

## **APPENDIX 1**

- a. SUMMARY OF APPLICATION METHOD ADJUSTMENT FACTORS AND METHOD USE FRACTIONS
- b. FIELD FUMIGATION METHODS (FFM), FFM CODE FOR PESTICIDE USE REPORTING, AND EMISSION RATING

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

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

Fumigation Method <sup>1</sup>	AMAF					
	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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D <sup>2</sup>	Chloropicrin	Methyl Bromide	Metam <sup>3</sup>	Dazomet	Na Tetrathio carbonate <sup>4</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> Use of 1,3-D was suspended in early 1990.

<sup>3</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>4</sup> DPR assumes 100% conversion of sodium (Na) tetrathio carbonate 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D <sup>2</sup>	Chloropicrin	Methyl Bromide	Metam <sup>3</sup>	Dazomet	Na Tetrathio carbonate <sup>4</sup>
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)						

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> Use of 1,3-D was suspended in early 1990.

<sup>3</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>4</sup> DPR assumes 100% conversion of sodium (Na) tetrathio carbonate 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D <sup>2</sup>	Chloropicrin	Methyl Bromide	Metam <sup>3</sup>	Dazomet	Na Tetrathio carbonate <sup>4</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> Use of 1,3-D was suspended in early 1990.

<sup>3</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>4</sup> DPR assumes 100% conversion of sodium (Na) tetrathio carbonate 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D <sup>2</sup>	Chloropicrin	Methyl Bromide	Metam <sup>3</sup>	Dazomet	Na Tetrathio carbonate <sup>4</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> Use of 1,3-D was suspended in early 1990.

<sup>3</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>4</sup> DPR assumes 100% conversion of sodium (Na) tetrathio carbonate 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D <sup>2</sup>	Chloropicrin	Methyl Bromide	Metam <sup>3</sup>	Dazomet	Na Tetrathio carbonate <sup>4</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> Use of 1,3-D was suspended in early 1990.

<sup>3</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>4</sup> DPR assumes 100% conversion of sodium (Na) tetrathio carbonate 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup>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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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)						

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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)						

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup>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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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)						

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup>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.**

Fumigation Method <sup>1</sup>	% of Amount Applied					
	1,3-D	Chloropicrin	Methyl Bromide	Metam <sup>2</sup>	Dazomet	Na Tetrathio-carbonate <sup>3</sup>
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			

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied

<sup>3</sup> 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.**

Fumigation Method	Code	AMAF						
		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/Broadcast	1107			48				
Tarpaulin/Shallow/Broadcast – Nobel Plow	1103		44	48				

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup> 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.**

Fumigation Method	Code	% of Amount Applied						
		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					

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup>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.**

Fumigation Method	Code	% of Amount Applied						
		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				

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup>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.**

Fumigation Method	Code	% of Amount Applied						
		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

<sup>1</sup> Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup> DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup> 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.**

Fumigation Method	Code	% of Amount Applied						
		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				

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup>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.**

Fumigation Method	Code	% of Amount Applied						
		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				

<sup>1</sup>Fumigation methods are described in detail in the memo Bary et al., 2007.

<sup>2</sup>DPR assumes 100% conversion of metam to MITC and percentages are relative to the amount of MITC applied.

<sup>3</sup>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**

<b>Regulation Section</b>	<b>Field Fumigation Method</b>	<b>FFM Code</b>	<b>Emission Rating (%)</b>
<b>6447.3</b>	<b>Methyl Bromide Fumigation Methods (With or without chloropicrin)</b>	<b>1100 series</b>	
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	---
		-	-
<b>6448.1</b>	<b>1,3-Dichloropropene Fumigation Methods (with or without chloropicrin)</b>	<b>1200 series</b>	
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	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)(5)	Nontarpaulin/Deep/Strip	1210	26
6448.1(d)(5)	Nontarpaulin/Deep/GPS-targeted	1211	26
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)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	21
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	---
<b>6449.1</b>	<b>Chloropicrin-Fumigation Methods</b>	<b>1100-1300 series</b>	
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 <del>or Bed</del>	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)(5)	Nontarpaulin/Deep/Broadcast/Strip	1210	64
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast/GPS-targeted	1211	64
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)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	7
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	7
	Other label method for Chloropicrin**	1390	---
<b>Regulation Section</b>	<b>Field Fumigation Method</b>	<b>FFM Code</b>	<b>Emission Rating (%)</b>
<b>6450.1</b>	<b>Metam-Sodium and Metam-Potassium Fumigation Methods</b>	<b>1400 series</b>	
6450.1(d)(1)	Sprinkler/Broadcast or Bed/One Water Treatment	1401	77*
6450.1(d)(2)	Sprinkler/Broadcast or Bed/Two Water Treatments	1402	28
6450.1(d)(3)	Sprinkler/Broadcast or Bed/Three Water Treatments	1403	21
6450.1(d)(4)	Nontarpaulin/Shallow/Broadcast or Bed/One Water Treatment	1404	77*
6450.1(d)(5)	Nontarpaulin/Shallow/Broadcast or Bed /Two Water Treatments	1405	28
6450.1(d)(6)	Nontarpaulin/Shallow/Broadcast or Bed/Three Water Treatments	1406	21
6450.1(d)(7)	Chemigation (Drip System) Tarpaulin	1407	9
	Chemigation (Drip System) Nontarpaulin	1408	9
6450.1(d)(8)	Rotary Tiller	1409	14
	Power Mulcher	1410	14
	Soil Capping	1411	14
6450.1(d)(9)	Flood	1412	77*
6450.1(d)(12)	Drench	1413	100

6450.1(d)(7)	Chemigation (Drip System) Tarpaulin –with tarp eligible for 30%	1447	9
6450.1(d)(2)	Night 1A.M. Start/Sprinkler/Broadcast or Bed/Two Water Treatments	1452	77*
6450.1(d)(10)	1A.M. Start/Nontarpaulin/Shallow/Broadcast or Bed/Two Water Treatments	1455	13
6450.1(d)(11)	4A.M. Start/sprinkler/Broadcast or Bed/Two Water Treatments	1472	35
	Other label method for Metam-Sodium and Metam-Potassium**	1490	---
<b>6450.2</b>	<b>Dazomet Fumigation Methods</b>	<b>1500 series</b>	
	Soil incorporation	1501	17
	Surface application – water incorporation	1502	17
	Other label method for Dazomet**	1590	---
<b>6451.1</b>	<b>Sodium Tetrathiocarbonate Fumigation Methods</b>	<b>1600 series</b>	
	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	---
<b>6446.1</b>	<b>Methyl Iodide Fumigation Methods***</b>	<b>1700 Series</b>	
	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.

†Method no longer allowed. Codes are for applications that were made before 2015 when the method was allowed.



## **APPENDIX 2**

### **SUMMARY OF UNADJUSTED PESTICIDE VOC EMISSIONS**

## APPENDIX 2 – SUMMARY OF UNADJUSTED PESTICIDE VOC EMISSIONS

### 1. Sacramento Metropolitan Area - NAA 1

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

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2013 emissions</b>
1,3-DICHLOROPROPENE	0.164	12.58
ABAMECTIN	0.101	7.73
PROPANIL	0.088	6.75
BIFENTHRIN	0.074	5.70
CHLORPYRIFOS	0.056	4.27
PERMETHRIN	0.053	4.09
THIOBENCARB	0.049	3.74
HEXYTHIAZOX	0.043	3.31
PENOX SULAM	0.040	3.06
OXYFLUORFEN	0.040	3.05

**TABLE A2-1b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2014 emissions</b>
1,3-DICHLOROPROPENE	0.752	37.28
ABAMECTIN	0.120	5.93
BIFENTHRIN	0.106	5.27
PROPANIL	0.094	4.67
POTASSIUM N-METHYLDITHIOCARBAMATE	0.075	3.72
CHLORPYRIFOS	0.059	2.90
TRIFLURALIN	0.054	2.68
HEXYTHIAZOX	0.042	2.08
THIOBENCARB	0.040	1.97
OXYFLUORFEN	0.039	1.94

**TABLE A2-1c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2015 emissions</b>
1,3-DICHLOROPROPENE	0.104	7.76
METHYL BROMIDE	0.099	7.39
PROPANIL	0.092	6.84
ABAMECTIN	0.082	6.09
PERMETHRIN	0.062	4.64
BIFENTHRIN	0.057	4.23
THIOBENCARB	0.048	3.60
OXYFLUORFEN	0.048	3.55
CHLORPYRIFOS	0.045	3.33
CHLOROPICRIN	0.042	3.15

**TABLE A2-1d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2016 emissions</b>
METHYL BROMIDE	0.126	8.55
PROPANIL	0.122	8.32
1,3-DICHLOROPROPENE	0.080	5.46
ABAMECTIN	0.076	5.14
THIOBENCARB	0.074	5.03
PENOX SULAM	0.054	3.68
TRIFLURALIN	0.054	3.65
CHLORPYRIFOS	0.053	3.58
OXYFLUORFEN	0.045	3.06
HEXYTHIAZOX	0.043	2.91

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

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2013 emissions</b>
RICE	0.275	21.11
STRUCTURAL PEST CONTROL	0.164	12.55
WALNUT	0.161	12.36
TOMATOES, FOR PROCESSING	0.110	8.43
GRAPES, WINE	0.105	8.04
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.100	7.65
UNCULTIVATED AGRICULTURAL AREAS*	0.049	3.78
LANDSCAPE MAINTENANCE	0.048	3.68
ALMOND	0.047	3.59
RIGHTS OF WAY	0.046	3.54

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

**TABLE A2-1f:** Top ten pesticide application sites contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 1**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2014 emissions</b>
ALMOND	0.668	33.10
RICE	0.276	13.70
WALNUT	0.167	8.30
GRAPES, WINE	0.149	7.37
STRUCTURAL PEST CONTROL	0.144	7.14
TOMATOES, FOR PROCESSING	0.139	6.90
UNCULTIVATED AGRICULTURAL AREAS*	0.112	5.54
SOIL APPLICATION, PREPLANT-OUTDOOR	0.097	4.81
LANDSCAPE MAINTENANCE	0.045	2.23
RIGHTS OF WAY	0.039	1.92

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

**TABLE A2-1g:** Top ten pesticide application sites contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 1**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2015 emissions</b>
RICE	0.271	20.19
WALNUT	0.141	10.55
UNCULTIVATED AGRICULTURAL AREAS*	0.135	10.04
TOMATOES, FOR PROCESSING	0.132	9.81
GRAPES, WINE	0.123	9.15
STRUCTURAL PEST CONTROL	0.121	9.01
ALMOND	0.100	7.45
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.086	6.41
RIGHTS OF WAY	0.038	2.86
LANDSCAPE MAINTENANCE	0.033	2.46

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

**TABLE A2-1h:** Top ten pesticide application sites contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 1**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 1 May – Oct 2016 emissions</b>
RICE	0.354	24.10
ALMOND	0.148	10.06
WALNUT	0.140	9.50
GRAPES, WINE	0.130	8.84
TOMATOES, FOR PROCESSING	0.119	8.06
STRUCTURAL PEST CONTROL	0.114	7.77
UNCULTIVATED AGRICULTURAL AREAS*	0.064	4.38
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.054	3.66
RIGHTS OF WAY	0.043	2.94
LANDSCAPE MAINTENANCE	0.040	2.73

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

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

<b>NAA 1 - 2013</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.003	0.000
NON-METHYL BROMIDE EMISSIONS	1.136	0.164

**TABLE A2-1j:** *Unadjusted 2014* May–October VOC emissions in **NAA1** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 1 - 2014</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.002	0.000
NON-METHYL BROMIDE EMISSIONS	1.870	0.144

**TABLE A2-1k: Unadjusted 2015 May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).**

<b>NAA 1 - 2015</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.074	0.000
NON-METHYL BROMIDE EMISSIONS	1.120	0.121

**TABLE A2-1l: Unadjusted 2016 May–October VOC emissions in NAA1 by ARB emission inventory classification (tons per day, tpd).**

<b>NAA 1 - 2016</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.097	0.000
NON-METHYL BROMIDE EMISSIONS	1.230	0.114

## 2. San Joaquin Valley - NAA 2

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

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2013 emissions</b>
1,3-DICHLOROPROPENE	6.759	22.40
POTASSIUM N-METHYLDITHIOCARBAMATE	4.733	15.69
CHLORPYRIFOS	1.886	6.25
ABAMECTIN	1.885	6.25
METHYL BROMIDE	1.830	6.07
METAM-SODIUM	1.623	5.38
FENPYROXIMATE	1.500	4.97
GLYPHOSATE, ISOPROPYLAMINE SALT	0.976	3.23
HEXYTHIAZOX	0.945	3.13
OXYFLUORFEN	0.891	2.95

**TABLE A2-2b: Top ten primary active ingredients contributing to 2014 May-October ozone season unadjusted VOC emissions in NAA 2, the San Joaquin Valley.**

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2014 emissions</b>
1,3-DICHLOROPROPENE	6.972	26.38
POTASSIUM N-METHYLDITHIOCARBAMATE	3.631	13.74
ABAMECTIN	1.498	5.67
METHYL BROMIDE	1.491	5.64
CHLORPYRIFOS	1.404	5.31
METAM-SODIUM	1.362	5.15
HEXYTHIAZOX	0.911	3.45
FENPYROXIMATE	0.879	3.33
GLYPHOSATE, ISOPROPYLAMINE SALT	0.808	3.06
OXYFLUORFEN	0.764	2.89

**TABLE A2-2c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 2**, the San Joaquin Valley.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2015 emissions</b>
1,3-DICHLOROPROPENE	8.998	33.94
POTASSIUM N-METHYLDITHIOCARBAMATE	3.290	12.41
METAM-SODIUM	1.599	6.03
METHYL BROMIDE	1.289	4.86
HEXYTHIAZOX	0.859	3.24
FENPYROXIMATE	0.799	3.01
CHLOROPICRIN	0.754	2.84
ABAMECTIN	0.740	2.79
CHLORPYRIFOS	0.715	2.70
BIFENTHRIN	0.592	2.23

**TABLE A2-2d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 2**, the San Joaquin Valley.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2016 emissions</b>
1,3-DICHLOROPROPENE	8.612	32.90
POTASSIUM N-METHYLDITHIOCARBAMATE	2.939	11.23
METAM-SODIUM	1.564	5.97
METHYL BROMIDE	1.204	4.60
ABAMECTIN	0.757	2.89
CHLORPYRIFOS	0.753	2.88
GLYPHOSATE, ISOPROPYLAMINE SALT	0.696	2.66
HEXYTHIAZOX	0.686	2.62
CHLOROPICRIN	0.663	2.53
BIFENTHRIN	0.651	2.49

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

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2013 emissions</b>
ALMOND	6.323	20.96
CARROTS	5.038	16.70
SOIL APPLICATION, PREPLANT-OUTDOOR*	3.513	11.65
COTTON, GENERAL	1.815	6.01
TOMATOES, FOR PROCESSING	1.309	4.34
GRAPES	1.019	3.38
ORANGE	0.988	3.28
UNCULTIVATED AGRICULTURAL AREAS*	0.856	2.84
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.844	2.80
ONION	0.772	2.56

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

**TABLE A2-2f:** Top ten pesticide application sites contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 2**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2014 emissions</b>
ALMOND	5.406	20.46
CARROTS	3.926	14.86
SOIL APPLICATION, PREPLANT-OUTDOOR*	3.875	14.66
COTTON	1.273	4.82
TOMATOES, FOR PROCESSING	1.145	4.33
ORANGE	0.963	3.64
GRAPES	0.906	3.43
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.852	3.22
N-OUTDR GRWN TRNSPLNT/PRPGTV MTRL	0.841	3.18
WALNUT	0.836	3.16

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

**TABLE A2-2g:** Top ten pesticide application sites contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 2**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2015 emissions</b>
ALMOND	5.850	22.06
SOIL APPLICATION, PREPLANT-OUTDOOR*	4.529	17.08
CARROTS	3.918	14.78
WALNUT	1.049	3.96
COTTON	1.030	3.88
TOMATOES, FOR PROCESSING	0.975	3.68
GRAPES	0.945	3.56
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.872	3.29
PISTACHIO	0.652	2.46
ORANGE	0.651	2.45

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

**TABLE A2-2h:** Top ten pesticide application sites contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 2**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 2 May – Oct 2016 emissions</b>
ALMOND	6.159	23.52
CARROTS	4.374	16.71
SOIL APPLICATION, PREPLANT-OUTDOOR*	2.463	9.41
COTTON	1.286	4.91
N-OUTDR CONTAINER/FLD GRWN PLANTS	1.057	4.04
TOMATOES, FOR PROCESSING	0.997	3.81
WALNUT	0.840	3.21
ORANGE	0.800	3.05
PISTACHIO	0.799	3.05
TANGERINE	0.794	3.03

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

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

<b>NAA 2 - 2013</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	1.597	0.000
NON-METHYL BROMIDE EMISSIONS	28.098	0.242

**TABLE A2-2j: Unadjusted 2014** May–October VOC emissions in **NAA 2** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 2 - 2014</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	1.278	0.000
NON-METHYL BROMIDE EMISSIONS	24.723	0.216

**TABLE A2-2k: Unadjusted 2015** May–October VOC emissions in **NAA 2** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 2 - 2015</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	1.130	<0.001
NON-METHYL BROMIDE EMISSIONS	24.998	0.228

**TABLE A2-2l: Unadjusted 2016** May–October VOC emissions in **NAA 2** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 2 - 2016</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	1.086	0.000
NON-METHYL BROMIDE EMISSIONS	24.735	0.242

### 3. Southeast Desert - NAA 3

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

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2013 emissions</b>
CHLOROPICRIN	0.278	35.07
METAM-SODIUM	0.161	20.27
1,3-DICHLOROPROPENE	0.133	16.74
DAZOMET	0.019	2.45
BENSULIDE	0.019	2.41
BIFENTHRIN	0.017	2.12
PERMETHRIN	0.015	1.89
GLYPHOSATE, ISOPROPYLAMINE SALT	0.012	1.48
EPTC	0.010	1.30
MEFENOXAM	0.009	1.18



**TABLE A2-3b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2014 emissions</b>
METAM-SODIUM	0.111	21.61
CHLOROPICRIN	0.109	21.41
METHYL BROMIDE	0.078	15.20
BENSULIDE	0.017	3.39
GLYPHOSATE, ISOPROPYLAMINE SALT	0.016	3.04
CYPERMETHRIN	0.014	2.81
BIFENTHRIN	0.014	2.77
EPTC	0.010	2.04
PERMETHRIN	0.009	1.68
MEFENOXAM	0.009	1.68

**TABLE A2-3c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2015 emissions</b>
1,3-DICHLOROPROPENE	0.138	22.79
METAM-SODIUM	0.112	18.63
CHLOROPICRIN	0.066	10.93
CYPERMETHRIN	0.025	4.17
BENSULIDE	0.023	3.77
GLYPHOSATE, ISOPROPYLAMINE SALT	0.022	3.56
ACETIC ACID	0.020	3.39
BIFENTHRIN	0.020	3.35
DAZOMET	0.019	3.12
MEFENOXAM	0.010	1.69

**TABLE A2-3d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2016 emissions</b>
METAM-SODIUM	0.146	29.80
CHLOROPICRIN	0.061	12.37
METHYL BROMIDE	0.044	8.99
CYPERMETHRIN	0.023	4.67
BENSULIDE	0.014	2.92
GLYPHOSATE, ISOPROPYLAMINE SALT	0.014	2.91
DAZOMET	0.014	2.85
BIFENTHRIN	0.011	2.26
GLYPHOSATE, POTASSIUM SALT	0.010	2.08
SULFUR	0.008	1.63

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

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2013 emissions</b>
STRAWBERRY	0.209	26.42
UNCULTIVATED AGRICULTURAL AREAS*	0.207	26.08
PEPPERS	0.159	20.11
STRUCTURAL PEST CONTROL	0.080	10.04
RIGHTS OF WAY	0.027	3.39
LANDSCAPE MAINTENANCE	0.024	3.06
CARROTS	0.019	2.46
LETTUCE	0.013	1.68
GRAPES	0.008	1.05
CORN, HUMAN CONSUMPTION	0.005	0.67

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

**TABLE A2-3f:** Top ten pesticide application sites contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 3**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2014 emissions</b>
PEPPERS	0.116	22.76
STRAWBERRY	0.110	21.56
ORNAMENTAL TURF	0.075	14.67
STRUCTURAL PEST CONTROL	0.068	13.21
LANDSCAPE MAINTENANCE	0.021	4.16
CARROTS	0.020	3.82
RIGHTS OF WAY	0.015	2.91
UNCULTIVATED AGRICULTURAL AREAS*	0.013	2.60
LETTUCE	0.012	2.36
POTATO	0.011	2.15

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

**TABLE A2-3g:** Top ten pesticide application sites contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 3**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2015 emissions</b>
GRAPES	0.141	23.42
PEPPERS	0.092	15.18
STRUCTURAL PEST CONTROL	0.090	14.86
STRAWBERRY	0.067	11.04
RIGHTS OF WAY	0.032	5.27
LANDSCAPE MAINTENANCE	0.022	3.71
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.022	3.64
LEMON	0.021	3.50
WATERMELONS	0.020	3.27
UNCULTIVATED AGRICULTURAL AREAS*	0.015	2.45

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

**TABLE A2-3h:** Top ten pesticide application sites contributing to **2016** May–October ozone season *unadjusted* VOC emissions in **NAA 3**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 3 May – Oct 2016 emissions</b>
PEPPERS	0.115	23.39
STRUCTURAL PEST CONTROL	0.078	15.90
STRAWBERRY	0.061	12.39
ORNAMENTAL TURF	0.044	9.02
GRAPES	0.039	7.98
RIGHTS OF WAY	0.035	7.07
CARROTS	0.022	4.39
LANDSCAPE MAINTENANCE	0.021	4.34
LEMON	0.014	2.81
LETTUCE	0.008	1.57

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

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

<b>NAA 3 - 2013</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.001	0.000
NON-METHYL BROMIDE EMISSIONS	0.712	0.080

**TABLE A2-3j:** *Unadjusted 2014* May–October VOC emissions in **NAA 3** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 3 - 2014</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.076	0.000
NON-METHYL BROMIDE EMISSIONS	0.366	0.068

**TABLE A2-3k:** *Unadjusted 2015* May–October VOC emissions in **NAA 3** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 3 - 2015</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.001	0.000
NON-METHYL BROMIDE EMISSIONS	0.514	0.090

**TABLE A2-3l:** *Unadjusted 2016* May–October VOC emissions in **NAA 3** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 3 - 2016</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.043	0.000
NON-METHYL BROMIDE EMISSIONS	0.368	0.078

#### 4. Ventura - NAA 4

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

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2013 emissions</b>
CHLOROPICRIN	5.067	61.47
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
MINERAL OIL	0.047	0.58
ABAMECTIN	0.036	0.44
CHLORPYRIFOS	0.031	0.38
DAZOMET	0.018	0.22
GIBBERELLINS	0.017	0.21

**TABLE A2-4b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2014 emissions</b>
CHLOROPICRIN	5.665	69.63
METHYL BROMIDE	1.155	14.19
METAM-SODIUM	0.383	4.71
1,3-DICHLOROPROPENE	0.361	4.44
POTASSIUM N-METHYLDITHIOCARBAMATE	0.134	1.64
MINERAL OIL	0.054	0.66
CHLORPYRIFOS	0.038	0.47
ABAMECTIN	0.035	0.43
OXAMYL	0.019	0.23
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	0.18

**TABLE A2-4c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2015 emissions</b>
CHLOROPICRIN	4.077	52.33
METHYL BROMIDE	1.870	24.00
METAM-SODIUM	0.976	12.52
1,3-DICHLOROPROPENE	0.338	4.34
POTASSIUM N-METHYLDITHIOCARBAMATE	0.071	0.91
MINERAL OIL	0.064	0.82
CHLORPYRIFOS	0.034	0.44
ABAMECTIN	0.027	0.35
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.022	0.28
NOVALURON	0.016	0.21

**TABLE A2-4d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2016 emissions</b>
CHLOROPICRIN	4.922	72.95
METHYL BROMIDE	0.778	11.53
1,3-DICHLOROPROPENE	0.302	4.48
METAM-SODIUM	0.235	3.48
POTASSIUM N-METHYLDITHIOCARBAMATE	0.086	1.27
MINERAL OIL	0.068	1.00
CHLORPYRIFOS	0.033	0.49
ABAMECTIN	0.020	0.30
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	0.25
POTASH SOAP	0.016	0.23

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

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2013 emissions</b>
STRAWBERRY	7.217	87.56
RASPBERRY	0.574	6.97
LEMON	0.103	1.25
N-OUTDR GRWN CUT FLWRS OR GREENS	0.094	1.13
STRUCTURAL PEST CONTROL	0.032	0.39
AVOCADO	0.027	0.33
CELERY	0.024	0.29
RIGHTS OF WAY	0.022	0.27
PEPPERS	0.021	0.26
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.020	0.24

**TABLE A2-4f.** Top ten pesticide application sites contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 4**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2014 emissions</b>
STRAWBERRY	7.015	86.21
RASPBERRY	0.589	7.24
LEMON	0.113	1.39
N-OUTDR GRWN CUT FLWRS OR GREENS	0.086	1.06
PEPPERS	0.061	0.75
RIGHTS OF WAY	0.039	0.48
AVOCADO	0.027	0.33
CELERY	0.026	0.32
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.026	0.32
STRUCTURAL PEST CONTROL	0.022	0.27

**TABLE A2-4g.** Top ten pesticide application sites contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 4**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2015 emissions</b>
STRAWBERRY	7.044	90.40
RASPBERRY	0.183	2.35
PEPPERS	0.130	1.67
LEMON	0.127	1.63
N-OUTDR GRWN CUT FLWRS OR GREENS	0.074	0.95
STRUCTURAL PEST CONTROL	0.029	0.38
CELERY	0.024	0.31
AVOCADO	0.021	0.27
CARROTS	0.018	0.23
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.016	0.20

**TABLE A2-4h.** Top ten pesticide application sites contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 4**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 4 May – Oct 2016 emissions</b>
STRAWBERRY	6.017	89.18
RASPBERRY	0.142	2.10
PEPPERS	0.139	2.06
LEMON	0.126	1.86
N-OUTDR GRWN CUT FLWRS OR GREENS	0.076	1.13
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.036	0.54
STRUCTURAL PEST CONTROL	0.018	0.27
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.017	0.25
AVOCADO	0.017	0.25
CELERY	0.015	0.23

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

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

<b>NAA 4 - 2013</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.498	0.000
NON-METHYL BROMIDE EMISSIONS	7.222	0.032

**TABLE A2-4j:** *Unadjusted 2014* May–October VOC emissions in **NAA 4** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 4 - 2014</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.590	<0.001
NON-METHYL BROMIDE EMISSIONS	6.961	0.022

**TABLE A2-4k: Unadjusted 2015 May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).**

<b>NAA 4 - 2015</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.981	<0.001
NON-METHYL BROMIDE EMISSIONS	5.893	0.029

**TABLE A2-4l: Unadjusted 2016 May–October VOC emissions in NAA 4 by ARB emission inventory classification (tons per day, tpd).**

<b>NAA 4 - 2016</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.425	0.000
NON-METHYL BROMIDE EMISSIONS	5.951	0.018

## 5. South Coast - NAA 5

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

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2013 emissions</b>
CHLOROPICRIN	0.264	17.39
METHYL BROMIDE	0.180	11.83
PERMETHRIN	0.130	8.53
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.120	7.89
DISODIUM OCTABORATE TETRAHYDRATE	0.119	7.85
BIFENTHRIN	0.094	6.19
PIPERONYL BUTOXIDE	0.063	4.12
CYFLUTHRIN	0.037	2.41
FIPRONIL	0.034	2.23
DAZOMET	0.030	1.99

**TABLE A2-5b: Top ten primary active ingredients contributing to 2014 May-October ozone season unadjusted VOC emissions in NAA 5, South Coast.**

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2014 emissions</b>
CHLOROPICRIN	0.137	10.82
METHYL BROMIDE	0.125	9.85
PERMETHRIN	0.102	8.07
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.099	7.84
BIFENTHRIN	0.082	6.44
CYFLUTHRIN	0.068	5.36
DISODIUM OCTABORATE TETRAHYDRATE	0.067	5.31
PIPERONYL BUTOXIDE	0.047	3.70
CYPERMETHRIN	0.043	3.38
FIPRONIL	0.038	2.97

**TABLE A2-5c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2015 emissions</b>
METHYL BROMIDE	0.240	16.14
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.110	7.39
BIFENTHRIN	0.109	7.32
PERMETHRIN	0.102	6.84
DAZOMET	0.098	6.59
CYPERMETHRIN	0.075	5.02
DISODIUM OCTABORATE TETRAHYDRATE	0.067	4.53
D-TRANS ALLETHRIN	0.059	3.94
FIPRONIL	0.046	3.08
CYFLUTHRIN	0.045	3.01

**TABLE A2-5d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2016 emissions</b>
METHYL BROMIDE	0.382	25.62
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.091	6.08
PERMETHRIN	0.076	5.09
METAM-SODIUM	0.076	5.08
DISODIUM OCTABORATE TETRAHYDRATE	0.069	4.63
BIFENTHRIN	0.068	4.57
CYPERMETHRIN	0.063	4.20
IMIDACLOPRID	0.058	3.91
PIPERONYL BUTOXIDE	0.048	3.20
FIPRONIL	0.044	2.96

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

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2013 emissions</b>
STRUCTURAL PEST CONTROL	0.757	49.85
STRAWBERRY	0.359	23.62
LANDSCAPE MAINTENANCE	0.163	10.73
FUMIGATION, OTHER	0.078	5.12
RIGHTS OF WAY	0.055	3.64
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.025	1.62
COMMODITY FUMIGATION	0.019	1.22
BOK CHOY	0.010	0.68
ORANGE	0.008	0.50
SOIL APPLICATION, PREPLANT-OUTDOOR*	0.007	0.46

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



**TABLE A2-5f:** Top ten pesticide application sites contributing to **2014** May-October ozone season *unadjusted* VOC emissions in **NAA 5**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2014 emissions</b>
STRUCTURAL PEST CONTROL	0.693	54.72
STRAWBERRY	0.191	15.07
LANDSCAPE MAINTENANCE	0.158	12.50
FUMIGATION, OTHER	0.061	4.79
RIGHTS OF WAY	0.052	4.07
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.019	1.50
COMMODITY FUMIGATION	0.015	1.19
ORNAMENTAL TURF	0.007	0.59
CABBAGE	0.007	0.58
ORANGE	0.007	0.57

**TABLE A2-5g:** Top ten pesticide application sites contributing to **2015** May-October ozone season *unadjusted* VOC emissions in **NAA 5**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2015 emissions</b>
STRUCTURAL PEST CONTROL	0.823	55.37
STRAWBERRY	0.187	12.61
LANDSCAPE MAINTENANCE	0.154	10.35
RIGHTS OF WAY	0.150	10.11
FUMIGATION, OTHER	0.057	3.86
COMMODITY FUMIGATION	0.019	1.30
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.014	0.97
AVOCADO	0.009	0.58
POTATO	0.008	0.54
PEPPERS	0.007	0.49

**TABLE A2-5h:** Top ten pesticide application sites contributing to **2016** May-October ozone season *unadjusted* VOC emissions in **NAA 5**.

<b>Application Site</b>	<b>Emissions (tons/day)</b>	<b>Percent of all NAA 5 May – Oct 2016 emissions</b>
STRUCTURAL PEST CONTROL	0.683	45.86
STRAWBERRY	0.341	22.89
LANDSCAPE MAINTENANCE	0.146	9.83
RIGHTS OF WAY	0.083	5.55
CARROTS	0.070	4.69
FUMIGATION, OTHER	0.058	3.88
COMMODITY FUMIGATION	0.025	1.67
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.013	0.86
PEPPERS	0.011	0.77
AVOCADO	0.007	0.48

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

<b>NAA 5 - 2013</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.138	0.000
NON-METHYL BROMIDE EMISSIONS	0.582	0.757

**TABLE A2-5j: Unadjusted 2014** May–October VOC emissions in **NAA 5** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 5 - 2014</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.103	0.000
NON-METHYL BROMIDE EMISSIONS	0.449	0.693

**TABLE A2-5k: Unadjusted 2015** May–October VOC emissions in **NAA 5** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 5 - 2015</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.159	0.000
NON-METHYL BROMIDE EMISSIONS	0.423	0.823

**TABLE A2-5l: Unadjusted 2016** May–October VOC emissions in **NAA 5** by ARB emission inventory classification (tons per day, tpd).

<b>NAA 5 - 2016</b>	<b>Agricultural Applications</b>	<b>Structural Applications</b>
METHYL BROMIDE EMISSIONS	0.232	0.000
NON-METHYL BROMIDE EMISSIONS	0.424	0.683

## **APPENDIX 3**

### **SUMMARY OF ADJUSTED PESTICIDE VOC EMISSIONS**

## APPENDIX 3 – SUMMARY OF ADJUSTED PESTICIDE VOC EMISSIONS

### 1. Sacramento Metropolitan Area - NAA 1

**Table A3-1a:** 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	0.101	8.61
PROPANIL	0.088	7.51
BIFENTHRIN	0.074	6.35
CHLORPYRIFOS	0.056	4.75
PERMETHRIN	0.053	4.55
THIOBENCARB	0.049	4.17
HEXYTHIAZOX	0.043	3.68
PENOX SULAM	0.040	3.40
OXYFLUORFEN	0.040	3.40
TRIFLURALIN	0.040	3.38

**Table A3-1b:** Top ten primary active ingredients contributing to **2014** 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 2014 Adjusted Emissions
1,3-DICHLOROPROPENE	0.188	13.76
ABAMECTIN	0.120	8.74
BIFENTHRIN	0.106	7.77
PROPANIL	0.094	6.88
CHLORPYRIFOS	0.059	4.28
TRIFLURALIN	0.054	3.95
HEXYTHIAZOX	0.042	3.07
THIOBENCARB	0.040	2.90
OXYFLUORFEN	0.039	2.86
PENOX SULAM	0.038	2.79

**Table A3-1c:** Top ten primary active ingredients contributing to **2015** 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 2015 Adjusted Emissions
PROPANIL	0.092	7.72
ABAMECTIN	0.082	6.87
PERMETHRIN	0.062	5.24
BIFENTHRIN	0.057	4.77
THIOBENCARB	0.048	4.06
OXYFLUORFEN	0.048	4.01
CHLORPYRIFOS	0.045	3.76
TRIFLURALIN	0.041	3.49
HEXYTHIAZOX	0.038	3.22
METHYL BROMIDE	0.036	3.04

**Table A3-1d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 1 May – Oct 2016 Adjusted Emissions</b>
PROPANIL	0.122	9.14
ABAMECTIN	0.076	5.65
THIOBENCARB	0.074	5.53
PENOX SULAM	0.054	4.05
TRIFLURALIN	0.054	4.01
CHLORPYRIFOS	0.053	3.94
METHYL BROMIDE	0.051	3.84
OXYFLUORFEN	0.045	3.37
HEXYTHIAZOX	0.043	3.20
BIFENTHRIN	0.042	3.17

**Table A3-1e:** Top ten pesticide application sites contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 1 May – Oct 2014 Adjusted Emissions</b>
RICE	0.2762526	19.923726
ALMOND	0.2271534	16.382626
WALNUT	0.1468327	10.589779
STRUCTURAL PEST CONTROL	0.1440231	10.387153
TOMATOES, FOR PROCESSING	0.139148	10.035553
GRAPES, WINE	0.1306282	9.4210924
LANDSCAPE MAINTENANCE	0.0449227	3.2398871
RIGHTS OF WAY	0.0387189	2.7924624
UNCULTIVATED AGRICULTURAL AREAS*	0.0309763	2.2340535
SOIL APPLICATION, PREPLANT-OUTDOOR	0.0305034	2.1999495

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

**Table A3-1f:** Top ten pesticide application sites contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 1 May – Oct 2015 Adjusted Emissions</b>
RICE	0.271	22.72
WALNUT	0.141	11.87
TOMATOES, FOR PROCESSING	0.132	11.04
GRAPES, WINE	0.123	10.29
STRUCTURAL PEST CONTROL	0.121	10.14
ALMOND	0.078	6.53
UNCULTIVATED AGRICULTURAL AREAS*	0.068	5.68
RIGHTS OF WAY	0.038	3.22
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.035	2.92
LANDSCAPE MAINTENANCE	0.033	2.77

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

**Table A3-1g:** Top ten pesticide application sites contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 1**, the Sacramento Metropolitan Area.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 1 May – Oct 2016 Adjusted Emissions</b>
RICE	0.354	26.45
WALNUT	0.140	10.42
TOMATOES, FOR PROCESSING	0.119	8.85
GRAPES, WINE	0.117	8.76
STRUCTURAL PEST CONTROL	0.114	8.53
ALMOND	0.109	8.11
RIGHTS OF WAY	0.043	3.22
LANDSCAPE MAINTENANCE	0.040	2.99
UNCULTIVATED AGRICULTURAL AREAS*	0.037	2.76
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.035	2.58

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

## 2. San Joaquin Valley - NAA 2

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

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 2 May – Oct 2013 Adjusted Emissions</b>
CHLORPYRIFOS	1.886	9.77
ABAMECTIN	1.885	9.77
1,3-DICHLOROPROPENE	1.770	9.17
FENPYROXIMATE	1.500	7.77
GLYPHOSATE, ISOPROPYLAMINE SALT	0.976	5.06
POTASSIUM N-METHYLDITHIOCARBAMATE	0.947	4.91
HEXYTHIAZOX	0.945	4.90
OXYFLUORFEN	0.891	4.62
METHYL BROMIDE	0.821	4.26
GIBBERELLINS	0.671	3.48

**Table A3-2b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 2**, the San Joaquin Valley.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 2 May – Oct 2014 Adjusted Emissions</b>
1,3-DICHLOROPROPENE	1.783	10.74
ABAMECTIN	1.498	9.03
CHLORPYRIFOS	1.404	8.46
HEXYTHIAZOX	0.911	5.49
FENPYROXIMATE	0.879	5.30
POTASSIUM N-METHYLDITHIOCARBAMATE	0.835	5.03
GLYPHOSATE, ISOPROPYLAMINE SALT	0.808	4.87
OXYFLUORFEN	0.764	4.60
METHYL BROMIDE	0.733	4.42
BIFENTHRIN	0.581	3.50

**Table A3-2c:** Top ten primary active ingredients contributing to **2015** 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 2015 Adjusted Emissions
1,3-DICHLOROPROPENE	2.270	15.03
HEXYTHIAZOX	0.859	5.69
FENPYROXIMATE	0.799	5.29
POTASSIUM N-METHYLDITHIOCARBAMATE	0.790	5.23
ABAMECTIN	0.740	4.90
CHLORPYRIFOS	0.715	4.74
METHYL BROMIDE	0.608	4.02
BIFENTHRIN	0.592	3.92
GLYPHOSATE, ISOPROPYLAMINE SALT	0.528	3.49
CHLOROPICRIN	0.517	3.42

**Table A3-2d:** Top ten primary active ingredients contributing to **2016** 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 2016 Adjusted Emissions
1,3-DICHLOROPROPENE	2.169	14.28
ABAMECTIN	0.757	4.99
CHLORPYRIFOS	0.753	4.96
GLYPHOSATE, ISOPROPYLAMINE SALT	0.696	4.58
HEXYTHIAZOX	0.686	4.52
BIFENTHRIN	0.651	4.28
METHYL BROMIDE	0.608	4.00
POTASSIUM N-METHYLDITHIOCARBAMATE	0.553	3.64
FENPYROXIMATE	0.519	3.42
GLUFOSINATE-AMMONIUM	0.509	3.35

**Table A3-2e:** Top ten pesticide application sites contributing to **2014** 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 2014 Adjusted Emissions
ALMOND	4.7771834	28.453126
COTTON	1.2733349	7.584042
SOIL APPLICATION, PREPLANT*	1.2145127	7.233694
ORANGE	0.9133316	5.4398454
CARROTS	0.7996628	4.7628288
GRAPES	0.7880972	4.6939432
TOMATOES, FOR PROCESSING	0.6607358	3.9353732
WALNUT	0.644504	3.8386958
PISTACHIO	0.6094648	3.6300008
GRAPES, WINE	0.583706	3.4765801

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

**Table A3-2f:** Top ten pesticide application sites contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 2**, the San Joaquin Valley.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 2 May – Oct 2015 Adjusted Emissions</b>
ALMOND	4.298	27.99
SOIL APPLICATION, PREPLANT*	1.479	9.63
COTTON	1.030	6.71
CARROTS	0.729	4.75
WALNUT	0.673	4.39
PISTACHIO	0.652	4.25
ORANGE	0.620	4.04
GRAPES	0.618	4.03
TOMATOES, FOR PROCESSING	0.579	3.77
GRAPES, WINE	0.496	3.23

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

**Table A3-2g:** Top ten pesticide application sites contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 2**, the San Joaquin Valley.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 2 May – Oct 2016 Adjusted Emissions</b>
ALMOND	4.331	28.07
COTTON	1.286	8.33
CARROT	0.834	5.40
PISTACHIO	0.799	5.18
ORANGE	0.754	4.89
SOIL APPLICATION, PREPLANT*	0.735	4.77
WALNUT	0.660	4.28
TOMATOES, FOR PROCESSING	0.558	3.62
GRAPES	0.555	3.60
GRAPES, WINE	0.434	2.82

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

### 3. Southeast Desert - NAA 3

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

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2013 Adjusted Emissions</b>
1,3-DICHLOROPROPENE	0.063	18.01
METAM-SODIUM	0.046	13.07
CHLOROPICRIN	0.019	5.58
DAZOMET	0.019	5.57
BENSULIDE	0.019	5.46
BIFENTHRIN	0.017	4.80
PERMETHRIN	0.015	4.29
GLYPHOSATE, ISOPROPYLAMINE SALT	0.012	3.36
EPTC	0.010	2.94
MEFENOXAM	0.009	2.67



**Table A3-3b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2014 Adjusted Emissions</b>
METHYL BROMIDE	0.037	13.33
BENSULIDE	0.017	6.20
METAM-SODIUM	0.017	6.06
GLYPHOSATE, ISOPROPYLAMINE SALT	0.016	5.55
CYPERMETHRIN	0.014	5.14
BIFENTHRIN	0.014	5.05
1,3-DICHLOROPROPENE	0.012	4.21
EPTC	0.010	3.72
PERMETHRIN	0.009	3.08
MEFENOXAM	0.009	3.07

**Table A3-3c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2015 Adjusted Emissions</b>
1,3-DICHLOROPROPENE	0.043	12.13
CYPERMETHRIN	0.025	7.18
METAM-SODIUM	0.023	6.63
BENSULIDE	0.023	6.50
GLYPHOSATE, ISOPROPYLAMINE SALT	0.022	6.14
ACETIC ACID	0.020	5.84
BIFENTHRIN	0.020	5.76
DAZOMET	0.019	5.37
MEFENOXAM	0.010	2.91
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.007	2.10

**Table A3-3d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2016 Adjusted Emissions</b>
METAM-SODIUM	0.024	8.40
CYPERMETHRIN	0.023	7.92
METHYL BROMIDE	0.021	7.30
BENSULIDE	0.014	4.96
GLYPHOSATE, ISOPROPYLAMINE SALT	0.014	4.94
DAZOMET	0.014	4.83
BIFENTHRIN	0.011	3.83
GLYPHOSATE, POTASSIUM SALT	0.010	3.54
SULFUR	0.008	2.76
IMIDACLOPRID	0.008	2.64

**Table A3-3e:** Top ten pesticide application sites contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2014 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.067	23.41
ORNAMENTAL TURF	0.037	12.98
STRAWBERRY	0.025	8.68
PEPPERS	0.022	7.72
LANDSCAPE MAINTENANCE	0.021	7.38
CARROTS	0.020	6.77
RIGHTS OF WAY	0.015	5.16
LETTUCE	0.012	4.19
POTATO	0.011	3.81
UNCULTIVATED AGRICULTURAL AREAS*	0.009	2.95

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

**Table A3-3f:** Top ten pesticide application sites contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2015 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.090	25.04
GRAPES	0.043	11.94
RIGHTS OF WAY	0.032	8.88
PEPPERS	0.023	6.49
LANDSCAPE MAINTENANCE	0.022	6.26
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.022	6.13
LEMON	0.021	5.90
STRAWBERRY	0.015	4.06
CARROTS	0.014	4.00
LETTUCE	0.014	3.81

**Table A3-3g:** Top ten pesticide application sites contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 3**, the Southeast Desert.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 3 May – Oct 2016 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.078	26.53
RIGHTS OF WAY	0.035	11.81
ORNAMENTAL TURF	0.022	7.52
CARROTS	0.022	7.33
LANDSCAPE MAINTENANCE	0.021	7.24
PEPPERS	0.019	6.60
LEMON	0.014	4.69
STRAWBERRY	0.013	4.38
GRAPES	0.009	3.18
LETTUCE	0.008	2.62

#### 4. Ventura - NAA 4

**Table A3-4a:** 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	31.21
1,3-DICHLOROPROPENE	0.276	19.22
METHYL BROMIDE	0.243	16.95
MINERAL OIL	0.047	3.31
METAM-SODIUM	0.045	3.15
ABAMECTIN	0.036	2.52
CHLORPYRIFOS	0.031	2.19
DAZOMET	0.018	1.24
GIBBERELLINS	0.017	1.21
OXAMYL	0.016	1.10

**Table A3-4b:** Top ten primary active ingredients contributing to **2014** 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 2014 Adjusted Emissions
CHLOROPICRIN	0.471	33.79
METHYL BROMIDE	0.284	20.38
1,3-DICHLOROPROPENE	0.136	9.75
MINERAL OIL	0.054	3.86
METAM-SODIUM	0.053	3.80
CHLORPYRIFOS	0.038	2.73
ABAMECTIN	0.035	2.51
OXAMYL	0.019	1.35
GLYPHOSATE, ISOPROPYLAMINE SALT	0.015	1.06
NOVALURON	0.015	1.05

**Table A3-4c:** Top ten primary active ingredients contributing to **2015** 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 2015 Adjusted Emissions
METHYL BROMIDE	0.472	31.27
CHLOROPICRIN	0.388	25.73
1,3-DICHLOROPROPENE	0.093	6.16
METAM-SODIUM	0.089	5.90
MINERAL OIL	0.064	4.23
CHLORPYRIFOS	0.034	2.28
ABAMECTIN	0.027	1.81
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.022	1.46
NOVALURON	0.016	1.09
GLYPHOSATE, ISOPROPYLAMINE SALT	0.013	0.89

**Table A3-4d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 4 May – Oct 2016 Adjusted Emissions</b>
CHLOROPICRIN	0.348	30.45
METHYL BROMIDE	0.204	17.84
1,3-DICHLOROPROPENE	0.136	11.92
MINERAL OIL	0.068	5.92
CHLORPYRIFOS	0.033	2.88
METAM-SODIUM	0.022	1.97
ABAMECTIN	0.020	1.76
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	0.017	1.50
POTASH SOAP	0.016	1.36
NOVALURON	0.014	1.21

**Table A3-4e:** Top ten pesticide application sites contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 4 May – Oct 2014 Adjusted Emissions</b>
STRAWBERRY	1.108	68.42
RASPBERRY	0.121	7.50
LEMON	0.113	6.98
PEPPERS	0.037	2.29
AVOCADO	0.027	1.66
CELERY	0.026	1.61
STRUCTURAL PEST CONTROL	0.022	1.33
N-OUTDR GRWN CUT FLWRS OR GREENS	0.018	1.12
RIGHTS OF WAY	0.014	0.86
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.012	0.76

**Table A3-4f:** Top ten pesticide application sites contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 4 May – Oct 2015 Adjusted Emissions</b>
STRAWBERRY	1.193	71.50
LEMON	0.127	7.60
RASPBERRY	0.063	3.77
PEPPERS	0.054	3.25
STRUCTURAL PEST CONTROL	0.029	1.76
CELERY	0.024	1.43
AVOCADO	0.021	1.25
N-OUTDR GRWN CUT FLWRS OR GREENS	0.016	0.99
LANDSCAPE MAINTENANCE	0.016	0.94
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.011	0.64

**Table A3-4g:** Top ten pesticide application sites contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 4**, Ventura.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 4 May – Oct 2016 Adjusted Emissions</b>
STRAWBERRY	0.944	69.12
LEMON	0.123	9.00
PEPPERS	0.048	3.53
RASPBERRY	0.035	2.59
STRUCTURAL PEST CONTROL	0.018	1.32
AVOCADO	0.017	1.24
CELERY	0.015	1.12
N-OUTDR GRWN CUT FLWRS OR GREENS	0.015	1.09
CABBAGE	0.014	1.00
TOMATO	0.013	0.93

## 5. South Coast - NAA 5

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

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2013 Adjusted Emissions</b>
PERMETHRIN	0.130	9.99
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.120	9.25
DISODIUM OCTABORATE TETRAHYDRATE	0.119	9.20
METHYL BROMIDE	0.116	8.99
BIFENTHRIN	0.094	7.26
CHLOROPICRIN	0.071	5.51
PIPERONYL BUTOXIDE	0.063	4.83
1,3-DICHLOROPROPENE	0.047	3.59
CYFLUTHRIN	0.037	2.82
FIPRONIL	0.034	2.61

**Table A3-5b:** Top ten primary active ingredients contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2014 Adjusted Emissions</b>
PERMETHRIN	0.102	8.83
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.099	8.58
METHYL BROMIDE	0.096	8.32
BIFENTHRIN	0.082	7.05
CYFLUTHRIN	0.068	5.87
DISODIUM OCTABORATE TETRAHYDRATE	0.067	5.82
PIPERONYL BUTOXIDE	0.047	4.05
CYPERMETHRIN	0.043	3.70
CHLOROPICRIN	0.042	3.62
FIPRONIL	0.038	3.25

**Table A3-5c:** Top ten primary active ingredients contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2015 Adjusted Emissions</b>
METHYL BROMIDE	0.117	8.70
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.110	8.15
BIFENTHRIN	0.109	8.07
PERMETHRIN	0.102	7.55
DAZOMET	0.098	7.27
CYPERMETHRIN	0.075	5.53
DISODIUM OCTABORATE TETRAHYDRATE	0.067	5.00
D-TRANS ALLETHRIN	0.059	4.35
FIPRONIL	0.046	3.39
CYFLUTHRIN	0.045	3.32

**Table A3-5d:** Top ten primary active ingredients contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2016 Adjusted Emissions</b>
METHYL BROMIDE	0.154	12.69
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	0.091	7.45
METAM-SODIUM	0.085	6.97
PERMETHRIN	0.076	6.23
DISODIUM OCTABORATE TETRAHYDRATE	0.069	5.67
BIFENTHRIN	0.068	5.60
CYPERMETHRIN	0.063	5.15
IMIDACLOPRID	0.058	4.79
PIPERONYL BUTOXIDE	0.048	3.92
FIPRONIL	0.044	3.63

**Table A3-5e:** Top ten pesticide application sites contributing to **2014** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2014 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.693	59.44
LANDSCAPE MAINTENANCE	0.158	13.58
STRAWBERRY	0.090	7.76
FUMIGATION, OTHER	0.061	5.20
RIGHTS OF WAY	0.052	4.42
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.019	1.63
COMMODITY FUMIGATION	0.015	1.29
ORNAMENTAL TURF	0.007	0.64
CABBAGE	0.007	0.63
ORANGE	0.007	0.61

**Table A3-5f:** Top ten pesticide application sites contributing to **2015** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2015 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.822	61.01
LANDSCAPE MAINTENANCE	0.154	11.41
RIGHTS OF WAY	0.150	11.14
FUMIGATION, OTHER	0.057	4.25
STRAWBERRY	0.050	3.71
COMMODITY FUMIGATION	0.019	1.43
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.014	1.07
AVOCADO	0.009	0.64
POTATO	0.008	0.60
PEPPERS	0.007	0.54

**Table A3-5g:** Top ten pesticide application sites contributing to **2016** May-October ozone season *adjusted* VOC emissions in **NAA 5**, South Coast.

<b>Primary AI</b>	<b>Total Product Adjusted Emissions (tons/day)</b>	<b>Percent of All NAA 5 May – Oct 2016 Adjusted Emissions</b>
STRUCTURAL PEST CONTROL	0.683	56.10
LANDSCAPE MAINTENANCE	0.146	12.02
STRAWBERRY	0.090	7.37
RIGHTS OF WAY	0.083	6.79
FUMIGATION, OTHER	0.058	4.74
CARROTS	0.054	4.44
COMMODITY FUMIGATION	0.025	2.04
N-OUTDR CONTAINER/FLD GRWN PLANTS	0.013	1.06
AVOCADO	0.007	0.59
PEPPERS	0.007	0.54

## **APPENDIX 4**

### **LIST OF HIGH-VOC, LOW-VOC, AND EXCLUDED NON-FUMIGANT PRODUCTS**



Department of Pesticide Regulation  
Nonfumigant volatile organic compound (VOC) regulations  
Product list (updated December 12, 2017)

The Department of Pesticide Regulation's (DPR's) nonfumigant VOC regulations (California Code of Regulations (CCR) sections 6452.2, 6558, 6577 6880, 6881, 6883, 6884 and 6886) include sales and use restrictions for certain agricultural use products containing any of the following pesticides as the primary active ingredient provided certain criteria are met.

<b>Primary Active Ingredient</b>	<b>Emission Potential (EP) Threshold (%)</b>
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 DPR.

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.

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

Actively registered products containing **abamectin**. Products are listed in order by EP. Products highlighted indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below 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% (26)**

**Total Abamectin products - 74**

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
Brandt Entree ABA RTU	7946-27-AA-48813	Brandt Consolidated, Inc.	Solution/Liquid	0.00
Wipe Out	90326-1-AA	B &K Distributors	Solution/Liquid	3.00
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	100-894-ZB	Syngenta Crop Protection, Inc.	Granular/Flake	3.70
Prescription Treatment Brand Ascend Fire Ant Bait Formula I	499-370-ZA	Whitmire Micro-Gen Research	Granular/Flake	3.70
Prescription Treatment Brand Advance Granular Carpenter Ant Bait	499-370-ZB	Whitmire Micro-Gen Research	Granular/Flake	3.70
Prescription Treatment Brand Advance 375A Select Granular Ant Bait	499-370-ZC	Whitmire Micro-Gen Research	Granular/Flake	3.70
Advance 375A Granular Ant Bait	499-370-ZD	Whitmire Micro-Gen Research	Granular/Flake	3.70
Ascend Fire Ant Granular Bait	499-370-ZE	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
Avert DF Dry Flowable Cockroach Bait	499-294-ZB	Whitmire Micro-Gen Research	Dust/Powder	5.55
Agri-Mek SC Miticide/Insecticide	100-1351-ZA	Syngenta Crop Protection, Inc.	Aqueous Suspension	5.63
Willowood Abamectin 0.15LV	87290-68-AA	Willowood, LLC	Liquid Concentrate	7.61
Abamex Miticide/Insecticide	228-734-AA	Nufarm Americas Inc.	Liquid Concentrate	24.10
Minx 2 Miticide/Insecticide	228-736-AA	Nufarm Americas Inc.	Liquid Concentrate	24.10
Abacus V	83100-32-AA-83979	Rotam North America, Inc.	Emulsifiable Concentrate	27.26
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
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
Abba Ultra Miticide/Insecticide	5481-621-AA	AMVAC Chemical Corporation	Emulsifiable Concentrate	34.18

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

**High-VOC Abamectin Products, EP > 35.0% (15)**

Product Name	Registration Number	Registrant	Formulation	EP (%)
Willowood Abamectin 0.15EC	87290-58-AA	Willowood, LLC	Emulsifiable Concentrate	46.70
Aracinate	74779-1-AA	Rainbow Treecare Scientific	Other (Liquid)	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-ZA	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
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
Quali-Pro Abamectin 0.15 EC	53883-371-AA	Control Solutions, Inc.	Emulsifiable Concentrate	62.62
Minx	228-657-ZA	Nufarm Americas Inc.	Emulsifiable Concentrate	70.50
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
Abamectin 0.15EC Select	89442-20-AA	Prime Source, LLC.	Emulsifiable Concentrate	NI

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

**Excluded Abamectin Products, non-ag use or secondary active ingredient (33)**

Product Name	Registration Number	Registrant	Formulation	EP (%)
Agri-Flex Miticide/Insecticide	100-1350-ZA	Syngenta Crop Protection, Inc	Suspension Concentrate	0.00
Obelisk	83100-33-AA-83979	Rotam North America, Inc.	Liquid Concentrate	2.66
Advance Granular Carpenter Ant Bait	499-370-ZF	Whitmire Micro-Gen Research Lab. Inc	Granular/Flake	3.70
Trufin Ant Bait	89459-83-AA	Central Garden & Pet Company	Granular/Flake	3.70
RF 2224 AFAB	89459-83-ML	Central Garden & Pet Company	Granular/Flake	3.70
Sirocco	400-582-AA-59807	OHP, Inc.	Liquid Concentrate	4.97
<b>Minecto Pro</b>	<b>100-1592-AA</b>	<b>Syngenta Crop Protection, LLC</b>	<b>Suspension</b>	<b>5.00</b>
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	Pellet/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. Ag. Products Group	Emulsifiable Concentrate	13.92
Gladiator Insecticide/Miticide	279-3441-AA	FMC Corp. Ag. Products Group	Emulsifiable Concentrate	13.97
Invict AB Insect Paste	73079-11-ZA	Rockwell Labs Ltd.	Gel, Paste, Cream	NI
Maggie’s Farm Simply Effective Roach Killer	73079-11-ZB	Rockwell Labs Ltd.	Gel, Paste, Cream	NI
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
Prescription Treatment Brand Advance 360A Dual Choice Ant Bait	499-496-AA	Whitmire Micro-Gen Research Lab, Inc.	Gel, Paste, Cream	NI
Advance 360A Dual Choice Ant Bait Stations	499-496-ZA	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
<b>Terro Ant &amp; Roach Baits</b>	<b>149-21-AA</b>	<b>Senoret Chemical Company, Inc.</b>	<b>Gel, Paste, Cream</b>	<b>NI</b>
XP 820 Insecticide Cattle Ear Tag	39039-17-AA	Y-TEX Corporation	Impregnated Material	NI
XP 820 Insecticide Cattle Strip	39039-24-AA	Y-TEX Corporation	Impregnated Material	NI

NI = No Information.

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

Actively registered products containing **chlorpyrifos**. Products are listed in order by EP. Products highlighted indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registration are considered high-VOC unless they are listed below 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% (20)**

**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
Duraguard ME Microencapsulated Insecticide	499-367-ZB	Whitmire Micro-Gen Research	Aqueous Concentrate	0.00
Durashield CS Controlled Release Premise	499-419-ZB	Whitmire Micro-Gen Research	Microencapsulated	0.00
Durashield CS Controlled Release Insecticide	499-419-ZC	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
Drexel Chlorpyrifos 15G	19713-505-AA	Drexel Chemical Company	Granular/Flake	3.70
Lorsban 15G Granular Insecticide	62719-34-ZA	Dow AgroSciences LLC	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 Lambdafos Insecticide	19713-671-AA	Drexel Chemical Company	Emulsifiable Concentrate	18.30
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

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

**High-VOC Chlorpyrifos Products, EP > 25.0% (19)**

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
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
Stallion Brand Insecticide	279-9545-ZA	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
Bolton Insecticide	279-3581-AA	FMC Corp. Agricultural	Emulsifiable Concentrate	70.39
Prescription Treatment Brand Duraplex TR Micro	499-405-AA	Whitmire Micro-Gen Research	Pressurized Liquid	100.0
Duraplex TR Total Release Insecticide	499-405-ZA	Whitmire Micro-Gen Research	Pressurized Liquid	100.0

**Excluded Chlorpyrifos Products, non-ag use or secondary active ingredient (9)**

Product Name	Registration Number	Registrant	Formulation	EP (%)
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 - Chlorpyrifos 4E Ag	66222-19-ML	Makhteshim-Agan	Emulsifiable Concentrate	52.90
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, Div. of United	Gel, Paste, Cream	NI
Warrior Insecticide Cattle Ear Tags	39039- 6-AA	Y-TEX Corporation	Impregnated Material	NI

NI = No Information

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

Actively registered products containing **gibberellins**. Products are listed in order by EP. Products highlighted indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below 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% (9)**

**Total Gibberellins products - 23**

Product Name	Registration Number	Registrant	Formulation	EP (%)
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
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 40 PH Post Harvest Plant Growth Regulator Water Soluble Granule	73049-492-AA	Valent Biosciences Corporation	Granular/Flake	3.70
Progibb LV Plus Plant Growth Regulator Solution	73049-498-AA	Valent Biosciences Corporation	Other (Liquid)	11.54
Falgro 2X LV	62097-32-AA-82917	Fine Americas, Inc.	Aqueous Concentrate	22.95

**High-VOC Gibberellins Products, EP > 25.0% (13)**

Product Name	Registration Number	Registrant	Formulation	EP (%)
N-Large Premier	57538-20-AA	Stoller Enterprises, Inc.	Aqueous Concentrate	79.02
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

Department of Pesticide Regulation  
Nonfumigant volatile organic compound (VOC) regulations  
Product list (updated December 12, 2017)

**Excluded Gibberellins Products, non-ag use or secondary active ingredient (1)**

<b>Product Name</b>	<b>Registration Number</b>	<b>Registrant</b>	<b>Formulation</b>	<b>EP (%)</b>
Procon Plant Growth Regulator Solution	73049-32-AA	Valent Biosciences Corporation	Solution/Liquid	7.30

NI = No Information.



Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

Actively registered products containing **oxyfluorfen**. Products are listed in order by EP. Products highlighted indicate a change from the last list. If a product was only recently registered or has an inactive registration it may not appear on the list below. Agricultural products with inactive registrations are considered high-VOC unless they are listed below as low-VOC, formulated as a solid (e.g., powder, granule), or meet the criteria for excluded products.

**Low-VOC Oxyfluorfen Products, EP ≤ 15% (10)**

**Total Oxyfluorfen products - 25**

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
Biathlon Ornamental Herbicide	59807-12-AA	OHP, 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-ZA	Everiss NA, Inc.	Granular/Flake	8.60
Pindar GT	62719-611-AA	Dow Agrosciences LLC	Aqueous Suspension	10.60
Cleantraxx	62719-702-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
Collide 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 Herbicide	66222-28-ZA	Makhteshim-Agan	Emulsifiable Concentrate	66.15
Galigan 2E	66222-28-ZB	Makhteshim-Agan	Emulsifiable Concentrate	66.15
Oxystar 2E	42750-136-AA	Albaugh, Inc.	Emulsifiable Concentrate	73.09

Department of Pesticide Regulation  
 Nonfumigant volatile organic compound (VOC) regulations  
 Product list (updated December 12, 2017)

**Excluded Oxyfluorfen Products, non-ag use or secondary active ingredient (8)**

Product Name	Registration Number	Registrant	Formulation	EP (%)
Spectracide Weed & Grass Killer With Extended Control	9688-264-AA-8845	Spectrum Group, Div. of United	Aqueous Concentrate	NI
Spectracide Weed & Grass Killer With Extended Control 2	9688-264-ZA-8845	Spectrum Group, Div. of United	Aqueous Concentrate	NI
Willowood Oxyfluorfen Technical	87283-1-AA	Willowood Oxyfluorfen, LLC	Dust/Powder	NI
OH2 Ornamental Herbicide	58185-178-AA	Scotts-Sierra Crop Protection, Co.*	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, Div. of United	Other (Liquid)	NI
Spectracide Weed & Grass Foaming Edger With Extended Control	9688-318-AA-8845	Spectrum Group, Div. of United	Pressurized Liquid	100

NI = No Information