide *(90%C18', 10%C16').	69102	NR4	Activated Carbon

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Alkyl*–N–ethyl morpholinium ethyl sulfate *(92%C18, 8%C16).	69113	Heterocyclic	Activated Carbon
Alkyl* isoquinolinium bromide*(50% C12, 30% C14, 17% C16, 3).	69115	Quinolin	Activated Carbon
Alkyl* methyl isoquinolinium chloride *(55%C14, 12%C12, 17%C).	69116	Quinolin	Activated Carbon
Cetyl trimethyl ammonium bromide	69117	NR4	Activated Carbon
Cetyl pyridinium bromide	69118	Pyridine	Activated Carbon
Dodecyl dimethyl benzyl ammonium naphthenate	69127	NR4	Activated Carbon
Alkyl* dimethyl ethylbenzyl ammonium cyclohexylsulfamate *(5)	69135	NR4	Activated Carbon
Alkyl*–N–ethyl morpholinium ethyl sulfate *(66%C18, 25%C16).	69147	Heterocyclic	Activated Carbon
Alkyl* trimethyl ammonium bromide *(95%C14, 5%C16).	69153	NR4	Activated Carbon
Benzyl((dodecylcarbamoyl) methyl)di methyl ammonium chloride.	69159	NR4	Activated Carbon
Cetyl pyridinium chloride	69160	Pyridine	Activated Carbon
Alkyl* dimethyl ethyl ammonium bromide *(85%C16, 15%C18).	69186	NR4	Activated Carbon
Cetyl–N–ethylmorpholinium ethyl sulfate	69187	Heterocyclic	Activated Carbon
Use code no. 069102 (Alkenyl* Dimethyl Ethyl Ammonium bromide).	69198	NR4	Activated Carbon
p–Aminopyridine	69201	Pyridine	Activated Carbon
Nitrapyrin (ANSI)	69203	Pyridine	Activated Carbon
Alkyl pyridines	69205	Pyridine	Activated Carbon
Pyrazon (ANSI)	69601	Heterocyclic	Activated Carbon
Capsaicin (in oleoresin of capsicum)	70701	Phenol	Activated Carbon
Ryanodine	71502	Tricyclic	Activated Carbon
Silver	72501	Inorganic	Pollution Prevention
Silver chloride	72506	Inorganic	Pollution Prevention
Silver thiuronium acrylate co– polymer	72701	Polymer	Activated Carbon
Sodium chlorate	73301	Inorganic	Pollution Prevention
Calcium cyanide	74001	Inorganic	Pollution Prevention
Sodium cyanide	74002	Inorganic	Pollution Prevention
Cryolite	75101	Inorganic	Pollution Prevention
Sodium fluoride	75202	Inorganic	Pollution Prevention
Ammonium fluosilicate	75301	Inorganic	Pollution Prevention
Sodium fluosilicate	75306	Inorganic	Pollution Prevention
Potassium iodide	75701	Inorganic	Pollution Prevention
Potassium tetrathionate	75903	Inorganic	Pollution Prevention
Potassium nitrate	76103	Inorganic	Pollution Prevention
Sodium nitrate	76104	Inorganic	Pollution Prevention
Sodium nitrite	76204	Inorganic	Pollution Prevention

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Benzenesulfonamide, N–chloro–, sodium salt	76501	Sulfonamide	Activated Carbon
Salicyclic acid	76202	Benzoic Acid	Activated Carbon
Ethoxyethyl p–methoxycinnamate	76604	Aryl	Activated Carbon
Calcium polysulfide	76702	Polymer	Activated Carbon
Strychnine	76901	Tricyclic	Activated Carbon
Strychnine sulfate	76902	Tricyclic	Activated Carbon
Niclosamide	77401	Chlorobenzamide	Activated Carbon
Dibromosalicylamilide	77402	Chlorobenzamide	Activated Carbon
Tribromsalan	77404	Chlorobenzamide	Activated Carbon
Dibromosalicylanilide	77405	Chlorobenzamide	Activated Carbon
Chlorosalicylanilide	77406	Chlorobenzamide	Activated Carbon
Sulfur	77501	Inorganic	Pollution Prevention
Sulfaquinoxaline	77901	Sulfanilamide	Activated Carbon
Sulfacetamide	77904	Sulfanilamide	Activated Carbon
Sulfuryl fluoride	78003	Inorganic	Pollution Prevention
Sodium bisulfite	78201	Inorganic	Pollution Prevention
Tetrachloroethylene	78501	EDB	Activated Carbon
Ethoxylated isooctylphenol	79004	Phenol	Activated Carbon
Lauric diethanolamide	79018	Acetanilide	Activated Carbon
Triethanolamine oleate	79025	NR4	Activated Carbon
Dioctyl sodium sulfosuccinate	79027	Thiosulfonate	Activated Carbon
Use code no. 069179 (alkyl*mono–ethanolamide).	79036	Miscellaneous Organic	Activated Carbon
Alkyl* diethanolamide *(70%C12, 30%C14)	79045	Miscellaneous Organic	Activated Carbon
Tetradecyl formate	79069	Alkyl Acid	Activated Carbon
Polyoxyethylene sorbitol oleate– laurate	79075	Polymer	Activated Carbon
Polyethoxylated stearylamine	79094	Polymer	Activated Carbon
Capric diethanolamide	79099	Acetanilide	Activated Carbon
Calcium thiosulfate	80101	Inorganic	Pollution Prevention
Ammonium thiosulfate	80103	Inorganic	Pollution Prevention
Thymoxydichloroacetic acid	80401	Benzoic Acid	Activated Carbon
Thymol	80402	Phenol	Activated Carbon
Sodium trichloroacetate	81001	Alkyl Halide	Activated Carbon
Trichloroacetic acid	81002	Alkyl Halide	Activated Carbon
Hexahydro–1,3,5–tris(2–hydroxyethyl)–s–triazine	83301	s–Triazine	Activated Carbon
2–(Hydroxymethyl)–2–nitro–1,3– propanediol	83902	Alcohol	Activated Carbon
Bomyl	84201	Phosphate	Activated Carbon
Turpentine	84501	Miscellaneous Organic	Activated Carbon
Chloro–1–(2,5– dichlorophenyl)vinyl) O,O–diethyl phosphorothi.	84901	Phosphorothioate	Activated Carbon
Zinc chloride	87801	Metallic	Precipitation

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Zinc 2–pyridinethiol–1–oxide	88002	Metallic	Precipitation
Hydroxy–2–(1H)–pyridinethione, sodium salt	88004	Pyridine	Activated Carbon
Omadine TBAO	88005	Pyridine	Activated Carbon
Zinc naphthenate	88301	Metallic	Precipitation.
Zinc oxide	88502	Metallic	Precipitation
Zinc phosphide (Zn3P2)	88601	Metallic	Precipitation
Zinc phenol sulfonate	89002	Metallic	Precipitation
Zinc sulfate, basic	89101	Metallic	Precipitation
Dimetilan	90101	Carbamate	Activated Carbon
Carboxin	90201	Heterocyclic	Activated Carbon
Oxycarboxin	90202	Heterocyclic	Activated Carbon
Benzocaine	97001	Benzeneamine	Activated Carbon
Piperalin	97003	2,4–D	Activated Carbon
Tetracaine hydrochloride	97005	Benzeneamine	Activated Carbon
Formetanate hydrochloride	97301	Toluamide	Activated Carbon
Azacosterol HCl	98101	Tricyclic	Activated Carbon
Use code no. 039502 (gentian violet).	98401	NR4	Activated Carbon
Ammonium alum	98501	Inorganic	Pollution Prevention
Bismuth subgallate	98601	Metallic	Precipitation
Chlorflurenol, methyl ester	98801	Aryl Halide	Activated Carbon
Benzisothiazolin–3–one	98901	Heterocyclic	Activated Carbon
Methyl 2–benzimidazolecarbamate phosphate	99102	Carbamate	Activated Carbon
Ethephon	99801	Phosphate	Activated Carbon
Pentanethiol	100701	Miscellaneous Organic	Activated Carbon
Nitrobutyl)morpholine	100801	Heterocyclic	Activated Carbon
Ethyl–2–nitrotrimethylene) dimorpholine	100802	Heterocyclic	Activated Carbon
Tolyl diiodomethyl sulfone	101002	Thiosulfonate	Activated Carbon
Isobutyric acid	101502	Alkyl Acid	Activated Carbon
Dibromo–3–nitrilopropionamide	101801	Acetamide	Activated Carbon
Polyethoxylated oleylamine	101901	Acetamide	Activated Carbon
Dinitramine (ANSI)	102301	Nitrobenzoate	Activated Carbon
Phenylethyl propionate	102601	Phenylcrotonate	Activated Carbon
Eugenol	102701	Phenol	Activated Carbon
Tricosene	103201	Miscellaneous Organic	Activated Carbon
Tricosene	103202	Miscellaneous Organic	Activated Carbon
Sodium 1,4',5'–trichloro–2'–(2,4,5– trichlorophenoxy) methanes	104101	2,4–D	Activated Carbon
Hexahydro–1,3, 5–tris(2– hydroxypropyl)–s–triazine	105601	s–Triazine	Activated Carbon
Methazole	106001	Hydrazide	Activated Carbon
Difenzoquat methyl sulfate	106401	Hydrazide	Activated Carbon
Butralin	106501	Benzeneamine	Activated Carbon
Fosamine ammonium	106701	Carbamate	Activated Carbon

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Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Asulam	106901	Carbamate	Activated Carbon
Sodium asulam	106902	Carbamate	Activated Carbon
Hydroxymethoxymethyl–1–aza–3, 7–dioxabicyclo(3.3.0)octane	107001	Bicyclic	Activated Carbon
Hydroxymethyl–1–aza–3, 7– dioxabicyclo(3.3.0)octane	107002	Bicyclic	Activated Carbon
Hydroxypoly (methyleneoxy)* methyl–1–aza–3,7– dioxabicyclo(3.3)	107003	Bicyclic	Activated Carbon
Chloro–2–methyl–3 (2H)– isothiazolone	107103	Heterocyclic	Activated Carbon
Methyl–3 (2H)–isothiazolone	107104	Heterocyclic	Activated Carbon
Trimethoxysilyl)propyl dimethyl octadecyl ammonium chloride	107401	NR4	Activated Carbon
Kinoprene	107502	Ester	Activated Carbon
Triforine (ANSI)	107901	Hydrazide	Activated Carbon
Pirimiphos–methyl (ANSI)	108102	Phosphorothioate	Activated Carbon
Thiobencarb	108401	Thiocarbamate	Activated Carbon
Ancymidol (ANSI)	108601	Pyrimidine	Activated Carbon
Oxadiazon (ANSI)	109001	Hydrazide	Activated Carbon
Mepiquat chloride	109101	NR4	Activated Carbon
Fluvalinate	109302	Toluamide	Activated Carbon
Chloro–N– (hydroxy– methyl)acetamide	109501	Acetamide	Activated Carbon
Dikegulac sodium	109601	Tricyclic	Activated Carbon
Iprodione (ANSI)	109801	Hydrazide	Activated Carbon
Phenylmethyl)–9–(tetrahydro–2H–pyran–2–yl)–9H–purin–6–amine	110001	Pyrimidine	Activated Carbon
Prodiamine	110201	Benzeneamine	Activated Carbon
Erioglaucine	110301	Benzeneamine	Activated Carbon
Tartrazine	110302	Hydrazide	Activated Carbon
Dodemorph acetate	110401	Heterocyclic	Activated Carbon
Ethofumesate (ANSI)	110601	Bicyclic	Activated Carbon
Aldoxycarb (ANSI)	110801	Carbamate	Activated Carbon
Diclofop–methyl	110902	Aryl Halide	Activated Carbon
Bromo–1–(bromomethyl)–1,3– propanediCarbon.itrile	111001	Isocyanate	Activated Carbon
Poly (imino imidocarbonyli minoimidocarbony liminohexameth ylene).	111801	Polymer	Activated Carbon
Imazalil	111901	Aryl Halide	Activated Carbon
Bromadiolone	112001	Coumarin	Activated Carbon
Brodifacoum	112701	Coumarin	Activated Carbon
Bromethalin (ANSI)	112802	Aryl Amine	Activated Carbon
Fluridone (ANSI)	112900	Aryl Halide	Activated Carbon
Vinclozolin	113201	Aryl Halide	Activated Carbon
Metalaxyl	113501	Benzeneamine	Activated Carbon
Propetamphos (ANSI)	113601	Phosphoroamidothioate	Activated Carbon
Methyl–1–naphthyl)maleimide	113701	Phthalamide	Activated Carbon
Hexadecadien–1–yl acetate	114101	Ester	Activated Carbon

Part B
Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Hexadecadien–1–yl acetate	114102	Ester	Activated Carbon
Epoxy–2–methyloctadecane	114301	Heterocyclic	Activated Carbon
Thiodicarb (ANSI)	114501	Thiocarbamate	Activated Carbon
Dimethyloxazolidine (8CA & 9CA)	114801	Heterocyclic	Activated Carbon
Trimethyloxazolidine	114802	Heterocyclic	Activated Carbon
Hydroxyphenyl) oxoace–tohydroximic chloride	114901	Phenol	Activated Carbon
EEEBC	115001	Carbamate	Activated Carbon
MDM Hydantoin	115501	Hydrazide	Activated Carbon
DMDM Hydantoin	115502	Hydrazide	Activated Carbon
Triclopyr (ANSI)	116001	Pyridine	Activated Carbon
Triethylamine triclopyr	116002	Pyridine	Activated Carbon
Butoxyethyl triclopyr	116004	Pyridine	Activated Carbon
Decenyl) dihydro–2(3H)–furanone	116501	Ester	Activated Carbon
Cytokinins	116801	Toluidine	Activated Carbon
Benzyladenine	116901	Pyrimidine	Activated Carbon
Clopyralid, monoethanolamine salt	117401	Pyridine	Activated Carbon
Clopyralid (ANSI)	117403	Pyridine	Activated Carbon
Flucythrinate (ANSI)	118301	Pyrethrin	Activated Carbon
Hydramethylnon (ANSI)	118401	Iminimide	Activated Carbon
Chlorsulfuron	118601	s–Triazine	Activated Carbon
Dimethipin	118901	Heterocyclic	Activated Carbon
Hexadecenal	120001	Miscellaneous Organic	Activated Carbon
Tetradecenal	120002	Miscellaneous Organic	Activated Carbon
Thidiazuron	120301	Urea	Activated Carbon
Metronidazole	120401	Hydrazide	Activated Carbon.
Erythrosine B	120901	Tricyclic	Activated Carbon
Sethoxydim	121001	Cyclic Ketone	Activated Carbon
Clethodim	121011	Heterocyclic	Activated Carbon
Cyromazine	121301	s–Triazine	Activated Carbon
Tralomethrin	121501	Pyrethrin	Activated Carbon
Azadirachtin	121701	Tricyclic	Activated Carbon
Tridecen–1–yl acetate	121901	Ester	Activated Carbon
Tridecen–1–yl acetate	121902	Ester	Activated Carbon
Sulfometuron methyl	122001	Pyrimidine	Activated Carbon
Metsulfuron–methyl	122010	s–Triazine	Activated Carbon
Propiconazole	122101	Aryl Halide	Activated Carbon
Furanone, dihydro–5–pentyl	122301	Cyclic Ketone	Activated Carbon
Furanone, 5–heptyldihydro	122302	Cyclic Ketone	Activated Carbon
Abamectin (ANSI)	122804	Tricyclic	Activated Carbon
Fluazifop–butyl	122805	Pyridine	Activated Carbon
Fluazifop–R–butyl	122809	Pyridine	Activated Carbon
Flumetralin	123001	Nitrobenzoate	Activated Carbon
Fosetyl–Al	123301	Phosphate	Activated Carbon

Part B
Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Methanol, (((2–(dihydro–5–methyl–3(2H)–oxazolyl)–1– methyl)et.	123702	Heterocyclic	Activated Carbon
Fomesafen	123802	Nitrobenzoate	Activated Carbon
Tridiphane	123901	Aryl Halide	Activated Carbon
POE isooctadecanol	124601	Alcohol	Activated Carbon
Periplanone B	124801	Bicyclic	Activated Carbon
Fenoxycarb	125301	Carbamate	Activated Carbon
Clomazone	125401	Aryl Halide	Activated Carbon
Clofentezine	125501	Aryl Halide	Activated Carbon
Paclobutrazol	125601	Hydrazide	Activated Carbon
Flurprimidol	125701	Pyrimidine	Activated Carbon
Isoxaben	125851	Heterocyclic	Activated Carbon
Isazofos	126901	Phosphorothioate	Activated Carbon
Triadimenol	127201	Hydrazide	Activated Carbon
Fenpropathrin	127901	Pyrethrin	Activated Carbon
Sulfosate	128501	Phosphorothioate	Activated Carbon
Fenoxaprop–ethyl	128701	Heterocyclic	Activated Carbon
Quizalofop–ethyl	128711	Phthalimide	Activated Carbon
Bensulfuron–methyl	128820	Pyrimidine	Activated Carbon
Imazapyr	128821	Hydrazide	Activated Carbon
Bifenthrin	128825	Pyrethrin	Activated Carbon
Imazapyr, isopropylamine salt	128829	Hydrazide	Activated Carbon
Sodium salt of 1–carboxy-methyl–3,5,7–triaza–1–azoniatricyclo	128832	s–Triazine	Activated Carbon
Linalool	128838	Alcohol	Activated Carbon
Imazaquin, monoammonium salt	128840	Pyrimidine	Activated Carbon
Imazethabenz	128842	Pyrimidine	Activated Carbon
Thifensulfuron methyl	128845	s–Triazine	Activated Carbon
Imazaquin	128848	Pyrimidine	Activated Carbon
Myclobutanil (ANSI)	128857	s–Triazine	Activated Carbon
Zinc borate (3ZnO, 2B03, 3.5H2O; mw 434.66)	128859	Metallic	Precipitation
Cyhalothrin	128867	Pyrethrin	Activated Carbon
Potassium cresylate	128870	Phenol	Activated Carbon
Triflumizole	128879	Toluidine	Activated Carbon
Tribenuron methyl	128887	s–Triazine	Activated Carbon
Cyhalothrin	128897	Pyrethrin	Activated Carbon
Chlorimuron–ethyl	128901	Pyrimidine	Activated Carbon
Dodecen–1–yl acetate	128906	Ester	Activated Carbon
Dodecen–1–yl acetate	128907	Ester	Activated Carbon
DDOL	128908	Alcohol	Activated Carbon
Farnesol	128910	Alcohol	Activated Carbon
Nerolidol	128911	Alcohol	Activated Carbon
Tefluthrin	128912	Pyrethrin	Activated Carbon
Bromoxynil heptanoate	128920	Chloropropionanilide	Activated Carbon

Part B
Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Imazethapyr	128922	Pyrimidine	Activated Carbon
Imazethapyr, ammonium salt	128923	Pyrimidine	Activated Carbon
Chitosan	128930	Polymer	Activated Carbon
Sulfuric acid, monourea adduct	128961	Urea	Activated Carbon
Hydroprene	128966	Miscellaneous Organic	Activated Carbon
Triasulfuron	128969	Urea	Activated Carbon
Primisulfuron–methyl	128973	Urea	Activated Carbon
Uniconazole (ANSI)	128976	s–Triazine	Activated Carbon
Tetradecenyl acetate	128980	Miscellaneous Organic	Activated Carbon
Chitin	128991	Polymer	Activated Carbon
Sulfluramid	128992	Sulfonamide	Activated Carbon
Dithiopyr (ANSI)	128994	Pyridine	Activated Carbon
Nicosulfuron	129008	Pyrimidine	Activated Carbon
Zinc	129015	Metallic	Precipitation
Tetradecen–1–ol, acetate, (E)–	129019	Alkyl Acid	Activated Carbon
Imazaquin, sodium salt	129023	Pyrimidine	Activated Carbon
Dodecadien–1–ol	129028	Alcohol	Activated Carbon
Ionone	129030	Miscellaneous Organic	Activated Carbon
Dicamba, aluminum salt	129042	Aryl Halide	Activated Carbon
Benzenemethanaminium, N–(2–((2,6–dimethylphenyl)amino)–2–oxo	129045	NR4	Activated Carbon
Fenoxaprop–p–Ethyl	129092	Tricyclic	Activated Carbon
Alkyl* bis(2–hydroxyethyl) ammonium acetate *(as in fatty ac.	169103	NR4	Activated Carbon
Alkenyl* dimethyl ammonium acetate *(75% C18', 25% C16')	169104	NR4	Activated Carbon
Amines, N–coco alkyltrimethylenedi–, adipates	169109	Iminamide	Activated Carbon
Dialkyl* dimethyl ammonium bentonite *(as in fatty acids of	169111	NR4	Activated Carbon
Alkyl* bis(2–hydroxyethyl) amine acetate *(65% C18, 30% C16,	169125	Acetamide	Activated Carbon
Dodecyl bis(hydroxy ethyl) dioctyl ammonium phosphate	169154	NR4	Activated Carbon
Dodecyl bis(2–hydroxyethyl) octyl hydrogen ammonium phosphat	169155	NR4	Activated Carbon
Didecyl – N – methyl – 3 – (trimethoxysilyl) propanaminium chloride	169160	NR4	Activated Carbon
Cholecalciferol	202901	Bicyclic	Activated Carbon
Use code no. 202901 (Vitamin D3)	208700	Bicyclic	Activated Carbon
Alkyl* N,N–bis(2– hydroxyethyl)amine *(100% C8– C18)	210900	NR4	Activated Carbon
Bromo–2–nitropropane–1,3–diol	216400	Alcohol	Activated Carbon
Use code no. 114601 (cyclohexyl–4, 5–dichloro– 4–isothioazolin– 3–one)	229300	Heterocyclic	Activated Carbon
Diethatyl ethyl	279500	Toluidine	Activated Carbon

Part B
Appropriate Treatment Technologies for Compounds Without Pesticide Active Ingredient (PAI) Codes

PAI Name[2]	Shaughnessy Code[4]	Structural Group[5]	Treatment Technology
Hydroprene (ANSI)	486300	Miscellaneous Organic	Activated Carbon
Zinc sulfate monohydrate	527200	Metallic	Precipitation
Geraniol	597501	Alcohol	Activated Carbon

Notes:

1. The 272 Pesticide Active Ingredients (PAIs) are listed first in Part A of the table by PAI code, followed by the non−272 PAIs from the 1988 FIFRA and TSCA Enforcement System (FATES) Database, which are listed in part B of the table in Shaughnessy code order. PAIs that were exempted or reserved from the USEPA's pesticide formulating, packaging and repackaging industry (PFPR) effluent guidelines are not listed in the table.

2. The non−272 PAI names are taken directly from the 1988 FATES database. Several of the PAI names are truncated because the PAI names listed in the FATES database are limited to 60 characters.

3. The non−272 PAIs do not have PAI codes.

4. All Shaughnessy codes are taken from the 1988 FATES database. Some of the 272 PAIs are not listed in the 1988 FATES database; therefore, no Shaughnessy codes are listed for these PAIs.

5. Structural groups are based on an analysis of the chemical structures of each PAI.

6. EPA has also received data indicating that acid hydrolysis may also be effective in treating this PAI.

* This PAI code represents a category or group of PAIs; therefore, it has multiple Shaughnessy code [61 FR 57554, Nov. 6, 1996]