

DRAFT Label Review section of Human Health and Environmental Concerns for the Products Registered in Maine with Directions for Public Health Adult Mosquito Control, LRH July 18, 2013

Products

In an effort to summarize the potential for human and environmental hazards associated with public health mosquito abatement programs a product search for Maine 2013 registration, followed by a search for active federal registrations for public health mosquito adulticide products. The search terms included: adult mosquito, and aerial or ultra-low volume (ULV) (NSPIR 2013).

For clarity and purposes of discussion, the products described here are defined by their EPA number instead of brand names. The first two sections of the EPA number indicate the company and the product number, these are the same for the same formulations distributed (sold) by the company making and distributing the products. If there is a distributor other than the company who owns the product a third portion to the EPA number is added, this is the federal company number for the distributor. The public health wide area mosquito adulticides are presented alphabetically by primary active ingredient with diluent and chemical class in Table 1. There are 24 products and several have more than one brand name. The only product in Table 1, with a distributor number is EPA number 1021-1688 made by McLaughlin Gormley King (MGK) and distributed by Clarke Mosquito Control under the EPA number 1021-1688-8329.

Three other synergized- pyrethroid products, not currently registered in Maine, and were identified in discussions with Vermont Department of Health (Hoffman personal communication). These are variations on the MGK phenothrin-PBO product which is marketed as Anvil by Clarke mosquito. These products will be included in this review and are:

- *Aqua Anvil, water based:* MGK's Fogging Concentrate 2807 (EPA# 1021-1807), Aqua Anvil (EPA# 1021-1870-8329), 10% phenothrin, 10 % PBO, marketed by Clarke mosquito designed to be diluted in water
- *Duet, oil based:* MGK's Multicide Fogging Concentrate 2798(EPA# 1021-1795) marketed by Clarke Mosquito as Duet (EPA# 1021-1795-8329), 5% phenothrin, 5 % PBO, 1% Prallethrin, designed to be diluted in oil
- *Aqua Duet, water based:* MGK's Fogging Concentrate 2922 (EPA# 1021-2562) marketed by Clarke Mosquito as Aqua Duet (EPA# 1021-2562-8329), 5% phenothrin, 5 % PBO, 1% Prallethrin, designed to be diluted in water

For those ME-2013 registered products identified by the search, the federally approved labels was done to identify products with *"For use only by federal, state, tribal, or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise, authorized by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications, or by persons under their direct supervision"* on their labels. Portions of the pesticide product labels addressing human health and environmental risks were identified and extracted from the most current EPA approved federal label for the ME-2013 registered products.

The maximum use rates for public health mosquito adulticide are presented in Table 2.

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Because there may be federally registered products, not currently registered in Maine a search of federally active products was done using the same criteria as the state registered products. The federal search identified 108 products, 24 of which are currently registered Maine. Of the remaining 84 products, 78 have the same mosquito adulticide active ingredients as those registered in Maine-2013. Under the assumption that rates and label hazard information, and use restrictions would be identical to those ME-2103 registered products, these labels were not reviewed.

The other six products, may be registered in Maine -2013, but do not have public health mosquito control uses on their labels. Four of these contain the active ingredients carbaryl (one home owner ()); three agricultural products), 2 contain the synthetic pyrethroid, lambda cyhalothrin. Wide area mosquito adulticiding public health uses are not on these federal labels (Bayer 2009, Tessendro-Kerley 2012, Tessendro-Kerley 2013, Loveland Chemical 2011, Syngenta 2010, LG Lifesciences 2009).

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Table 1. Public Health Adult Mosquito Products Registered in Maine for 2013 sorted by Active Ingredient (NSPIRS 2013, Label Review)					
Brand Names	EPA REG #	Active Ingredients	Chemical Class	Diluent	References
Pyrofos 1.5 ULV ^(a) Vector Control Insecticide	53883-251	19.36% Chlorpyrifos	Organophosphate	Oil	Control Solutions 2009a, Control Solutions 2009b
Zenivex E4 RTU ^(b)	2724-807	4% Etofenprox	Pyrethroid	Ready to use	Wellmark 2010a, Wellmark 2010b
Zenivex E20	2724-791	20% Etofenprox	Pyrethroid	Oil	Wellmark 2010c, Wellmark 2010d
Fyfanon ULV	67760-34	96.5% Malathion	Organophosphate	Oil	Cheminova 2011a, Cheminova 2011b
Dibrom 8 Emulsive	5481-479	62% Naled	Organophosphate	Water	AMVAC 20012a, AMVAC 20012b
Trumpet EC	5481-481	78% Naled	Organophosphate	Ready to use	AMVAC 2010a, AMVAC 2010b
Dibrom Conc	5481-480	87.4% Naled	Organophosphate	Oil	AMVAC 2009a, AMVAC 2009b
Masterline Kontrol 2-2	73748-3	2% Permethrin	Pyrethroid	Ready to use	Univar 2013a, Univar 2013b
		2% PBO ^(d)	Synergist		
Prentox Perm-X UL 4-4	655-898	4% Permethrin	Pyrethroid	Oil	Prentiss 2012a, Prentiss 2012b
		4% PBO	Synergist		
Masterline Kontrol 4-4	73748-4	4.6% Permethrin	Pyrethroid	Oil	Univar 2013c, Univar 2013d
		4.6% PBO	Synergist		

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Brand Names	EPA REG #	Active Ingredients	Chemical Class	Diluent	References
Aqua Permanone: Aqua-Reslin	432-796	20% Permethrin	Pyrethroid	Water	Bayer 2013a, Bayer 2013b
		20% PBO	Synergist		
Masterline AQUA Kontrol	73748-1	20% Permethrin	Pyrethroid	Water	Univar 2013e, Univar 2013f
		20% PBO	Synergist		
PBO/Permethrin: Vector flex 20:20	53883-274	20.6% Permethrin	Pyrethroid	Oil or Water	Control Solutions 2010a, Control Solutions 2010b
		20.6% PBO	Synergist		
Omen 30-30, Permanone 30-30	432-1235	30% Permethrin	Pyrethroid	Oil	Bayer 2011c, Bayer 2011d
		30% PBO	Synergist		
Prentox Perm-X UL 30-30	655-811	30% Permethrin	Pyrethroid	Oil	Prentiss 2012c, Prentiss 2012d
		30% PBO	Synergist		
Masterline Kontrol 30-30	73748-5	30% Permethrin	Pyrethroid	Oil	Univar 2013g, Univar 2013h
		30% PBO	Synergist		
Prentox Perm-X UL 31-66	655-812	31% Permethrin	Pyrethroid	Oil	Prentiss 2012e, Prentiss 2012f
		66% PBO	Synergist		
Permanone Insecticide Concentrate, Permanone 31-66	432-1250	31.28% Permethrin	Pyrethroid	Oil	Bayer 2011e, Bayer 2011f
		66% PBO	Synergist		
MULTICIDE® Mosquito Adulticiding Concentrate 2705, Anvil 10+10 ULV	1021-1688, 1021-1688-8329 ^(d)	10% Phenothrin ^(e)	Pyrethroid	Oil	MGK ^(f) 2012a, Clarke Mosquito Control 2013
		10% PBO	Synergist		

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Pyrocide 7067	1021-1199	5% Pyrethrins	Pyrethrins	Oil	MGK 2013a, MGK 2013b
		25% PBO	Synergist		
Pyrocide 7396	1021-1569	5% Pyrethrins	Pyrethrins	Oil	MGK 2013c, MGK 2013d
		25% PBO	Synergist		
Pyrocide 7395	1021-1570	12% Pyrethrins	Pyrethrins	Oil	MGK 2012b, MGK 2012c
		60% PBO	Synergist		
Scourge I	432-716	4.14% Resmethrin	Pyrethroid	Oil	Bayer 2012a, Bayer 2012b
		12.42% PBO	Synergist		
Scourge II	432-667	18% Resmethrin	Pyrethroid	Oil	Bayer 2012c, Bayer 2012d
		54% PBO	Synergist		

- a) ULV = Ultra-low Volume
- b) RTU = Ready to use
- c) Phenothrin = Sumithrin
- d) 8329 is the company number for Clarke Mosquito Products. They distribute MGK’s Multicide Mosquito Adulticiding Concentrate 2705 as Anvil 10+10
- e) PBO = Piperonyl butoxide, pesticide synergist
- f) MGK = McLaughlin Gormley King

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Table 2. Use Rates (lbs ai/A and lbs ai/A/year) for Public Health Adult Mosquito Products Registered in Maine for 2013			
Active Ingredients	Rate (lbs ai/A)	Annual Rate (lbs ai/A/year)	Reference
Chlorpyrifos	0.01	0.26	Control Solutions 2009a, Control Solutions 2009b
Etofenprox	0.007	0.18	Wellmark2010a, EPA 2009a
Malathion (air)	0.23	Not more than 3 times in any one week. More frequent treatments may be to control mosquito-borne diseases in animals or humans	Cheminova 2011a, EPA 2004a, EPA 2009b
Malathion (ground)	0.11		
Naled (air and ground)	0.1	10.73	AMVAC 2010a
Permethrin	0.007	0.18	Bayer 2011f, EPA 2009c
Phenothrin (Sumithrin),	0.0036	1	MGK 2012a, EPA 2007, EPA 2008
PBO	0.08	2	EPA 2004b
Pyrethrins	0.008	0.2	MGK 2013a, EPA 2006b
Resmethrin	0.007	0.2	Bayer 2012a

References

- AMVAC 2009a, Dibrom Concentrate, EPA# 5481-480, containing 87.4% naled, EPA Label
- AMVAC 2009b, Dibrom Concentrate, EPA# 5481-480, containing 87.4% naled, ME-2013 Label
- AMVAC 2010a, Trumpet EC Insecticide, EPA# 5481-481, containing 78% naled, EPA Label
- AMVAC 2010b, Trumpet EC Insecticide, EPA# 5481-481, containing 78% naled, ME-2013 Label
- AMVAC 2012a, Dibrom 8 Emulsive, EPA# 5481-479, containing 62%, naled, EPA Label
- AMVAC 2012b, Dibrom 8 Emulsive, EPA# 5481-479, containing 62%, naled, ME-2013 Label
- Bayer CropSciences 2009, Sevin Brand RP4 Carbaryl Insecticide, EPA# 264-335, containing 43% Carbaryl EPA Label
- Bayer Environmental Services 2011a, Aqua-Permanone, EPA# 432-796, containing 20% permethrin-20% PBO, EPA Label
- Bayer Environmental Services 2011b, Aqua-Reslin, EPA# 432-796, containing 20% permethrin-20% PBO, ME-2013 Label
- Bayer Environmental Services 2011c, Omen 30-30 ULV, EPA# 432-1235, containing 30% permethrin-30% PBO, EPA Label
- Bayer Environmental Services 2011d, Permanone 30-30, EPA# 432-1235, containing 30% permethrin-30% PBO, ME-2013 Label
- Bayer Environmental Services 2011e, Permanone Insecticide Concentrate, EPA# 432-1250, containing 31.28% permethrin-66% PBO, EPA Label
- Bayer Environmental Services 2011f, Permanone 31-66, EPA# 432-1250, containing 31.28% permethrin-66% PBO, ME-2013 Label
- Bayer Environmental Services 2012a, Scourge Insecticide w/ Resmethrin/Piperonyl Butoxide 4%+12% MF FII, EPA# 432-716, containing 4.14% resmethrin-12.42% PBO, EPA Label
- Bayer Environmental Services 2012b, Scourge Insecticide w/ Resmethrin/Piperonyl Butoxide 4%+12% MF FII, EPA# 432-716, containing 4.14% resmethrin-12.42% PBO ME-2013 Label
- Bayer Environmental Services 2012c, Scourge Insecticide w/ Resmethrin/Piperonyl Butoxide 18% + 54% MF FII, EPA# 432-667, containing 18% resmethrin-54% PBO, EPA Label
- Bayer Environmental Services 2012d, Scourge Insecticide w/ Resmethrin/Piperonyl Butoxide 18% + 54% MF FII, EPA# 432-667, containing 18% resmethrin-54% PBO, ME-2013 Label
- Cheminova 2011a, Fyfanon ULV Mosquito Insecticide, EPA# 67760-34, containing 96.5% malathion, EPA Label
- Cheminova 2011b, Fyfanon ULV Mosquito Insecticide, EPA# 67760-34, containing 96.5% malathion, ME-2013 Label
- Clarke Mosquito Control 2013a, Anvil 10+10 ULV, EPA# 1021-1688-8329, containing 10% sumithrin (phenothrin)-10% PBO, ME-2013 Label

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Clarke Mosquito Control 2013b, Duet EPA# 1021-1795-8329, containing 1% Prallethrin 5% sumithrin (phenothrin)-5% PBO, Label from Clarke mosquito Website:
http://www.clarke.com/index.php?option=com_content&view=category&layout=blog&id=47&Itemid=126

Clarke Mosquito Control 2013c, Aqua Anvil Water Based Adulticide, EPA# 1021-1807-8329, containing 10% sumithrin (phenothrin)-10% PBO, Label from Clarke mosquito Website:
http://www.clarke.com/index.php?option=com_content&view=category&layout=blog&id=47&Itemid=126

Clarke Mosquito Control 2013d, Aqua Duet, EPA# 1021-2562, containing 1% Prallethrin 5% sumithrin (phenothrin)-5% PBO, Label from Clarke mosquito Website:
http://www.clarke.com/index.php?option=com_content&view=category&layout=blog&id=47&Itemid=126

Control Solutions 2010a, PBO/Permethrin 20:20, EPA# 53883-274, containing 20.6% permethrin-20.6% PBO, EPA Label

Control Solutions 2010b, Vector-Flex 20:20, EPA# 53883-274, containing 20.6% permethrin,-20.6% PBO, ME-2013 Label

Control Solutions 2009a, Pyrofos, EPA# 53883-251, containing 19.36% chlorpyrifos (1.5 lbs/gal) EPA Label

Control Solutions 2009b, Pyrofos, EPA# 53883-251, containing 19.36% chlorpyrifos (1.5 lbs/gal) ME-2013 Label

LG Lifesciences 2009, Lamdastar 1 CS-PCO, EPA# 71532-27, containing 12% lambda cyhalothrin Fed Label

Loveland Chemical 2011, Carbaryl 4L, EPA# 34704-447, containing 43% Carbaryl EPA-Label

McLaughlin Gromley King 2012a, Pyroicide Mosquito Adulticiding Concentrate for ULV Fogging 7395, EPA# 1021-1570, containing 12% pyrethrins-60% PBO, ME-2013 Label

McLaughlin Gromley King 2012b, Pyroicide Mosquito Adulticiding Concentrate for ULV Fogging 7395, EPA# 1021-1570, containing 12% pyrethrins-60% PBO, EPA Label 2012

McLaughlin Gromley King 2012c, Multicide Mosquito Adulticiding Concentrate for ULV Fogging 2705, EPA# 1021-1688, containing 10% sumithrin (phenothrin)-10% PBO, EPA-2012 Label

McLaughlin Gromley King 2012d, Multicide Mosquito Adulticiding Concentrate for ULV Fogging 2795, EPA# 1021-1795, containing 1% Prallethrin 5% sumithrin (phenothrin)-5% PBO, EPA-2012 Label

McLaughlin Gromley King 2012c, Multicide Mosquito Adulticiding Concentrate for ULV Fogging 2705, EPA# 1021-1807, containing 10% sumithrin (phenothrin)-10% PBO, EPA-2012 Label

McLaughlin Gromley King 2012d, Multicide Mosquito Adulticiding Concentrate for ULV Fogging 2795, EPA# 1021-2562, containing 1% Prallethrin 5% sumithrin (phenothrin)-5% PBO, EPA-2012 Label

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McLaughlin Gromley King 2013a, Pyroicide Fogging Formula 7067, EPA# 1021-1199, containing 5% pyrethrins-25% PBO, EPA Label

McLaughlin Gromley King 2013b, Pyroicide Fogging Formula 7067, EPA# 1021-1199, containing 5% pyrethrins -25% PBO, ME-2013 Label

McLaughlin Gromley King 2013c, Pyroicide Mosquito Adulticiding Concentrate for ULV Fogging 7396, EPA# 1021-1569, containing 5% pyrethrins-25% PBO, EPA Label

McLaughlin Gromley King 2013d, Pyroicide Mosquito Adulticiding Concentrate for ULV Fogging 7396, EPA# 1021-1569, containing 5-pyrethrins-,25% PBO, ME-2013 Label

Prentiss 2012a, Prentox Perm-X UL 4-4, EPA# 655-898, containing 4% permethrin-4% PBO, EPA Label

Prentiss 2012b, Prentox Perm-X UL 4-4, EPA# 655-898, containing 4% permethrin-4% PBO, ME-2013 Label

Prentiss 2012c, Prentox Perm-X UL 30-30, EPA# 655-811, containing 30% permethrin, 30% PBO, EPA Label

Prentiss 2012d, Prentox Perm-X UL 30-30, EPA# 655-811, containing 30% permethrin-30% PBO, ME-2013 Label

Prentiss 2012e, Prentox Perm-X UL 31-66, EPA# 655-812, containing 31% permethrin-66% PBO, EPA Label

Prentiss 2012f, Prentox Perm-X UL 31-66, EPA# 655-812, containing 31% permethrin-66% PBO, ME-2013 Label

Syngenta 2010, Demand Pest Tabs, EPA# 100-1082, containing 10% lambda-cyhalothrin, EPA Label

Tessendro-Kerley 2013 Sevin Brand 85 Sprayable Carbaryl Insecticide, EPA# 61842-33, containing 85% Carbaryl, EPA-Label

Tessendro-Kerley 2012 Sevin Brand 4F Carbaryl Insecticide, PA# 61842-38, containing 43% Carbaryl, EPA-Label

Univar Environmental Services 2013a, Masterline Kontrol 2-2, EPA# 73748-3, containing 2% permethrin-2% PBO, EPA Label

Univar Environmental Services 2013b, Masterline Kontrol 2-2, EPA# 73748-3, containing 2% permethrin-2% PBO, ME-2013 Label

Univar Environmental Services 2013c, Masterline Kontrol 4-4, EPA# 73748-4, containing 4.6% permethrin-4.6% PBO, EPA Label

Univar Environmental Services 2013d, Masterline Kontrol 30-30 Concentrate, EPA# 73748-5, containing 30% permethrin-30%PBO, EPA Label

Univar Environmental Services 2013e, Masterline Kontrol 4-4, EPA# 73748-4, containing 4.6% permethrin-4.6% PBO, ME-2013 Label

Univar Environmental Services 2013f, Masterline Kontrol 30-30 Concentrate, EPA# 73748-5, containing 30% permethrin-30, PBO, ME-2013 Label

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Univar Environmental Services 2013g, Masterline Aqua Kontrol Concentrate, EPA# 73748-1, containing 20% permethrin-20% PBO, EPA Label

Univar Environmental Services 2013h, Masterline Aqua Kontrol Concentrate, EPA# 73748-1, containing 20% permethrin-20% PBO, ME-2013 Label

Wellmark International 2010a, Zenivex E4 RTU, EPA# 2724-807, containing 4% etofenprox, EPA Label

Wellmark International 2010b, Zenivex E4 RTU, EPA# 2724-807, containing 4% etofenprox, ME-2013 Label

Wellmark International 2010c, Zenivex E20, EPA# 2724-791, containing 20% etofenprox, EPA Label

Wellmark International 2010d, Zenivex E20, EPA# 2724-791, containing 20% etofenprox, ME-2013 Label