APPENDIX 1a – SUMMARY OF APPLICATION METHOD ADJUSTMENT FACTORS AND METHOD USE FRACTIONS

Table A1 - 1. Application Method Adjustment Factors for 2004 - 2007.

	AMAF					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam**	**Dazomet**	**Na Tetrathio carbonate**
Shallow injection w/ high permeability tarp or no tarp-broadcast	61*	64*	74*	not applicable	not applicable	not applicable
Shallow injection w/ low permeability tarp-broadcast	not applicable	44	48	not applicable	not applicable	not applicable
Shallow injection w/ high permeability tarp or no tarp-bed	not applicable	64*	100*	77*	not applicable	not applicable
Shallow injection w/ low permeability tarp-bed	not applicable	64*	100*	not applicable	not applicable	not applicable
Shallow injection w/ water treatments	41	20	not applicable	21	not applicable	not applicable
Shallow injection w/ soil cap	not applicable	not applicable	not applicable	14	not applicable	not applicable
Deep injection w/ high permeability tarp or no tarp-broadcast	41	64*	74*	not applicable	not applicable	not applicable
Deep injection w/ low permeability tarp-broadcast	not applicable	44	48	not applicable	not applicable	not applicable
Deep injection w/ water treatments	27	20	not applicable	not applicable	not applicable	not applicable
Rotovate/rototill	not applicable	not applicable	not applicable	14	17	not applicable
Sprinkler	not applicable	not applicable	not applicable	77*	not applicable	10
Sprinkler w/ water treatments	not applicable	not applicable	not applicable	21	not applicable	not applicable
Flood	not applicable	not applicable	not applicable	77*	not applicable	10
Drip w/ high permeability tarp or no tarp	29	not applicable	not applicable	9	not applicable	10
Drip w/ low permeability tarp	not applicable	15	not applicable	9	not applicable	not applicable
Non-field soil (structural/post-harvest)	not applicable	100	100	not applicable	not applicable	not applicable

* These are considered "high-emission" fumigation methods and are prohibited within the San Joaquin Valley, Southeast Desert, and Ventura NAAs during May-October.

Table A1 - 2. 1990 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		42	37			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		42	36	3		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast		16	14			
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill				2	100	
Sprinkler				55		33
Sprinkler w/ water treatments						
Flood				10		33
Drip w/ high permeability tarp or no tarp				10		34
Drip w/ low permeability tarp				5		
Non-field soil (structural/post-harvest)			13			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 3. 1990 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		29	29			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		29	29	8		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				25		
Deep injection w/ high permeability tarp or no tarp-broadcast		42	42			
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill				3	100	
Sprinkler				60		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				2		34
Drip w/ low permeability tarp				2		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 4. 1990 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	35			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	34	10		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				30		33
Sprinkler w/ water treatments						
Flood				50		33
Drip w/ high permeability tarp or no tarp				5		34
Drip w/ low permeability tarp				5		
Non-field soil (structural/post-harvest)			31			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 5. 1990 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	49			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	49	20		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				50		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				15		34
Drip w/ low permeability tarp				15		
Non-field soil (structural/post-harvest)			3			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 6. 1990 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D[2]**	**Chloropicrin**	**Methyl Bromide**	**Metam[3]**	**Dazomet**	**Na Tetrathio carbonate[4]**
Shallow injection w/ high permeability tarp or no tarp-broadcast		50	3			
Shallow injection w/ low permeability tarp-broadcast						
Shallow injection w/ high permeability tarp or no tarp-bed		50	3	20		
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				50		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp				15		34
Drip w/ low permeability tarp				15		
Non-field soil (structural/post-harvest)			95			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] Use of 1,3-D was suspended in early 1990.
[3] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[4] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 7. 2005 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	99					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 8. 2005 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	2					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	97	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 9. 2005 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		88	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	10					
Deep injection w/ low permeability tarp-broadcast			1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	90	5		7		34
Drip w/ low permeability tarp		5		12		
Non-field soil (structural/post-harvest)		2	2.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 10. 2005 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	1					
Shallow injection w/ low permeability tarp-broadcast		67	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	4					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	95			5		34
Drip w/ low permeability tarp		33		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 11. 2005 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	2					
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	98			5		34
Drip w/ low permeability tarp		24		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 12. 2006 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	3					
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	95					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	2			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 13. 2006 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	2					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	97	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	1			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 14. 2006 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		88.0	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	16					
Deep injection w/ low permeability tarp-broadcast		0.2	1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	84	5.0		7		34
Drip w/ low permeability tarp		5.0		12		
Non-field soil (structural/post-harvest)		2.0	2.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 15. 2006 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		67.0	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	7					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	93			5		34
Drip w/ low permeability tarp		33.0		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 16. 2006 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40.0	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36.0	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	100			5		34
Drip w/ low permeability tarp		24.0		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 17. 2007 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.0					
Shallow injection w/ low permeability tarp-broadcast		56.0	11.3			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed		33.0	6.3			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				15		
Deep injection w/ high permeability tarp or no tarp-broadcast	99.9					
Deep injection w/ low permeability tarp-broadcast			11.4			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				45		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	0.1			9		34
Drip w/ low permeability tarp		11.0		10		
Non-field soil (structural/post-harvest)			70.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 18. 2007 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.3					
Shallow injection w/ low permeability tarp-broadcast		97.0	79.5			
Shallow injection w/ high permeability tarp or no tarp-bed				21		
Shallow injection w/ low permeability tarp-bed			0.6			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap				20		
Deep injection w/ high permeability tarp or no tarp-broadcast	99.3	1.0				
Deep injection w/ low permeability tarp-broadcast		1.0	16.3			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				35		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	0.4			14		34
Drip w/ low permeability tarp				10		
Non-field soil (structural/post-harvest)		1.0	3.7			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 19. 2007 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast	0.4					
Shallow injection w/ low permeability tarp-broadcast		88.0	77.1			
Shallow injection w/ high permeability tarp or no tarp-bed				6		
Shallow injection w/ low permeability tarp-bed			18.9			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	0.0					
Deep injection w/ low permeability tarp-broadcast		0.2	1.1			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				75		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	99.6	5.0		7		34
Drip w/ low permeability tarp		5.0		12		
Non-field soil (structural/post-harvest)		2.0	2.9			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 20. 2007 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		67.0	100.0			
Shallow injection w/ high permeability tarp or no tarp-bed						
Shallow injection w/ low permeability tarp-bed						
Shallow injection w/ water treatments				25		
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast	5.0					
Deep injection w/ low permeability tarp-broadcast						
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler						33
Sprinkler w/ water treatments				20		
Flood						33
Drip w/ high permeability tarp or no tarp	94.9			5		34
Drip w/ low permeability tarp		33.0		50		
Non-field soil (structural/post-harvest)						

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 21. 2007 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

	% of Amount Applied					
Fumigation Method[1]	**1,3-D**	**Chloropicrin**	**Methyl Bromide**	**Metam[2]**	**Dazomet**	**Na Tetrathio-carbonate[3]**
Shallow injection w/ high permeability tarp or no tarp-broadcast						
Shallow injection w/ low permeability tarp-broadcast		40.0	60.9			
Shallow injection w/ high permeability tarp or no tarp-bed				25		
Shallow injection w/ low permeability tarp-bed		36.0	30.8			
Shallow injection w/ water treatments						
Shallow injection w/ soil cap						
Deep injection w/ high permeability tarp or no tarp-broadcast						
Deep injection w/ low permeability tarp-broadcast			0.5			
Deep injection w/ water treatments						
Rotovate/rototill					100	
Sprinkler				20		33
Sprinkler w/ water treatments						
Flood						33
Drip w/ high permeability tarp or no tarp	100.0			5		34
Drip w/ low permeability tarp		24.0		50		
Non-field soil (structural/post-harvest)			7.8			

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 22. Application Method Adjustment Factors for 2008.

		AMAF						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	19	12					
Chemigation (Drip)	1601							10
Chemigation (mini-sprinkler)	1602							10
Day Chemigation (Drip System) Nontarpaulin	1408				9	9		
Day Chemigation (Drip System) Tarpaulin	1407				9	9		
Day Drench	1413				100	100		
Day Nontarpaulin/Shallow/ Broadcast or Bed /Two Water Treatments	1405				28			
Day Nontarpaulin/Shallow/ Broadcast or Bed/Three Water Treatments	1406				21	21		
Day Power Mulcher	1410				14	14		
Day Rotary Tiller	1409					14		
Day Soil Capping	1411				14	14		
Day Sprinkler/Broadcast or Bed/One Water Treatment	1401				77	77		
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				21	21		
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				28	28		
Day or Night Flood	1412				77			
Night 4 A.M. Start/Sprinkler/ Broadcast or Bed/Two Water treatments	1472				35			
Night Nontarpaulin/Shallow/	1455				13	13		

Broadcast or Bed/Two Water Treatments								
Night Sprinkler/Broadcast or Bed/Two Water Treatments	1452				77			
Nontarpaulin/Deep/ Broadcast or Bed	1206	26	64					
Other label method - Methyl Bromide	1190		100	100				
Tarpaulin/Deep/Bed	1208	26						
Tarpaulin/Deep/ Broadcast	1207	26						
Tarpaulin/Shallow/Bed	1106							10
Tarpaulin/Deep/Broad cast	1107			48				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		44	48				

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 23. 2008 frequency of fumigation methods used (method use fractions) in the Sacramento Metro nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	3.0	9.6					
Day Chemigation (Drip System) Nontarpaulin	1408					16.5		
Day Chemigation (Drip System) Tarpaulin	1407				83.2			
Day Rotary Tiller	1409				16.8	83.5		
Nontarpaulin/Deep/ Broadcast or Bed	1206	97.0	55.7					
Tarpaulin/Deep/ Broadcast	1107			74.8				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		34.8	25.2				
Chemigation (Drip System)/Tarpaulin	1209	3.0	9.6					

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 24. 2008 frequency of fumigation methods used (method use fractions) in the San Joaquin Valley nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip)	1601							97.1
Chemigation (mini-sprinkler)	1602							2.9
Day Chemigation (Drip System) Nontarpaulin	1408				1.3	10.5		
Day Chemigation (Drip System) Tarpaulin	1407				0.1	0.2		
Day Drench	1413					5.1		
Day Nontarpaulin/Shallow/ Broadcast or Bed /Two Water Treatments	1405				0.2			
Day Nontarpaulin/Shallow/ Broadcast or Bed/Three Water Treatments	1406				9.4	2.4		
Day Power Mulcher	1410				3.5	42.5		
Day Rotary Tiller	1409					5.2		
Day Soil Capping	1411				3.0	1.3		
Day Sprinkler/Broadcast or Bed/One Water Treatment	1401				1.4	7.6		
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				14.3	0.7		
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				7.7	7.1		
Day or Night Flood	1412							
Night 4 A.M. Start/Sprinkler/Broadcast or Bed/Two Water treatments	1472							
Night Nontarpaulin/Shallow/ Broadcast or Bed/Two Water Treatments	1455				58.7	17.4		

Night Sprinkler/Broadcast or Bed/Two Water Treatments	1452				0.3			
Nontarpaulin/Deep/ Broadcast or Bed	1206	98.0	19.5					
Other label method - Methyl Bromide	1190		0.4	0.3				
Tarpaulin/Deep/Bed	1208	1.2						
Tarpaulin/Deep/ Broadcast	1207	0.9						
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		80.1	99.7				

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 25. 2008 frequency of fumigation methods used (method use fractions) in the Southeast Desert nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	88.3	100.0					
Day Chemigation (Drip System) Nontarpaulin	1408				57.1			
Day Sprinkler/Broadcast or Bed/Three Water Treatments	1403				34.2			
Day Sprinkler/Broadcast or Bed/Two Water Treatments	1402				1.3			
Night 4 A.M. Start/Sprinkler/ Broadcast or Bed/Two Water treatments	1472				7.4			
Nontarpaulin/Deep/ Broadcast or Bed	1206	11.7						
Tarpaulin/Deep/ Broadcast	1107			37.4				
Tarpaulin/Shallow/Bed	1106							100.0

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 26. 2008 frequency of fumigation methods used (method use fractions) in the Ventura nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	99.5	89.1					
Chemigation (mini-sprinkler)	1602							100.0
Day Chemigation (Drip System) Nontarpaulin	1408				0.2			
Day Chemigation (Drip System) Tarpaulin	1407				99.8	100.0		
Nontarpaulin/Deep/ Broadcast or Bed	1206	0.5	0.1					
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		10.8	100.0				

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

Table A1 - 27. 2008 frequency of fumigation methods used (method use fractions) in the South Coast nonattainment area.

		% of Amount Applied						
Fumigation Method	**Code**	**1,3-D**	**Chloro -picrin**	**Methyl Bromide**	**Metam Na**	**Metam K**	**Dazomet**	**Na Tetrathio-carbonate**
Chemigation (Drip System)/Tarpaulin	1209	100.0	63.4					
Other label method - Methyl Bromide	1190		0.9	2.3				
Tarpaulin/Deep/ Broadcast	1107		0.5	4.8				
Tarpaulin/Shallow/ Broadcast – Nobel Plow	1103		35.2	92.9				

[1] Fumigation methods are described in detail in the memo Bary et al., 2007.
[2] DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.
[3] DPR assumes 100% conversion of sodium (Na) tetrathiocarbonate to carbon disulfide and percentages are relative to the amount of carbon disulfide applied.

California Department of Pesticide Regulation
Volatile Organic Compound Regulations
Field Fumigation Methods (FFM), FFM Code for Pesticide Use Reporting, and Emission ratings

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6447.3.	**Methyl Bromide Fumigation Methods (With or without chloropicrin)**	**1100 series**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101	100*
6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	74*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	48
	Tarpaulin/Deep/Broadcast – Strip	1108	74*
6447.3(a)(6)	Drip System - Hot Gas	1109	100*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60% credit	1143	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller– with tarp eligible for 60% credit	1145	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	48
	Tarpaulin/Deep/Broadcast – Strip –with tarp eligible for 60% credit	1148	74*
6447.3(a)(6)	Drip System - Hot Gas –with tarp eligible for 60% credit	1149	100*
	Other label method for Methyl Bromide (with or without chloropicrin)**	1190	---
		-	-
6448.1.	**1,3-Dichloropropene Fumigation Methods (with or without chloropicrin)**	**1200 series**	
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	65*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	65*
	Tarpaulin/Shallow/Bed	1203	65*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	44
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	44
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast or Bed	1206	26
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	26
	Tarpaulin/Deep/Bed	1208	26
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	29
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	10
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	65*
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for 60%	1245	44
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	10
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	26
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	29
	Other label method for 1,3-Dichloropropene (with or without chloropicrin)**	1290	---
6449.1	**Chloropicrin-Fumigation Methods**	**1100-1300 series**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101	64*
6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	44
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	64*

	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105	64*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	64*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	44
	Tarpaulin/Deep/Broadcast – Strip	1108	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60% credit	1143	7
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	7
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller–with tarp eligible for 60% credit	1145	7
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	7
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	7
	Tarpaulin/Deep/Broadcast – Strip –with tarp eligible for 60% credit	1148	7
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	64*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	44
	Tarpaulin/Shallow/Bed	1203	64*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	43
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	43
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast or Bed	1206	64*
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	44
	Tarpaulin/Deep/Bed	1208	44
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	12
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	7
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	7
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for 60%	1245	7
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	7
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	7
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	7
	Other label method for Chloropicrin**	1390	---
Regulation Section	**Field Fumigation Method**	**FFM Code**	Emission Rating (%)
6450.1.	**Metam-Sodium and Metam-Potassium Fumigation Methods**	**1400 series**	
6450.1(e)(1)	Sprinkler/Broadcast or Bed/One Water Treatment	1401	77*
6450.1(e)(2)	Sprinkler/Broadcast or Bed/Two Water Treatments	1402	28
6450.1(e)(3)	Sprinkler/Broadcast or Bed/Three Water Treatments	1403	21
6450.1(e)(4)	Nontarpaulin/Shallow/Broadcast or Bed/One Water Treatment	1404	77*
6450.1(e)(5)	Nontarpaulin/Shallow/Broadcast or Bed /Two Water Treatments	1405	28
6450.1(e)(6)	Nontarpaulin/Shallow/Broadcast or Bed/Three Water Treatments	1406	21
6450.1(e)(7)	Chemigation (Drip System) Tarpaulin	1407	9
	Chemigation (Drip System) Nontarpaulin	1408	9
6450.1(e)(8)	Rotary Tiller	1409	14
	Power Mulcher	1410	14
	Soil Capping	1411	14
6450.1(e)(9)	Flood	1412	77*
6450.1(e)(12)	Drench	1413	100
6450.1(e)(7)	Chemigation (Drip System) Tarpaulin –with tarp eligible for 30%	1447	9
6450.1(e)(2)	Night 1A.M. Start/Sprinkler/Broadcast or Bed/Two Water Treatments	1452	77*
6450.1(e)(10)	1A.M. Start/Nontarpaulin/Shallow/Broadcast or Bed/Two Water Treatments	1455	13
6450.1(e)(11)	4A.M. Start/sprinkler/Broadcast or Bed/Two Water Treatments	1472	35

	Other label method for Metam-Sodium and Metam-Potassium**	1490	---
6450.2	**Dazomet Fumigation Methods**	**1500 series**	
	Soil incorporation	1501	17
	Surface application – water incorporation	1502	17
	Other label method for Dazomet**	1590	---
6451.1	**Sodium Tetrathiocarbonate Fumigation Methods**	**1600 series**	
	Chemigation (Drip)	1601	10
	Chemigation (mini-sprinkler)	1602	10
	Chemigation (flood, basin)	1603	10
	Chemigation (furrow, border)	1604	10
	Chemigation (foggers, jets, misters, other)	1605	10
	Other label method for Sodium Tetrathiocarbonate**	1690	---
6446.1	**Methyl Iodide Fumigation Methods*** **	**1700 Series**	
	Day Tarpaulin/Shallow/Broadcast	1701	100
	Day Tarpaulin/Shallow/Bed	1702	100
	Day Tarpaulin/Deep/Broadcast	1703	100
	Day Chemigation (Drip)/Tarpaulin	1704	100
	Day Auger-Probe	1705	100

*Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.
**For use only outside of the May 1 – October 31 time period: or areas outside of the nonattainment areas; or for exempted applications (such as described in Sections 6447, 6448, 6449, 6450, and 6451)
***Methyl Iodide is no longer registered. Codes are for applications that were made in 2011 when the chemical was registered for use.

APPENDIX 2 – SUMMARY OF UNADJUSTED PESTICIDE VOC EMISSIONS

1. Sacramento Metropolitan Area - NAA 1

TABLE A2-1a: Top ten primary active ingredients contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2010 emissions
1,3-DICHLOROPROPENE	0.080	7.52
CHLORPYRIFOS	0.076	7.11
METHYL BROMIDE	0.064	5.97
TRIFLURALIN	0.055	5.15
THIOBENCARB	0.048	4.47
ABAMECTIN	0.046	4.31
PROPANIL	0.038	3.54
PENOXSULAM	0.037	3.47
ETHEPHON	0.032	3.03
ETHALFLURALIN	0.030	2.85

TABLE A2-1b: Top ten primary active ingredients contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2011 emissions
1,3-DICHLOROPROPENE	0.077	6.97
BIFENTHRIN	0.075	6.82
CHLORPYRIFOS	0.058	5.23
ABAMECTIN	0.056	5.05
PENOXSULAM	0.047	4.23
METHYL BROMIDE	0.046	4.15
OXYFLUORFEN	0.043	3.86
THIOBENCARB	0.042	3.77
TRIFLURALIN	0.037	3.34
GLUFOSINATE-AMMONIUM	0.035	3.20

TABLE A2-1c: Top ten primary active ingredients contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 1 May – Oct 2012 emissions
1,3-DICHLOROPROPENE	0.203	13.64
BIFENTHRIN	0.104	6.96
PERMETHRIN	0.094	6.28
ABAMECTIN	0.084	5.62
PROPANIL	0.071	4.74
CHLORPYRIFOS	0.057	3.81
TRIFLURALIN	0.052	3.47
THIOBENCARB	0.051	3.43
PENOXSULAM	0.050	3.33
BETA-CYFLUTHRIN	0.047	3.13

TABLE A2-1d: Top ten primary active ingredients contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 1 May – Oct 2013 emissions**
1,3-DICHLOROPROPENE	0.164	12.69
ABAMECTIN	0.100	7.75
PROPANIL	0.088	6.81
BIFENTHRIN	0.075	5.79
CHLORPYRIFOS	0.056	4.30
PERMETHRIN	0.052	4.02
THIOBENCARB	0.049	3.78
GLYPHOSATE, ISOPROPYLAMINE SALT	0.041	3.19
PENOXSULAM	0.040	3.09
OXYFLUORFEN	0.040	3.08

TABLE A2-1e: Top ten pesticide application sites contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 1.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 1 May – Oct 2010 emissions**
RICE (ALL OR UNSPEC)	0.206	19.40
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.164	15.38
TOMATOES, FOR PROCESSING/CANNING	0.155	14.55
RIGHTS OF WAY	0.056	5.25
GRAPES, WINE	0.055	5.20
STRUCTURAL PEST CONTROL	0.048	4.49
LANDSCAPE MAINTENANCE	0.047	4.43
ALMOND	0.038	3.59
COMMODITY FUMIGATION	0.035	3.26
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.033	3.09

TABLE A2-1f: Top ten pesticide application sites contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 1.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 1 May – Oct 2011 emissions**
RICE (ALL OR UNSPEC)	0.201	18.16
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.187	16.89
TOMATOES, FOR PROCESSING/CANNING	0.130	11.78
STRUCTURAL PEST CONTROL	0.093	8.45
GRAPES, WINE	0.078	7.04
RIGHTS OF WAY	0.059	5.31
ALMOND	0.055	4.93
LANDSCAPE MAINTENANCE	0.044	3.95
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.038	3.43
SUNFLOWER, GENERAL	0.032	2.91

TABLE A2-1g: Top ten pesticide application sites contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 1.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2012 emissions
RICE (ALL OR UNSPEC)	0.272	18.28
STRUCTURAL PEST CONTROL	0.222	14.89
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.208	13.94
TOMATOES, FOR PROCESSING/CANNING	0.169	11.33
LANDSCAPE MAINTENANCE	0.097	6.50
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.095	6.37
GRAPES, WINE	0.093	6.25
ALMOND	0.038	2.56
RIGHTS OF WAY	0.038	2.52
SUNFLOWER, GENERAL	0.030	2.04

TABLE A2-1h: Top ten pesticide application sites contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 1.

Application Site	Emissions (tons/day)	Percent of all NAA 1 May – Oct 2013 emissions
RICE (ALL OR UNSPEC)	0.271	20.94
STRUCTURAL PEST CONTROL	0.160	12.36
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.159	12.30
GRAPES, WINE	0.115	8.94
TOMATOES, FOR PROCESSING/CANNING	0.115	8.87
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.100	7.71
LANDSCAPE MAINTENANCE	0.048	3.73
UNCULTIVATED AGRICULTURAL AREAS (ALL OR UNSPEC)	0.048	3.69
RIGHTS OF WAY	0.046	3.58
ALMOND	0.045	3.50

TABLE A2-1i: *Unadjusted* **2010** May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).

NAA 1 - 2010	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.058	0.000
NON-METHYL BROMIDE EMISSIONS	0.953	0.048

TABLE A2-1j: *Unadjusted* **2011** May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).

NAA 1 - 2011	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.038	0.000
NON-METHYL BROMIDE EMISSIONS	0.967	0.094

TABLE A2-1k: *Unadjusted* **2012** May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).

NAA 1 - 2012	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.010	0.000
NON-METHYL BROMIDE EMISSIONS	1.257	0.222

TABLE A2-1l: *Unadjusted* **2013** May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).

NAA 1 - 2013	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.003	0.000
NON-METHYL BROMIDE EMISSIONS	1.128	0.160

2. San Joaquin Valley - NAA 2

TABLE A2-2a: Top ten primary active ingredients contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 2 May – Oct 2010 emissions**
1,3-DICHLOROPROPENE	5.555	22.70
METAM-SODIUM	4.374	17.87
CHLORPYRIFOS	1.856	7.58
POTASSIUM N-METHYLDITHIOCARBAMATE	1.543	6.30
METHYL BROMIDE	1.379	5.63
ABAMECTIN	1.103	4.51
OXYFLUORFEN	0.687	2.81
GIBBERELLINS	0.632	2.58
GLYPHOSATE, ISOPROPYLAMINE SALT	0.461	1.88
GLUFOSINATE-AMMONIUM	0.428	1.75

TABLE A2-2b: Top ten primary active ingredients contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 2 May – Oct 2011 emissions**
1,3-DICHLOROPROPENE	7.231	27.30
METAM-SODIUM	4.644	17.53
CHLORPYRIFOS	1.975	7.45
ABAMECTIN	1.569	5.92
POTASSIUM N-METHYLDITHIOCARBAMATE	1.316	4.97
METHYL BROMIDE	0.839	3.17
OXYFLUORFEN	0.633	2.39
GIBBERELLINS	0.622	2.35
BIFENTHRIN	0.495	1.87
GLYPHOSATE, ISOPROPYLAMINE SALT	0.423	1.60

TABLE A2-2c: Top ten primary active ingredients contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 2 May – Oct 2012 emissions**
1,3-DICHLOROPROPENE	6.557	24.59
METAM-SODIUM	3.305	12.39
POTASSIUM N-METHYLDITHIOCARBAMATE	2.916	10.94
ABAMECTIN	1.769	6.63
METHYL BROMIDE	1.768	6.63
CHLORPYRIFOS	1.382	5.18
OXYFLUORFEN	0.769	2.88
GIBBERELLINS	0.700	2.62
GLYPHOSATE, ISOPROPYLAMINE SALT	0.699	2.62
BIFENTHRIN	0.537	2.01

TABLE A2-2d: Top ten primary active ingredients contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 2 May – Oct 2013 emissions**
1,3-DICHLOROPROPENE	6.759	23.34
POTASSIUM N-METHYLDITHIOCARBAMATE	4.733	16.34
METHYL BROMIDE	1.943	6.71
CHLORPYRIFOS	1.880	6.49
ABAMECTIN	1.869	6.46
METAM-SODIUM	1.623	5.60
GLYPHOSATE, ISOPROPYLAMINE SALT	1.051	3.63
OXYFLUORFEN	0.883	3.05
FENPYROXIMATE	0.663	2.29
GIBBERELLINS	0.662	2.28

TABLE A2-2e: Top ten pesticide application sites contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 2.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 2 May – Oct 2010 emissions**
ALMOND	3.880	15.86
CARROTS, GENERAL	3.787	15.48
COTTON, GENERAL	1.515	6.19
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	1.303	5.33
TOMATOES, FOR PROCESSING/CANNING	1.259	5.14
GRAPES	1.255	5.13
N-OUTDR CONTAINER/FLD GRWN PLANTS	1.025	4.19
ORANGE (ALL OR UNSPEC)	1.004	4.10
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.899	3.68
POTATO (WHITE, IRISH, RED, RUSSET)	0.891	3.64

TABLE A2-2f: Top ten pesticide application sites contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 2.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2011 emissions
ALMOND	3.926	14.82
CARROTS, GENERAL	3.670	13.85
COTTON, GENERAL	2.488	9.39
GRAPES	1.597	6.03
ORANGE (ALL OR UNSPEC)	1.210	4.57
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.944	3.57
ONION (DRY, SPANISH, WHITE, YELLOW, RED, ETC.)	0.933	3.52
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	0.891	3.36
POTATO (WHITE, IRISH, RED, RUSSET)	0.890	3.36
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.872	3.29

TABLE A2-2g: Top ten pesticide application sites contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 2.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2012 emissions
ALMOND	4.418	16.57
CARROTS, GENERAL	4.394	16.48
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	2.522	9.46
COTTON, GENERAL	1.491	5.59
TOMATOES, FOR PROCESSING/CANNING	1.172	4.40
ORANGE (ALL OR UNSPEC)	1.040	3.90
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.991	3.72
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.987	3.70
ONION (DRY, SPANISH, WHITE, YELLOW, RED, ETC.)	0.919	3.45
GRAPES	0.838	3.14

TABLE A2-2h: Top ten pesticide application sites contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 2.

Application Site	Emissions (tons/day)	Percent of all NAA 2 May – Oct 2013 emissions
ALMOND	5.336	18.43
CARROTS, GENERAL	5.036	17.39
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	3.516	12.14
COTTON, GENERAL	1.657	5.72
TOMATOES, FOR PROCESSING/CANNING	1.410	4.87
GRAPES	1.009	3.48
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.964	3.33
ORANGE (ALL OR UNSPEC)	0.963	3.33
UNCULTIVATED AGRICULTURAL AREAS (ALL OR UNSPEC)	0.855	2.95
ONION (DRY, SPANISH, WHITE, YELLOW, RED, ETC.)	0.772	2.66

TABLE A2-2i: *Unadjusted* **2010** May–October VOC emissions in NAA 2 by ARB emission inventory classification (tons per day, tpd).

NAA 2 - 2010	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	1.044	0.000
NON-METHYL BROMIDE EMISSIONS	22.858	0.236

TABLE A2-2j: *Unadjusted* **2011** May–October VOC emissions in NAA 2 by ARB emission inventory classification (tons per day, tpd).

NAA 2 - 2011	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.709	0.001
NON-METHYL BROMIDE EMISSIONS	25.380	0.271

TABLE A2-2k: *Unadjusted* **2012** May–October VOC emissions in NAA 2 by ARB emission inventory classification (tons per day, tpd).

NAA 2 - 2012	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	1.508	0.000
NON-METHYL BROMIDE EMISSIONS	24.616	0.281

TABLE A2-2l: *Unadjusted* **2013** May–October VOC emissions in NAA 2 by ARB emission inventory classification (tons per day, tpd).

NAA 2 - 2013	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	1.708	0.000
NON-METHYL BROMIDE EMISSIONS	26.771	0.244

3. Southeast Desert - NAA 3

TABLE A2-3a: Top ten primary active ingredients contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 3 May – Oct 2010 emissions**
METAM-SODIUM	0.589	58.88
CHLOROPICRIN	0.147	14.72
1,3-DICHLOROPROPENE	0.036	3.56
BENSULIDE	0.032	3.24
METHYL BROMIDE	0.015	1.46
SODIUM TETRATHIOCARBONATE	0.014	1.44
DAZOMET	0.012	1.24
EPTC	0.011	1.15
CYFLUTHRIN	0.011	1.12
GIBBERELLINS	0.010	1.00

TABLE A2-3b: Top ten primary active ingredients contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 3 May – Oct 2011 emissions**
METAM-SODIUM	0.381	61.45
1,3-DICHLOROPROPENE	0.062	10.06
CHLOROPICRIN	0.027	4.30
BENSULIDE	0.023	3.69
EPTC	0.011	1.84
PERMETHRIN	0.009	1.37
DAZOMET	0.008	1.29
GLYPHOSATE, ISOPROPYLAMINE SALT	0.007	1.15
BIFENTHRIN	0.006	1.01
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.006	0.92

TABLE A2-3c: Top ten primary active ingredients contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 3 May – Oct 2012 emissions**
METAM-SODIUM	0.668	53.04
CHLOROPICRIN	0.180	14.25
POTASSIUM N-METHYLDITHIOCARBAMATE	0.162	12.86
BIFENTHRIN	0.025	1.97
BENSULIDE	0.024	1.88
PERMETHRIN	0.023	1.83
1,3-DICHLOROPROPENE	0.018	1.44
IMIDACLOPRID	0.017	1.32
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	1.22
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.010	0.78

TABLE A2-3d: Top ten primary active ingredients contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 3 May – Oct 2013 emissions**
CHLOROPICRIN	0.278	34.42
METAM-SODIUM	0.161	19.89
1,3-DICHLOROPROPENE	0.133	16.44
DAZOMET	0.019	2.41
BENSULIDE	0.019	2.36
DELTAMETHRIN	0.018	2.18
BIFENTHRIN	0.017	2.08
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	1.85
PERMETHRIN	0.015	1.81
EPTC	0.010	1.27

TABLE A2-3e: Top ten pesticide application sites contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 3.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2010 emissions
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.276	27.55
STRAWBERRY (ALL OR UNSPEC)	0.149	14.86
CARROTS, GENERAL	0.087	8.65
WATERMELONS	0.079	7.88
STRUCTURAL PEST CONTROL	0.058	5.75
LETTUCE, LEAF (ALL OR UNSPEC)	0.056	5.60
UNCULTIVATED AGRICULTURAL AREAS*	0.053	5.28
CAULIFLOWER	0.029	2.90
POTATO (WHITE, IRISH, RED, RUSSET)	0.028	2.79
GRAPES	0.027	2.66

* Treatment of an area prior to determining which crop will be planted.

TABLE A2-3f: Top ten pesticide application sites contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 3.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2011 emissions
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.280	45.20
UNCULTIVATED AGRICULTURAL AREAS*	0.112	18.07
STRUCTURAL PEST CONTROL	0.041	6.60
STRAWBERRY (ALL OR UNSPEC)	0.027	4.33
CORN, HUMAN CONSUMPTION	0.021	3.40
BEANS, SUCCULENT (OTHER THAN LIMA)	0.017	2.82
LETTUCE, LEAF (ALL OR UNSPEC)	0.017	2.72
LANDSCAPE MAINTENANCE	0.017	2.69
RIGHTS OF WAY	0.017	2.69
CHINESE GREENS, CHINESE LEAFY VEGETABLES	0.014	2.21

*Treatment of an area prior to determining which crop will be planted.

TABLE A2-3g: Top ten pesticide application sites contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 3.

Application Site	Emissions (tons/day)	Percent of all NAA 3 May – Oct 2012 emissions
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.438	34.79
STRAWBERRY (ALL OR UNSPEC)	0.180	14.26
BARLEY, GENERAL	0.162	12.86
UNCULTIVATED AGRICULTURAL AREAS (ALL OR UNSPEC)*	0.149	11.82
STRUCTURAL PEST CONTROL	0.093	7.41
GRAPES	0.037	2.90
LANDSCAPE MAINTENANCE	0.030	2.38
CAULIFLOWER	0.023	1.83
CHINESE GREENS, CHINESE LEAFY VEGETABLES	0.018	1.43
LETTUCE, LEAF (ALL OR UNSPEC)	0.017	1.37

* Treatment of an area prior to determining which crop will be planted.

TABLE A2-3h: Top ten pesticide application sites contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 3.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 3 May – Oct 2013 emissions**
STRAWBERRY (ALL OR UNSPEC)	0.209	25.93
UNCULTIVATED AGRICULTURAL AREAS (ALL OR UNSPEC)*	0.207	25.63
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.158	19.54
STRUCTURAL PEST CONTROL	0.093	11.57
RIGHTS OF WAY	0.026	3.16
LANDSCAPE MAINTENANCE	0.025	3.05
CARROTS, GENERAL	0.019	2.39
LETTUCE, LEAF (ALL OR UNSPEC)	0.013	1.65
GRAPES	0.009	1.11
ALFALFA (FORAGE - FODDER) (ALFALFA HAY)	0.006	0.80

*Treatment of an area prior to determining which crop will be planted.

TABLE A2-3i: *Unadjusted* **2010** May–October VOC emissions in NAA 3 by ARB emission inventory classification (tons per day, tpd).

NAA 3 - 2010	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.015	0.000
NON-METHYL BROMIDE EMISSIONS	0.928	0.058

TABLE A2-3j: *Unadjusted* **2011** May–October VOC emissions in NAA 3 by ARB emission inventory classification (tons per day, tpd).

NAA 3 - 2011	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.005	0.000
NON-METHYL BROMIDE EMISSIONS	0.573	0.041

TABLE A2-3k: *Unadjusted* **2012** May–October VOC emissions in NAA 3 by ARB emission inventory classification (tons per day, tpd).

NAA 3 - 2012	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.007	0.000
NON-METHYL BROMIDE EMISSIONS	1.160	0.094

TABLE A2-3l: *Unadjusted* **2013** May–October VOC emissions in NAA 3 by ARB emission inventory classification (tons per day, tpd).

NAA 3 - 2013	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.000	0.000
NON-METHYL BROMIDE EMISSIONS	0.713	0.093

4. Ventura - NAA 4

TABLE A2-4a: Top ten primary active ingredients contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2010 emissions
CHLOROPICRIN	4.801	51.51
METHYL BROMIDE	1.661	17.82
1,3-DICHLOROPROPENE	1.611	17.28
METAM-SODIUM	0.627	6.73
POTASSIUM N-METHYLDITHIOCARBAMATE	0.143	1.53
CHLORPYRIFOS	0.043	0.46
MINERAL OIL	0.037	0.40
ABAMECTIN	0.036	0.39
PETROLEUM OIL, UNCLASSIFIED	0.029	0.31
OXAMYL	0.022	0.24

TABLE A2-4b: Top ten primary active ingredients contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2011 emissions
CHLOROPICRIN	3.722	39.04
METHYL BROMIDE	2.964	31.09
1,3-DICHLOROPROPENE	1.635	17.14
METAM-SODIUM	0.639	6.70
POTASSIUM N-METHYLDITHIOCARBAMATE	0.160	1.68
ABAMECTIN	0.034	0.36
MINERAL OIL	0.027	0.29
PETROLEUM OIL, UNCLASSIFIED	0.027	0.29
CHLORPYRIFOS	0.022	0.23
OXAMYL	0.022	0.23

TABLE A2-4c: Top ten primary active ingredients contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 4 May – Oct 2012 emissions
CHLOROPICRIN	5.577	56.76
METHYL BROMIDE	1.797	18.29
METAM-SODIUM	1.026	10.44
1,3-DICHLOROPROPENE	0.899	9.15
POTASSIUM N-METHYLDITHIOCARBAMATE	0.144	1.47
ABAMECTIN	0.034	0.35
CHLORPYRIFOS	0.033	0.34
MINERAL OIL	0.028	0.29
PETROLEUM OIL, UNCLASSIFIED	0.026	0.26
NOVALURON	0.015	0.15

TABLE A2-4d: Top ten primary active ingredients contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 4, Ventura.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 4 May – Oct 2013 emissions**
CHLOROPICRIN	5.067	61.46
1,3-DICHLOROPROPENE	1.176	14.27
METHYL BROMIDE	0.989	11.99
METAM-SODIUM	0.502	6.09
POTASSIUM N-METHYLDITHIOCARBAMATE	0.095	1.16
ABAMECTIN	0.036	0.44
MINERAL OIL	0.032	0.38
CHLORPYRIFOS	0.030	0.37
PETROLEUM OIL, UNCLASSIFIED	0.023	0.28
DAZOMET	0.018	0.22

TABLE A2-4e. Top ten pesticide application sites contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 4.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 4 May – Oct 2010 emissions**
STRAWBERRY (ALL OR UNSPEC)	7.494	80.41
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	0.982	10.54
RASPBERRY (ALL OR UNSPEC)	0.160	1.71
LEMON	0.159	1.70
TOMATO	0.149	1.60
N-OUTDR GRWN CUT FLWRS OR GREENS	0.085	0.92
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.036	0.39
AVOCADO (ALL OR UNSPEC)	0.033	0.35
STRUCTURAL PEST CONTROL	0.025	0.27
CELERY, GENERAL	0.024	0.25

TABLE A2-4f. Top ten pesticide application sites contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 4.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 4 May – Oct 2011 emissions**
STRAWBERRY (ALL OR UNSPEC)	8.384	87.78
RASPBERRY (ALL OR UNSPEC)	0.466	4.88
TOMATO	0.143	1.50
LEMON	0.124	1.30
CARROTS, GENERAL	0.073	0.76
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.070	0.74
N-OUTDR GRWN CUT FLWRS OR GREENS	0.055	0.58
AVOCADO (ALL OR UNSPEC)	0.030	0.32
STRUCTURAL PEST CONTROL	0.030	0.31
CELERY, GENERAL	0.018	0.19

TABLE A2-4g. Top ten pesticide application sites contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 4.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2012 emissions
STRAWBERRY (ALL OR UNSPEC)	8.830	89.89
RASPBERRY (ALL OR UNSPEC)	0.362	3.68
TOMATO	0.146	1.49
N-OUTDR GRWN CUT FLWRS OR GREENS	0.132	1.35
LEMON	0.117	1.19
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.049	0.50
AVOCADO (ALL OR UNSPEC)	0.031	0.31
STRUCTURAL PEST CONTROL	0.024	0.24
CELERY, GENERAL	0.020	0.20
LANDSCAPE MAINTENANCE	0.010	0.10

TABLE A2-4h. Top ten pesticide application sites contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 4.

Application Site	Emissions (tons/day)	Percent of all NAA 4 May – Oct 2013 emissions
STRAWBERRY (ALL OR UNSPEC)	7.211	87.47
RASPBERRY (ALL OR UNSPEC)	0.574	6.97
LEMON	0.111	1.34
N-OUTDR GRWN CUT FLWRS OR GREENS	0.093	1.13
STRUCTURAL PEST CONTROL	0.032	0.39
AVOCADO (ALL OR UNSPEC)	0.028	0.34
CELERY, GENERAL	0.024	0.29
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.023	0.27
RIGHTS OF WAY	0.022	0.27
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.020	0.24

TABLE A2-4i: *Unadjusted* **2010** May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).

NAA 4 - 2010	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	1.073	0.000
NON-METHYL BROMIDE EMISSIONS	7.635	0.025

TABLE A2-4j: *Unadjusted* **2011** May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).

NAA 4 - 2011	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	1.501	0.000
NON-METHYL BROMIDE EMISSIONS	6.557	0.030

TABLE A2-4k: *Unadjusted* **2012** May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).

NAA 4 - 2012	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.893	0.000
NON-METHYL BROMIDE EMISSIONS	8.003	0.024

TABLE A2-4l: *Unadjusted* **2013** May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).

NAA 4 - 2013	Agricultural Applications	Structural Applications
METHYL BROMIDE EMISSIONS	0.498	0.000
NON-METHYL BROMIDE EMISSIONS	7.224	0.032

5. South Coast - NAA 5

TABLE A2-5a: Top ten primary active ingredients contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 5, South Coast.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2010 emissions
CHLOROPICRIN	0.315	15.65
CYFLUTHRIN	0.262	13.04
METHYL BROMIDE	0.227	11.30
PERMETHRIN	0.221	10.97
DISODIUM OCTABORATE TETRAHYDRATE	0.155	7.71
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.087	4.32
1,3-DICHLOROPROPENE	0.076	3.78
IMIDACLOPRID	0.067	3.34
PIPERONYL BUTOXIDE	0.058	2.88
BIFENTHRIN	0.042	2.09

TABLE A2-5b: Top ten primary active ingredients contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 5, South Coast.

Primary AI	Total Product Emissions (tons/day)	Percent of all NAA 5 May – Oct 2011 emissions
CHLOROPICRIN	0.269	19.57
PERMETHRIN	0.219	15.95
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.090	6.55
METHYL BROMIDE	0.087	6.36
1,3-DICHLOROPROPENE	0.077	5.57
BIFENTHRIN	0.062	4.51
FIPRONIL	0.040	2.90
DISODIUM OCTABORATE TETRAHYDRATE	0.039	2.83
CYFLUTHRIN	0.034	2.48
LIMONENE	0.033	2.37

TABLE A2-5c: Top ten primary active ingredients contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 5 May – Oct 2012 emissions**
CHLOROPICRIN	0.304	18.11
METHYL BROMIDE	0.203	12.08
PERMETHRIN	0.167	9.97
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.143	8.50
1,3-DICHLOROPROPENE	0.142	8.44
BIFENTHRIN	0.116	6.94
IMIDACLOPRID	0.052	3.12
CYFLUTHRIN	0.039	2.32
DISODIUM OCTABORATE TETRAHYDRATE	0.035	2.09
GLYPHOSATE, ISOPROPYLAMINE SALT	0.033	1.96

TABLE A2-5d: Top ten primary active ingredients contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Emissions (tons/day)**	**Percent of all NAA 5 May – Oct 2013 emissions**
CHLOROPICRIN	0.264	16.88
METHYL BROMIDE	0.180	11.47
PERMETHRIN	0.125	7.99
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.125	7.96
DISODIUM OCTABORATE TETRAHYDRATE	0.112	7.15
BIFENTHRIN	0.094	6.01
DELTAMETHRIN	0.073	4.63
PIPERONYL BUTOXIDE	0.063	4.01
CYFLUTHRIN	0.037	2.33
FIPRONIL	0.033	2.09

TABLE A2-5e: Top ten pesticide application sites contributing to **2010** May-October ozone season *unadjusted* VOC emissions in NAA 5.

Application Site	**Emissions (tons/day)**	**Percent of all NAA 5 May – Oct 2010 emissions**
STRUCTURAL PEST CONTROL	1.014	50.41
STRAWBERRY (ALL OR UNSPEC)	0.512	25.44
LANDSCAPE MAINTENANCE	0.168	8.36
FUMIGATION, OTHER	0.081	4.04
N-OUTDR GRWN CUT FLWRS OR GREENS	0.077	3.83
RIGHTS OF WAY	0.046	2.29
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.026	1.29
COMMODITY FUMIGATION	0.019	0.93
AVOCADO (ALL OR UNSPEC)	0.009	0.43
CABBAGE	0.008	0.42

TABLE A2-5f: Top ten pesticide application sites contributing to **2011** May-October ozone season *unadjusted* VOC emissions in NAA 5.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2011 emissions
STRUCTURAL PEST CONTROL	0.685	49.82
STRAWBERRY (ALL OR UNSPEC)	0.354	25.72
LANDSCAPE MAINTENANCE	0.132	9.60
FUMIGATION, OTHER	0.059	4.29
RIGHTS OF WAY	0.042	3.08
COMMODITY FUMIGATION	0.020	1.45
N-GRNHS GRWN PLANTS IN CONTAINERS	0.017	1.26
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.013	0.92
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	0.009	0.62
AVOCADO (ALL OR UNSPEC)	0.008	0.61

TABLE A2-5g: Top ten pesticide application sites contributing to **2012** May-October ozone season *unadjusted* VOC emissions in NAA 5.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2012 emissions
STRUCTURAL PEST CONTROL	0.730	43.46
STRAWBERRY (ALL OR UNSPEC)	0.493	29.38
LANDSCAPE MAINTENANCE	0.175	10.43
FUMIGATION, OTHER	0.099	5.90
RIGHTS OF WAY	0.040	2.38
GRAPES, WINE	0.037	2.23
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.020	1.20
COMMODITY FUMIGATION	0.020	1.20
ORANGE (ALL OR UNSPEC)	0.009	0.53
AVOCADO (ALL OR UNSPEC)	0.007	0.40

TABLE A2-5h: Top ten pesticide application sites contributing to **2013** May-October ozone season *unadjusted* VOC emissions in NAA 5.

Application Site	Emissions (tons/day)	Percent of all NAA 5 May – Oct 2013 emissions
STRUCTURAL PEST CONTROL	0.804	51.38
STRAWBERRY (ALL OR UNSPEC)	0.359	22.92
LANDSCAPE MAINTENANCE	0.164	10.48
FUMIGATION, OTHER	0.078	4.96
RIGHTS OF WAY	0.052	3.31
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.025	1.58
COMMODITY FUMIGATION	0.019	1.18
BOK CHOY (WONG BOK)	0.010	0.65
ORANGE (ALL OR UNSPEC)	0.007	0.45
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	0.007	0.44

TABLE A2-5i: *Unadjusted* **2010** May–October VOC emissions in NAA 5 by ARB emission inventory classification (tons per day, tpd).

NAA 5 - 2010	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.185	0.002
NON-METHYL BROMIDE EMISSIONS	0.771	1.013

TABLE A2-5j: *Unadjusted* **2011** May–October VOC emissions in NAA 5 by ARB emission inventory classification (tons per day, tpd).

NAA 5 - 2011	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.083	0.002
NON-METHYL BROMIDE EMISSIONS	0.603	0.684

TABLE A2-5k: *Unadjusted* **2012** May–October VOC emissions in NAA 5 by ARB emission inventory classification (tons per day, tpd).

NAA 5 - 2012	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.161	0.000
NON-METHYL BROMIDE EMISSIONS	0.746	0.730

TABLE A2-5l: *Unadjusted* **2013** May–October VOC emissions in NAA 5 by ARB emission inventory classification (tons per day, tpd).

NAA 5 - 2013	**Agricultural Applications**	**Structural Applications**
METHYL BROMIDE EMISSIONS	0.138	0.000
NON-METHYL BROMIDE EMISSIONS	0.581	0.804

APPENDIX 3 – SUMMARY OF ADJUSTED PESTICIDE VOC EMISSIONS

1. Sacramento Metropolitan Area - NAA 1

Table A3-1a: Top ten primary active ingredients contributing to **2010** May-October ozone season *adjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2010 Adjusted Emissions
CHLORPYRIFOS	0.076	7.72
TRIFLURALIN	0.055	5.59
THIOBENCARB	0.048	4.86
ABAMECTIN	0.046	4.68
METHYL BROMIDE	0.046	4.65
PROPANIL	0.038	3.85
PENOXSULAM	0.037	3.76
1,3-DICHLOROPROPENE	0.035	3.56
ETHEPHON	0.032	3.29
ETHALFLURALIN	0.030	3.10

Table A3-1b: Top ten primary active ingredients contributing to **2011** May-October ozone season *adjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2011 Adjusted Emissions
BIFENTHRIN	0.075	7.44
CHLORPYRIFOS	0.058	5.71
ABAMECTIN	0.056	5.51
PENOXSULAM	0.047	4.62
OXYFLUORFEN	0.043	4.21
THIOBENCARB	0.042	4.12
TRIFLURALIN	0.037	3.64
GLUFOSINATE-AMMONIUM	0.035	3.49
PROPANIL	0.034	3.36
CLOMAZONE	0.032	3.15

Table A3-1c: Top ten primary active ingredients contributing to **2012** May-October ozone season *adjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 1 May – Oct 2012 Adjusted Emissions
BIFENTHRIN	0.104	7.95
PERMETHRIN	0.094	7.17
ABAMECTIN	0.084	6.43
PROPANIL	0.071	5.41
CHLORPYRIFOS	0.057	4.34
TRIFLURALIN	0.052	3.97
THIOBENCARB	0.051	3.92
PENOXSULAM	0.050	3.80
BETA-CYFLUTHRIN	0.047	3.57
1,3-DICHLOROPROPENE	0.044	3.38

Table A3-1d: Top ten primary active ingredients contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 1 May – Oct 2013 Adjusted Emissions**
ABAMECTIN	0.100	8.64
PROPANIL	0.088	7.60
BIFENTHRIN	0.075	6.45
CHLORPYRIFOS	0.056	4.80
PERMETHRIN	0.052	4.49
THIOBENCARB	0.049	4.21
GLYPHOSATE, ISOPROPYLAMINE SALT	0.041	3.56
PENOXSULAM	0.040	3.44
OXYFLUORFEN	0.040	3.44
TRIFLURALIN	0.039	3.37

Table A3-1e: Top ten pesticide application sites contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 1, the Sacramento Metropolitan Area.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 1 May – Oct 2013 Adjusted Emissions**
RICE (ALL OR UNSPEC)	0.271	23.22
STRUCTURAL PEST CONTROL	0.160	13.71
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.132	11.36
GRAPES, WINE	0.115	9.91
TOMATOES, FOR PROCESSING/CANNING	0.115	9.83
LANDSCAPE MAINTENANCE	0.048	4.14
RIGHTS OF WAY	0.046	3.97
ALMOND	0.045	3.88
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.039	3.38
SUNFLOWER, GENERAL	0.027	2.34

2. San Joaquin Valley - NAA 2

Table A3-2a: Top ten primary active ingredients contributing to **2010** May-October ozone season *adjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2010 Adjusted Emissions**
CHLORPYRIFOS	1.856	12.19
1,3-DICHLOROPROPENE	1.507	9.90
ABAMECTIN	1.103	7.24
METAM-SODIUM	0.844	5.54
OXYFLUORFEN	0.687	4.51
GIBBERELLINS	0.632	4.15
METHYL BROMIDE	0.582	3.82
GLYPHOSATE, ISOPROPYLAMINE SALT	0.461	3.03
GLUFOSINATE-AMMONIUM	0.428	2.81
DIMETHOATE	0.420	2.76

Table A3-2b: Top ten primary active ingredients contributing to **2011** May-October ozone season *adjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2011 Adjusted Emissions**
CHLORPYRIFOS	1.975	12.06
1,3-DICHLOROPROPENE	1.959	11.96
ABAMECTIN	1.569	9.58
METAM-SODIUM	0.834	5.09
OXYFLUORFEN	0.633	3.87
GIBBERELLINS	0.622	3.80
BIFENTHRIN	0.495	3.02
GLYPHOSATE, ISOPROPYLAMINE SALT	0.423	2.58
METHYL BROMIDE	0.413	2.52
DIMETHOATE	0.403	2.46

Table A3-2c: Top ten primary active ingredients contributing to **2012** May-October ozone season *adjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2012 Adjusted Emissions**
ABAMECTIN	1.769	11.08
1,3-DICHLOROPROPENE	1.676	10.50
CHLORPYRIFOS	1.382	8.66
METHYL BROMIDE	0.785	4.92
OXYFLUORFEN	0.769	4.82
GIBBERELLINS	0.700	4.38
GLYPHOSATE, ISOPROPYLAMINE SALT	0.699	4.38
POTASSIUM N-METHYLDITHIOCARBAMATE	0.643	4.03
METAM-SODIUM	0.594	3.72
BIFENTHRIN	0.537	3.36

Table A3-2d: Top ten primary active ingredients contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2013 Adjusted Emissions**
CHLORPYRIFOS	1.880	10.43
ABAMECTIN	1.869	10.37
1,3-DICHLOROPROPENE	1.767	9.81
GLYPHOSATE, ISOPROPYLAMINE SALT	1.051	5.83
POTASSIUM N-METHYLDITHIOCARBAMATE	0.947	5.25
OXYFLUORFEN	0.883	4.90
METHYL BROMIDE	0.870	4.83
FENPYROXIMATE	0.663	3.68
GIBBERELLINS	0.662	3.67
BIFENTHRIN	0.597	3.31

Table A3-2e: Top ten pesticide application sites contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 2, the San Joaquin Valley.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 2 May – Oct 2013 Adjusted Emissions**
ALMOND	4.864	26.65
COTTON, GENERAL	1.623	8.89
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	1.179	6.46
CARROTS, GENERAL	0.967	5.30
ORANGE (ALL OR UNSPEC)	0.962	5.27
GRAPES	0.856	4.69
TOMATOES, FOR PROCESSING/CANNING	0.850	4.66
PISTACHIO (PISTACHE NUT)	0.648	3.55
GRAPES, WINE	0.625	3.42
WALNUT (ENGLISH WALNUT, PERSIAN WALNUT)	0.582	3.19

3. Southeast Desert - NAA 3

Table A3-3a: Top ten primary active ingredients contributing to **2010** May-October ozone season *adjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2010 Adjusted Emissions**
METAM-SODIUM	0.159	34.67
CHLOROPICRIN	0.038	8.21
1,3-DICHLOROPROPENE	0.038	8.16
BENSULIDE	0.032	7.05
METHYL BROMIDE	0.015	3.17
DAZOMET	0.012	2.70
EPTC	0.011	2.50
CYFLUTHRIN	0.011	2.43
GIBBERELLINS	0.010	2.19
GLYPHOSATE, ISOPROPYLAMINE SALT	0.010	2.08

Table A3-3b: Top ten primary active ingredients contributing to **2011** May-October ozone season *adjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2011 Adjusted Emissions**
METAM-SODIUM	0.038	17.46
BENSULIDE	0.023	10.63
1,3-DICHLOROPROPENE	0.022	10.05
EPTC	0.011	5.31
PERMETHRIN	0.009	3.96
DAZOMET	0.008	3.73
GLYPHOSATE, ISOPROPYLAMINE SALT	0.007	3.31
BIFENTHRIN	0.006	2.91
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.006	2.66
TRIFLURALIN	0.005	2.43

Table A3-3c: Top ten primary active ingredients contributing to **2012** May-October ozone season *adjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2012 Adjusted Emissions**
METAM-SODIUM	0.154	32.99
POTASSIUM N-METHYLDITHIOCARBAMATE	0.045	9.75
BIFENTHRIN	0.025	5.33
BENSULIDE	0.024	5.08
PERMETHRIN	0.023	4.94
1,3-DICHLOROPROPENE	0.023	4.85
IMIDACLOPRID	0.017	3.57
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	3.29
CHLOROPICRIN	0.013	2.78
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.010	2.10

Table A3-3d: Top ten primary active ingredients contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2013 Adjusted Emissions**
1,3-DICHLOROPROPENE	0.063	17.27
METAM-SODIUM	0.046	12.53
CHLOROPICRIN	0.020	5.36
DAZOMET	0.019	5.34
BENSULIDE	0.019	5.24
DELTAMETHRIN	0.018	4.82
BIFENTHRIN	0.017	4.61
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	4.09
PERMETHRIN	0.015	4.01
EPTC	0.010	2.82

Table A3-3e: Top ten pesticide application sites contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 3, the Southeast Desert.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 3 May – Oct 2013 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.093	24.25
UNCULTIVATED AGRICULTURAL AREAS (ALL OR UNSPEC)	0.057	14.86
STRAWBERRY (ALL OR UNSPEC)	0.050	12.98
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.049	12.80
RIGHTS OF WAY	0.026	6.63
LANDSCAPE MAINTENANCE	0.025	6.40
CARROTS, GENERAL	0.019	5.00
LETTUCE, LEAF (ALL OR UNSPEC)	0.013	3.47
GRAPES	0.009	2.33
ALFALFA (FORAGE - FODDER) (ALFALFA HAY)	0.006	1.68

4. Ventura - NAA 4

Table A3-4a: Top ten primary active ingredients contributing to **2010** May-October ozone season *adjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2010 Adjusted Emissions
CHLOROPICRIN	0.804	28.81
1,3-DICHLOROPROPENE	0.570	20.45
METHYL BROMIDE	0.515	18.48
METAM-SODIUM	0.056	2.03
CHLORPYRIFOS	0.043	1.53
MINERAL OIL	0.037	1.34
ABAMECTIN	0.036	1.29
PETROLEUM OIL, UNCLASSIFIED	0.029	1.03
OXAMYL	0.022	0.79
METALDEHYDE	0.021	0.74

Table A3-4b: Top ten primary active ingredients contributing to **2011** May-October ozone season *adjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2011 Adjusted Emissions
CHLOROPICRIN	1.137	37.88
METHYL BROMIDE	0.721	24.01
1,3-DICHLOROPROPENE	0.336	11.18
METAM-SODIUM	0.058	1.92
ABAMECTIN	0.034	1.13
MINERAL OIL	0.027	0.91
PETROLEUM OIL, UNCLASSIFIED	0.027	0.91
CHLORPYRIFOS	0.022	0.74
OXAMYL	0.022	0.73
METALDEHYDE	0.019	0.62

Table A3-4c: Top ten primary active ingredients contributing to **2012** May-October ozone season *adjusted* VOC emissions in NAA 4, Ventura.

Primary AI	Total Product Adjusted Emissions (tons/day)	Percent of All NAA 4 May – Oct 2012 Adjusted Emissions
CHLOROPICRIN	5.577	56.76
METHYL BROMIDE	1.797	18.29
1,3-DICHLOROPROPENE	0.899	9.15
METAM-SODIUM	1.026	10.44
ABAMECTIN	0.034	0.35
CHLORPYRIFOS	0.033	0.34
MINERAL OIL	0.028	0.29
PETROLEUM OIL, UNCLASSIFIED	0.026	0.26
NOVALURON	0.015	0.15
POTASH SOAP	0.013	0.14

Table A3-4d: Top ten primary active ingredients contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 4, Ventura.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 4 May – Oct 2013 Adjusted Emissions**
CHLOROPICRIN	0.448	31.19
1,3-DICHLOROPROPENE	0.276	19.21
METHYL BROMIDE	0.243	16.94
METAM-SODIUM	0.045	3.14
ABAMECTIN	0.036	2.51
MINERAL OIL	0.032	2.21
CHLORPYRIFOS	0.030	2.10
PETROLEUM OIL, UNCLASSIFIED	0.023	1.60
DAZOMET	0.018	1.23
GIBBERELLINS	0.017	1.18

Table A3-4e: Top ten pesticide application sites contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 4, Ventura.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 4 May – Oct 2013 Adjusted Emissions**
STRAWBERRY (ALL OR UNSPEC)	1.264	74.00
LEMON	0.111	6.48
RASPBERRY (ALL OR UNSPEC)	0.066	3.85
STRUCTURAL PEST CONTROL	0.032	1.86
AVOCADO (ALL OR UNSPEC)	0.028	1.65
CELERY, GENERAL	0.024	1.38
PEPPERS (FRUITING VEGETABLE), (BELL,CHILI, ETC.)	0.023	1.32
RIGHTS OF WAY	0.022	1.29
N-OUTDR GRWN CUT FLWRS OR GREENS	0.021	1.25
SPINACH	0.013	0.74

5. South Coast - NAA 5

Table A3-5a: Top ten primary active ingredients contributing to **2010** May-October ozone season *adjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2010 Adjusted Emissions**
CYFLUTHRIN	0.262	15.07
PERMETHRIN	0.221	12.69
DISODIUM OCTABORATE TETRAHYDRATE	0.155	8.91
METHYL BROMIDE	0.146	8.38
CHLOROPICRIN	0.106	6.09
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.087	4.99
1,3-DICHLOROPROPENE	0.071	4.11
IMIDACLOPRID	0.067	3.87
PIPERONYL BUTOXIDE	0.058	3.33
BIFENTHRIN	0.042	2.41

Table A3-5b: Top ten primary active ingredients contributing to **2011** May-October ozone season *adjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2011 Adjusted Emissions**
PERMETHRIN	0.219	19.56
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.090	8.03
METHYL BROMIDE	0.082	7.35
BIFENTHRIN	0.062	5.53
1,3-DICHLOROPROPENE	0.046	4.09
FIPRONIL	0.040	3.56
DISODIUM OCTABORATE TETRAHYDRATE	0.039	3.47
CYFLUTHRIN	0.034	3.05
CHLOROPICRIN	0.033	2.95
LIMONENE	0.033	2.90

Table A3-5c: Top ten primary active ingredients contributing to **2012** May-October ozone season *adjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2012 Adjusted Emissions**
PERMETHRIN	0.167	12.26
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.143	10.47
METHYL BROMIDE	0.139	10.20
BIFENTHRIN	0.116	8.54
CHLOROPICRIN	0.108	7.92
1,3-DICHLOROPROPENE	0.088	6.44
IMIDACLOPRID	0.052	3.84
CYFLUTHRIN	0.039	2.85
DISODIUM OCTABORATE TETRAHYDRATE	0.035	2.57
GLYPHOSATE, ISOPROPYLAMINE SALT	0.033	2.41

Table A3-5d: Top ten primary active ingredients contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2013 Adjusted Emissions**
PERMETHRIN	0.125	9.32
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.125	9.28
METHYL BROMIDE	0.116	8.67
DISODIUM OCTABORATE TETRAHYDRATE	0.112	8.33
BIFENTHRIN	0.094	7.01
DELTAMETHRIN	0.073	5.40
CHLOROPICRIN	0.071	5.32
PIPERONYL BUTOXIDE	0.063	4.68
1,3-DICHLOROPROPENE	0.047	3.47
CYFLUTHRIN	0.037	2.72

Table A3-5e: Top ten pesticide application sites contributing to **2013** May-October ozone season *adjusted* VOC emissions in NAA 5, South Coast.

Primary AI	**Total Product Adjusted Emissions (tons/day)**	**Percent of All NAA 5 May – Oct 2013 Adjusted Emissions**
STRUCTURAL PEST CONTROL	0.804	59.20
LANDSCAPE MAINTENANCE	0.164	12.07
STRAWBERRY (ALL OR UNSPEC)	0.154	11.31
FUMIGATION, OTHER	0.078	5.72
RIGHTS OF WAY	0.052	3.81
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.025	1.83
COMMODITY FUMIGATION	0.019	1.36
BOK CHOY (WONG BOK)	0.010	0.75
ORANGE (ALL OR UNSPEC)	0.007	0.52
SOIL APPLICATION, PREPLANT-OUTDOOR (SEEDBEDS,ETC.)	0.006	0.44

Department of Pesticide Regulation
Nonfumigant volatile organic compound (VOC) regulations
Product list (updated June 5, 2014)

The nonfumigant VOC regulations include sales and use restrictions for certain agricultural use products containing any of the following pesticides as the primary active ingredient.

Primary Active Ingredient	Emission Potential (EP) Threshold (%)
Abamectin	35
Chlorpyrifos	25
Gibberellins	25
Oxyfluorfen	15

If a product contains more than one active ingredient, the primary active ingredient is the one present at the highest percentage in a product. These criteria do not apply to products that contain an active ingredient listed above, but not as the primary active ingredient, including products with one or more active ingredients present at the same percentage.

The emission potential (EP) is an estimate of the product VOC content and is normally determined by the registrant using thermogravimetric analysis, with the test results reviewed and approved by the Department of Pesticide Regulation.

Products labeled only for non-agricultural uses are excluded from the proposed regulations. Non-agricultural uses include: a) home use; b) use in structural pest control; c) industrial or institutional use; d) control of an animal pest under the written prescription of a veterinarian; or e) vector control. All other uses are considered agricultural.

DPR classifies products containing any of the four pesticides into three groups:

High-VOC product: a) contains any of the four pesticides as a primary active ingredient; and b) labeled for agricultural use; and c) the EP is greater than the threshold.

Low-VOC product: a) contains any of the four pesticides as a primary active ingredient; and b) labeled for agricultural use; and c) the EP is equal to or less than the threshold.

Excluded product: a) contains any of the four pesticides, but not as a primary active ingredient; or b) labeled only for non-agricultural use.

The nonfumigant VOC restrictions only apply to high-VOC products. Low-VOC products or excluded products have no restrictions.

Actively registered products containing **abamectin**. Products are listed in order by EP. Products highlighted indicate a change from the last list. Products not listed are recently registered and not yet listed, or have inactive registration. Agricultural products with inactive registration are considered high-VOC unless they are listed as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Abamectin Products, EP ≤ 35.0% (23) **Total Abamectin products - 69**

Product Name	Registration Number	Registrant	Formulation	EP (%)
Abacide 2	7946-27-AA	J.J. Mauget Co.	Solution/Liquid	0.00
Abacide 2 HP	7946-30-AA	J.J. Mauget Co.	Solution/Liquid	0.00
Epi-Mek SCL	100-1439-AA	Syngenta Crop Protection, Inc.	Other (Liquid Suspension)	3.08
Award II Fire Ant Bait	100-1452-AA	Syngenta Crop Protection, Inc.	Granular/Flake	3.70
Clinch Ant Bait	10965-50068-AA	California Dept. of Food & Ag.	Granular/Flake	3.70
Clinch Ant Bait	100-894-ZB	Syngenta Crop Protection, Inc.	Granular/Flake	3.70
Optigard Fire Ant Bait	100-893-ZC	Syngenta Crop Protection, Inc.	Granular/Flake	3.70
Prescription Treatment Brand Advance Granular	499-370-AA	Whitmire Micro-Gen Research	Granular/Flake	3.70
Prescription Treatment Brand Ascend Fire Ant Bait	499-370-ZA	Whitmire Micro-Gen Research	Granular/Flake	3.70
Prescription Treatment Brand Advance Granular	499-370-ZB	Whitmire Micro-Gen Research	Granular/Flake	3.70
Prescription Treatment Brand Advance 375A Select	499-370-ZC	Whitmire Micro-Gen Research	Granular/Flake	3.70
Willowood Abamectin 0.7SC	87290-36-AA	Willowood, LLC	Aqueous Suspension	4.62
Prescription Treatment Brand Avert Dry Flowable	499-294-ZA	Whitmire Micro-Gen Research	Dust/Powder	5.55
Agri-Mek SC Miticide/Insecticide	100-1351-ZA	Syngenta Crop Protection, Inc.	Aqueous Suspension	5.63
Abacus V	83100-32-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	27.26
Agmectin 0.15EC Insecticide/Miticide	84229-2-ZA	Tide International USA, Inc.	Emulsifiable Concentrate	29.75
Timectin 0.15 EC Ag Insecticide/Miticide	84229-2-AA	Tide International USA, Inc.	Emulsifiable Concentrate	29.75
Timectin 0.15 EC T&O Insecticide/Miticide	84229-1-AA	Tide International USA, Inc.	Emulsifiable Concentrate	29.75
Phoenix Merlin	70506-276-AA	United Phosphorous, Inc.	Emulsifiable Concentrate	29.75
Borrada	66222-191-AA	Makhteshim-Agan of North America	Microencapsulated	30.73
LPI 6432-14	34704-1078-AA	Loveland Products Inc.	Liquid Concentrate	31.08
Reaper Clearform	34704-1078-ZA	Loveland Products Inc.	Liquid Concentrate	31.08
Abba Ultra Miticide/Insecticide	66222-226-AA	Makhteshim-Agan of North America	Emulsifiable Concentrate	34.18

High-VOC Abamectin Products, EP > 35.0% (21)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Aracinate	74779-1-AA	Rainbow Treecare Scientific	Other (Liquid)	55.10
Greyhound Insecticide	69117-2-AA	Arborsystems	Solution/Liquid	55.10
Agri-Mek 0.15 EC Miticide/Insecticide	100-898-ZB	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Avid 0.15EC Miticide/Insecticide	100-896-ZA	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Avid 0.15EC Miticide/Insecticide	100-896-ZD	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Epi-Mek 0.15 EC Miticide/Insecticide	100-1154-AA	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Epi-Mek 0.15 EC Miticide/Insecticide	100-1154-ZA	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Ardent 0.15 EC Miticide/Insecticide	100-896-ZB	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Ardent 0.15 EC Miticide/Insecticide	100-896-ZC	Syngenta Crop Protection, Inc.	Emulsifiable Concentrate	55.10
Abacus Agricultural Miticide/Insecticide	83100-4-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	60.54
Lucid Ornamental Miticide/Insecticide	83100-5-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	60.54
Zoro Miticide/Insecticide	67760-71-AA	Cheminova, Inc.	Emulsifiable Concentrate	61.20
Temprano	67760-71-AA-400	Chemtura Corporation	Emulsifiable Concentrate	61.20
Abba 0.15 EC	66222-139-AA	Makhteshim-Agan of North America	Emulsifiable Concentrate	62.62
Quali-Pro Abamectin 0.15 EC Miticide/Insecticide	66222-210-AA	Makhteshim-Agan of North America	Emulsifiable Concentrate	62.62
Nufarm Abamectin 0.15 EC Insecticide	228-658-AA	Nufarm Americas Inc.	Emulsifiable Concentrate	70.50
Nufarm Abamectin SPC 0.15 EC Insecticide	228-657-AA	Nufarm Americas Inc.	Emulsifiable Concentrate	70.50
Minx	228-657-ZA	Nufarm Americas Inc.	Emulsifiable Concentrate	70.50
Vivid II	64014-10-AA	Florida Silvics Inc., DBA Tree	Solution/Liquid	71.77
Reaper 0.15 EC	34704-923-AA	Loveland Products, Inc.	Emulsifiable Concentrate	73.33
Reaper Advance	34704-923-ZA	Loveland Products, Inc.	Emulsifiable Concentrate	73.33

Excluded Abamectin Products, non-ag use or secondary active ingredient (25)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Agri-Flex Miticide/Insecticide	100-1350-ZA	Syngenta Crop Protection, Inc	Suspension Concentrate	0.00
Sirocco	400-582-AA-59807	OHP, Inc.	Liquid Concentrate	4.97
Enforcer Antmax Bait Stations	40849-75-AA	ZEP Commercial Sales & Service,	Pellet/Tablet/Cake/Briquet	5.18
Enforcer Roachmax Bait Stations	40849-76-AA	ZEP Commercial Sales & Service,	Pellet/Tablet/Cake/Briquet	5.18
HomePlus Ant Killer	73079-13-AA-3095	PIC Corporation	Pellet/Tablet/Cake/Briquet	5.18
HomePlus Ant Killer AB	73079-13-ZA-3095	PIC Corporation	Pellte/Tablet/Cake/Briquet	5.18
Raid Double Control Small Roach Baits	4822-472-ZC	S.C. Johnson & Son Inc.	Pellet/Tablet/Cake/Briquet	5.18
Raid Max Double Control Large Roach Baits	4822-472-ZH	S.C. Johnson & Son Inc.	Pellet/Tablet/Cake/Briquet	5.18
Raid Max Double Control Ant Baits	4822-472-ZI	S.C. Johnson & Son Inc.	Pellet/Tablet/Cake/Briquet	5.18
4Pk Bait Station Ant Control	73079-13-AA-43428	Walgreen Company	Pellet/Tablet/Cake/Briquet	5.18
12Pk Bait Station Roach Control	73079-13-ZA-43428	Walgreen Company	Pellet/Tablet/Cake/Briquet	5.18
Master Label – MGK Formula 2967	1021-2593-ML	McLaughlin Gormley King Co.	Pellet/Tablet/Cake/Briquet	5.18
Athena Insecticide/Miticide	279-3356-AA	FMC Corp. Agricultural Products Group	Emulsifiable Concentrate	13.92
Gladiator Insectide/Miticide	279-3441-AA	FMC Corp. Agricultural Products Group	Emulsifiable Concentrate	13.97
Prescription Treatment Brand Avert Pressurized Cockroach Bait Formula I	499-322-ZA	Whitmire Micro-Gen Research	Pressurized Liquid	100
Master Label – MGK Roach Bait 2822	1021-1828-ML	McLaughlin Gormley King Co.	Gel, Paste, Cream	NI
Vendetta Cockroach Gel Bait	1021-1828-ZA	McLaughlin Gormley King Co.	Gel, Paste, Cream	NI
Vendetta Plus Cockroach Gel Bait	1021-2593-AA	McLaughlin Gormley King Co.	Gel, Paste, Cream	NI
Master Label – MGK Formula 2977	1021-2614-ML	McLaughlin Gormley King Co.	Gel, Paste, Cream	NI
Prescription Treatment Brand Advance 360A Dual Choice Ant Bait	499-496-AA	Whitmire Micro-Gen Research Lab, Inc.	Gel, Paste, Cream	NI
Raid Ant Baits III	4822-529-AA	S.C, Johnson & Son Co	Gel, Paste, Cream	NI
Raid Double Control Ant Baits II	4822-472-ZG	S.C, Johnson & Son Co	Gel, Paste, Cream	NI
Raid Double Control Large Roach Baits	4822-472-ZE	S.C, Johnson & Son Co	Gel, Paste, Cream	NI
Raid Outdoor Ant Spikes	4822-538-AA	S.C, Johnson & Son Co	Gel, Paste, Cream	NI
XP 820 Insecticide Cattle Ear Tag	39039-17-AA	Y-Tex Corporation	Impregnated Material	NI

NI = No Information.

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Actively registered products containing **chlorpyrifos**. Products are listed in order by EP. Products highlighted indicate a change from the last list. Products not listed are recently registered and not yet listed, or have inactive registration. Agricultural products with inactive registration are considered high-VOC unless they are listed as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Chlorpyrifos Products, EP ≤ 25.0% (17) **Total Chlorpyrifos products - 48**

Product Name	Registration Number	Registrant	Formulation	EP (%)
Prescription Treatment Brand Duraguard ME	499-367-ZA	Whitmire Micro-Gen Research	Aqueous Concentrate	0.00
Durashield CS Controlled Release Premise	499-419-ZB	Whitmire Micro-Gen Research	Microencapsulated	0.00
Lorsban 50W In Water Soluble Packets	62719-221-ZA	Dow AgroSciences LLC	Wettable Powder	3.03
CPF 15G	83222-34-AA	Direct Ag Source LLC	Granular/Flake	3.70
Rainbow Fire Ant & Insect Killer	13283-14-ZA	Rainbow Technology Corporation	Granular/Flake	3.70
Andersons Golf Products Insecticide III	9198-167-AA	Andersons Lawn Fertilizer	Granular/Flake	3.70
Lorsban-75WG	62719-301-AA	Dow AgroSciences LLC	Granular/Flake	3.70
Lorsban 75WG	62719-301-AA-10163	Gowan Company	Granular/Flake	3.70
Lorsban 15G Smartbox	5481-525-AA	Amvac Chemical Corporation	Granular/Flake	3.70
Lorsban 15G Granular Insecticide	62719-34-ZA	Dow AgroSciences LLC	Granular/Flake	5.33
Saurus	62719-34-ZA-5905	Helena Chemical Company	Granular/Flake	5.33
Dursban 50W In Water Soluble Packets	62719-72-ZA	Dow AgroSciences LLC	Wettable Powder	10.80
Warhawk Clearform	34704-1077-AA	Loveland Products, Inc.	Emulsifiable Concentrate	17.89
Drexel Chlorpyrifos 4E-Ag	19713-520-AA	Drexel Chemical Company	Emulsifiable Concentrate	18.20
Lorsban Advanced	62719-591-AA	Dow AgroSciences LLC	Aqueous Concentrate	18.45
Lock-On Insecticide	62719-79-ZA	Dow AgroSciences LLC	Emulsifiable Concentrate	20.90
Vulcan	66222-233-AA	Makhteshim-Agan North Am.	Emulsifiable Concentrate	24.24

High-VOC Chlorpyrifos Products, EP > 25.0% (17)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Cobalt Advanced	62719-615-AA	Dow AgroSciences LLC	Emulsifiable Concentrate	37.42
Govern 4E Insecticide	62719-220-AA-55467	Tenkoz Inc.	Emulsifiable Concentrate	50.00
Whirlwind	62719-220-AA-5905	Helena Chemical Company	Emulsifiable Concentrate	50.00
Eraser	62719-220-AA-71058	Independent Agribusiness Prof	Emulsifiable Concentrate	50.00
Agrisolutions Yuma 4E Insecticide	62719-220-AA-1381	Winfield Solutions LLC	Emulsifiable Concentrate	50.00
Yuma 4E	62719-220-ZA-1381	Winfield Solutions LLC	Emulsifiable Concentrate	50.00
Hatchet	62719-220-ZC	Dow AgroSciences LLC	Emulsifiable Concentrate	50.00
Lorsban-4E	62719-220-ZA	Dow AgroSciences LLC	Emulsifiable Concentrate	51.32
CPF 4E	83222-20-AA	Direct Ag Source, LLC	Emulsifiable Concentrate	50.83
Nufos 4E	67760-28-AA	Cheminova, Inc.	Emulsifiable Concentrate	52.30
Chlorpyrifos 4E Ag	66222-19-AA	Makhteshim-Agan	Emulsifiable Concentrate	52.90
Quali-Pro Chlorpyrifos 4E	66222-19-ZA	Makhteshim-Agan	Emulsifiable Concentrate	52.90
Warhawk	34704-857-AA	Loveland Products, Inc.	Aqueous Concentrate	54.41
Stallion Insecticide	279-9545-AA	FMC Corp. Agricultural	Emulsifiable Concentrate	55.45
Cobalt	62719-575-AA	Dow AgroSciences LLC	Emulsifiable Concentrate	68.61
Bolton Insecticide	67760-112-AA	Cheminova, Inc.	Emulsifiable Concentrate	70.39
Prescription Treatment Brand Duraplex TR Micro	499-405-AA	Whitmire Micro-Gen Research	Pressurized Liquid	100.0

Excluded Chlorpyrifos Products, non-ag use or secondary active ingredient (14)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Dursban W	62719-352-AA	Dow AgroSciences LLC	Wettable Powder	1.85
Pyrinex Chlorpyrifos Insecticide	11678-58-AA	Makhteshim Chemical Works Ltd.	Other (Dry)	2.05
Master Label - Lorsban 50W In Water Soluble Packets	62719-221-ML	Dow AgroSciences LLC	Wettable Powder	3.03
Master Label - Lorsban-75WG	62719-301-ML	Dow AgroSciences LLC	Granular/Flake	3.70
Lorsban 30 Flowable	264-932-AA	Bayer CropScience LP	Flowable Concentrate	4.80
Master Label - Lorsban Advanced	62719-591-ML	Dow AgroSciences LLC	Other (Liquid)	18.45
Master Label - Chlorpyrifos 4E Ag	66222-19-ML	Makhteshim-Agan	Emulsifiable Concentrate	52.90
Dursban HF	62719-351-AA	Dow AgroSciences LLC	Liquid RTU Concentrate	NI
Dursban R	62719-355-AA	Dow AgroSciences LLC	Liquid RTU Concentrate	NI
Dursban XP	62719-355-ZA	Dow AgroSciences LLC	Liquid RTU Concentrate	NI
Lorsban F Insecticidal Chemical	62719-353-ZA	Dow AgroSciences LLC	Liquid RTU Concentrate	NI
Insecta	45600- 1-AA	Insecta Marketing Inc.	Paint/Coatings	NI
Hot Shot Maxattrax Roach Bait	9688- 67-ZB- 8845	Spectrum Group	Gel, Paste, Cream	NI
Warrior Insecticide Cattle Ear Tags	39039- 6-AA	Y-Tex Corporation	Impregnated Material	NI

NI = No Information

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Actively registered products containing **gibberellins**. Products are listed in order by EP. Products highlighted indicate a change from the last list. Products not listed are recently registered and not yet listed, or have inactive registration. Agricultural products with inactive registration are considered high-VOC unless they are listed as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Gibberellins Products, EP ≤ 25.0% (11) **Total Gibberellins products - 27**

Product Name	Registration Number	Registrant	Formulation	EP (%)
GA3 20%	88031-15-AA	CP Bio, Inc.	Dust/Powder	0.00
Gibgro 20% Powder	55146-53-ZA	Nufarm Americas Inc.	Dust/Powder	0.00
Pro-Gibb Plus 2x Plant Growth Regulator	73049-16-AA	Valent Biosciences Corporation	Soluble Powder	1.15
Release Plant Growth Regulator Soluble Powder	73049-6-AA	Valent Biosciences Corporation	Soluble Powder	1.15
N-Large 40 SP	57538-22-AA	Stoller Enterprises, Inc.	Soluble Powder	1.15
Falgro 20SP	62097-3-AA-82917	Fine Americas, Inc.	Soluble Powder	1.15
Provide 10 SG Plant Growth Regulator	73049-409-AA	Valent Biosciences Corporation	Granular/Flake	3.70
Progibb 40% Plant Growth Regulator Water Soluble Granule	73049-1-ZA	Valent Biosciences Corporation	Granular/Flake	3.70
Progibb LV Plus Plant Growth Regulator Solution	73049-498-AA	Valent Biosciences Corportation	Other (Liquid)	11.54
Falgro LV	62097-30-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	18.06
Falgro 2X LV	62097-32-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	22.95

High-VOC Gibberelllins Products, EP > 25.0% (14)

Product Name	Registration Number	Registrant	Formulation	EP (%)
N-Large Premier	57538-20-AA	Stoller Enterprises, Inc.	Aqueous Concentrate	79.02
GA3 4%	88031-11-AA	CP Bio, Inc.	Liquid Concentrate	92.36
Gibbmax	69766-1-AA	Advanced Foliar Nutrients Systems	Other (Liquid)	92.43
Falgro 4L	62097-2-AA-82917	Fine Americas, Inc.	Solution/Liquid	93.82
Florgib 4L	62097-10-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	93.82
Pro-Gibb 4% Plant Growth Regulator Solution	73049-15-AA	Valent Biosciences Corporation	Aqueous Concentrate	94.13
Progibb T&O Plant Growth Regulator Solution	73049-15-ZA	Valent Biosciences Corporation	Aqueous Concentrate	94.13
Gibgro 4LS	55146-62-ZA	Nufarm Americas Inc.	Flowable Concentrate	94.87
Chrysal BVB	72992-10-AA	Chrysal International BV	Aqueous Concentrate	95.30
Fascination Plant Growth Regulator	73049-41-ZA	Valent Biosciences Corporation	Aqueous Concentrate	95.58
Promalin Plant Growth Regulator	73049-41-AA	Valent Biosciences Corporation	Aqueous Concentrate	95.58
Fresco	62097-6-ZA-82917	Fine Americas, Inc.	Aqueous Concentrate	95.85
Perlan	62097-6-AA-82917	Fine Americas Inc	Aqueous Concentrate	95.85
Novagib 10L	62097-7-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	98.91

Excluded Gibberellins Products, non-ag use or secondary active ingredient (2)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Procone Plant Growth Regulator Solution	73049-32-AA	Valent Biosciences Corporation	Solution/Liquid	7.30
Technical Gibberellic Acid (GA3)	88031-6-AA	CP Bio, Inc	Dust/ Powder	NI

NI = No Information.

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Actively registered products containing **oxyfluorfen**. Products are listed in order by EP. Products highlighted indicate a change from the last list. Products not listed are recently registered and not yet listed, or have inactive registration. Agricultural products with inactive registration are considered high-VOC unless they are listed as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

Low-VOC Oxyfluorfen Products, EP ≤ 15% (11) Total Oxyfluorfen products - 31

Product Name	Registration Number	Registrant	Formulation	EP (%)
Galigan H2O	66222-140-AA	Makhteshim-Agan	Aqueous Concentrate	1.64
Regal 0-0 Herbicide	48234-10-AA	Regal Chemical Company	Granular/Flake	3.70
Nufarm Double O SPC Herbicide	228-632-AA	Nufarm Americas Inc.	Granular/Flake	3.70
Willowood Oxyflo 4 SC	87290-10-AA	Willowood, LLC	Aqueous Concentrate	6.76
Goaltender	62719-447-ZA	Dow Agrosciences LLC	Flowable Concentrate	8.28
Rout Ornamental Herbicide	58185-27-AA	Scotts-Sierra Crop Prot. Co.	Granular/Flake	8.60
Rout Ornamental Herbicide	58185-27-ZA	Scotts-Sierra Crop Prot. Co.	Granular/Flake	8.60
Progrow Ornamental Herbicide 2	538-172-AA	Scotts Company	Granular/Flake	9.17
OH 2	538-172-ZA	Scotts Company	Granular/Flake	9.17
Pindar GT	62719-611-AA	Dow Agrosciences LLC	Aqueous Suspension	10.60
Oxystar 4L	42750-199-AA	Albaugh, Inc.	Emulsifiable Concentrate	10.63

High-VOC Oxyfluorfen Products, EP > 15.0% (7)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Willowood Oxyflo 2 EC	87290-8-AA	Willowood, LLC	Emulsifiable Concentrate	60.00
Goal 2XL	62719-424-AA	Dow Agrosciences LLC	Emulsifiable Concentrate	62.30
Colllide Herbicide	70506-295-AA	United Phosphorous, Inc.	Emulsifiable Concentrate	66.08
Oxyfluorfen 2E Herbicide	70506-295-AA-84237	Solera ATO, LLC	Emulsifiable Concentrate	66.08
Galigan 2E Oxyfluorfen Herbicide	66222-28-AA	Makhteshim-Agan	Emulsifiable Concentrate	66.15
Galigan 2E Herbicide	66222-28-ZA	Makhteshim-Agan	Emulsifiable Concentrate	66.15
Oxystar 2E	42750-136-AA	Albaugh, Inc.	Emulsifiable Concentrate	73.09

Excluded Oxyfluorfen Products, non-ag use or secondary active ingredient (13)

Product Name	Registration Number	Registrant	Formulation	EP (%)
Ortho Season Long Grass & Weed Killer Concentrate	239-2622-AA	Scotts Company LLC	Aqueous Concentrate	NI
Spectracide Weed & Grass Killer With Extended Control	9688- 264-AA- 8845	Spectrum Group	Aqueous Concentrate	NI
Galigan Oxyfluorfen Technical	11603-29-AA	Agan Chemical MFG. LTD	Dust/Powder	NI
Willowood Oxyfluorfen Technical	87283-1-AA	Willowood Oxyfluorfen, LLC	Dust/Powder	NI
Ortho Season Long Max Weed & Grass Killer Plus Preventer Concentrate	239- 2694-AA	Scotts Company	Flowable Concentrate	NI
OH2 Ornamental Herbicide	58185-178-AA	Scotts Company	Granular/Flake	NI
Showcase	62719- 516-AA	Dow Agrosciences LLC	Granular/Flake	NI
Goal Technical Purified	62719-399-ZA	Dow Agrosciences LLC	Granular/Flake	NI
Harrell's Granular Herbicide 75	52287-15-AA	Harrell's LLC	Granular/Flake	NI
Spectracide Weed & Grass Killer With Extended Control Concentrate	9688- 259-AA- 8845	Spectrum Group	Other (Liquid)	NI
Ortho Season-Long Grass & Weed Killer Ready To Use	239- 2516-ZE	Scotts Company	Solution/Liquid	NI
Ortho Season-Long Max Weed & Grass Killer Plus Preventer RTU	239-2516-ZF	Scotts Company	Solution/Liquid	NI
Ortho Season Long Max Weed & Grass Killer RTU	239-2516-ZG	Scotts Company	Solution/Liquid	NI

NI = No Information