

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)  
Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

Regulations to reduce emissions of volatile organic compounds (VOCs) from fumigant pesticides became effective on January 25, 2008. The rules focus on field fumigant applications made between May 1 and October 31 in five “nonattainment areas” (NAAs) that do not meet federal air quality standards for pesticide VOC emissions. Application method requirements depend on:

- When the fumigant will be applied, and
- Where the fumigant will be applied.

**Between November 1 and April 30, there is no change.** Any field fumigant method previously allowed can be used anywhere in California. (Regulations and permit conditions that already restricted the use of some fumigants still apply.)

**Throughout the year, in areas outside the five NAAs there is no change.** Any field fumigant method previously allowed can be used anywhere in California. (Regulations and permit conditions that already restricted the use of some fumigants still apply.)

**In the five NAAs,** from May 1 to October 31, field fumigations are limited to specific methods listed in the regulations. (For a map of the NAAs and a list of geographic sections affected by the field fumigant regulations, go to [http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/em\\_region.htm](http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/em_region.htm).)

**Key to abbreviations:**

- SAC** Sacramento Metro (All of Sacramento and Yolo Counties, parts of El Dorado, Placer, Solano, and Sutter Counties)
- SC** South Coast (All of Orange County, parts of Los Angeles, Riverside, and San Bernardino Counties)
- SJV** San Joaquin Valley (All of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties, and part of Kern County)
- SED** Southeast Desert (Parts of Los Angeles, Riverside, and San Bernardino Counties)
- VEN** Ventura (all of Ventura County)

**Method:** Day Sprinkler/Broadcast or Bed  
One Post-Fumigation Water Treatment

**Method Code:** 1401  
**Emission Rating:** 77%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN  
X X

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatment below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, one post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation.
  - Any additional post-fumigation water treatment(s) may be applied at any time.

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** Day Sprinkler/Broadcast or Bed

Two Post-Fumigation Water Treatment

**Method Code:** 1402

**Emission Rating:** 28%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN

X X X X X

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatments below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, the first post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation. A second post-fumigation water treatment must consist of at least 0.20 inches of water applied starting no earlier than one hour prior to sunset on the day of fumigation and completed by midnight.
  - Additional post-fumigation water treatment(s) may be applied at any time provided the treatments required above are completed in the specified time periods.

**Method:** Day Sprinkler/Broadcast or Bed

Three Post-Fumigation Water Treatment

**Method Code:** 1403

**Emission Rating:** 21%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN

X X X X X

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatments below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, the first post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation. A second post-fumigation water treatment must consist of at least 0.20 inches of water applied starting no earlier than one hour prior to sunset on the day of fumigation and completed by midnight.
  - On the day following fumigation, a third post-fumigation water treatment must consist of at least 0.20 inches of water, and must be applied starting no earlier than one hour prior to sunset and completed by midnight.
  - Additional post-fumigation water treatment(s) may be applied at any time provided the treatments required are completed in the specified time periods.

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** Day Nontarpualin/Shallow/Broadcast or Bed  
One Post-Fumigation Water Treatment

**Method Code:** 1404  
**Emission Rating:** 77%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN

× ×

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatment below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, one post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation.
  - Any additional post-fumigation water treatment(s) may be applied at any time.

**Method:** Day Nontarpualin/Shallow/Broadcast or Bed  
Two Post-Fumigation Water Treatment

**Method Code:** 1405  
**Emission Rating:** 28%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN

× × × × ×

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatments below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, the first post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation. A second post-fumigation water treatment must consist of at least 0.20 inches of water applied starting no earlier than one hour prior to sunset on the day of fumigation and completed by midnight
  - Additional post-fumigation water treatment(s) may be applied at any time provided the treatments required above are completed in the specified time periods.

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** Day Nontarpaulin/Shallow/Broadcast or Bed  
Three Post-Fumigation Water Treatment

**Method Code:** 1406  
**Emission Rating:** 21%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC	SC	SJV	SED	VEN
X	X	X	X	X

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Fumigation must be completed in a time that allows compliance with the post-fumigation water treatments below:
  - Water must be applied by an irrigation method that uniformly covers the treated area in the entire application block.
  - On the day of fumigation, the first post-fumigation water treatment must consist of at least 0.20 inches of water, beginning within 30 minutes of the completion of fumigation. A second post-fumigation water treatment must consist of at least 0.20 inches of water applied starting no earlier than one hour prior to sunset on the day of fumigation and completed by midnight.
  - On the day following fumigation, a third post-fumigation water treatment must consist of at least 0.20 inches of water, and must be applied starting no earlier than one hour prior to sunset and completed by midnight.
  - Additional post-fumigation water treatment(s) may be applied at any time provided the treatments required are completed in the specified time periods.

**Method:** Day Chemigation (Drip System) - Tarpaulin  
Day Chemigation (Drip System) – Nontarpaulin

**Method Code:** 1407  
**Method Code:** 1408  
**Emission Rating:** 9%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC	SC	SJV	SED	VEN
X	X	X	X	X

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Drip system must be filled with water and tested for pressure variation, clogged emitters, and leaks before chemigation. The pressure must not exceed the pressure rating of the drip tape and the pressure variation in the drip tape throughout the field must be less than three pounds per square inch. Drip system must be free of leaks and clogged emitters.
- After chemigation, the drip system must be flushed with a volume of water at least three times the volume of the mainline and laterals of the drip system.

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

<p><b>Method:</b> Day Rotary Tiller Day Power Mulcher Day Soil Capping</p>	<p><b>Method Code:</b> 1409 <b>Method Code:</b> 1410 <b>Method Code:</b> 1411 <b>Emission Rating:</b> 14%</p>										
<p><b>Method allowed (X) in these NAAs (May 1 – October 31):</b></p> <table><tr><td>SAC</td><td>SC</td><td>SJV</td><td>SED</td><td>VEN</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>		SAC	SC	SJV	SED	VEN	X	X	X	X	X
SAC	SC	SJV	SED	VEN							
X	X	X	X	X							
<p><b>Method Description:</b></p> <ul style="list-style-type: none"><li>Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.</li><li>Application equipment must be followed immediately by soil compaction equipment.</li></ul>											
<p><b>Method:</b> Day or Night Flood</p>	<p><b>Method Code:</b> 1412 <b>Emission Rating:</b> 77%</p>										
<p><b>Method allowed (X) in these NAAs (May 1 – October 31):</b></p> <table><tr><td>SAC</td><td>SC</td><td>SJV</td><td>SED</td><td>VEN</td></tr><tr><td>X</td><td>X</td><td></td><td></td><td></td></tr></table>		SAC	SC	SJV	SED	VEN	X	X			
SAC	SC	SJV	SED	VEN							
X	X										
<p><b>Method Description:</b></p> <ul style="list-style-type: none"><li>The fumigant must be applied with at least six inches of water per acre.</li></ul>											
<p><b>Method:</b> Day Drench Two Post-Fumigation Water Treatments Effective May 14, 2008; expires May 13, 2011</p>	<p><b>Method Code:</b> 1413 <b>Emission Rating:</b> 100%</p>										
<p><b>Method allowed (X) in these NAAs (May 1 – October 31):</b></p> <table><tr><td>SAC</td><td>SC</td><td>SJV</td><td>SED</td><td>VEN</td></tr><tr><td>X</td><td>X</td><td></td><td></td><td></td></tr></table>		SAC	SC	SJV	SED	VEN	X	X			
SAC	SC	SJV	SED	VEN							
X	X										
<p><b>Method Description:</b></p> <ul style="list-style-type: none"><li>Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.</li><li>Metam-potassium application rate must not exceed 270 pounds active ingredient per acre.</li><li>Metam-sodium application rate must not exceed 246 pounds active ingredient per acre.</li><li>Soil moisture at the time of application must meet the requirements described in 3 CCR section 6450.1(b).</li><li>Two post-fumigation water treatments as specified in 3 CCR section 6450.1(e)(2)(A) must be applied.</li><li>Pesticide use reports must identify these applications using field fumigation method code 1413.</li></ul>											

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** Day Drench  
Two Post-Fumigation Water Treatments

**Method Code:** 1413  
**Emission Rating:** 100%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN  
          ×      ×      ×

**Method Description:**

- Fumigation must start no earlier than one hour after sunrise and must be completed no later than one hour before sunset.
- Metam-potassium application rate must not exceed 98 pounds active ingredient per acre.
- Metam-sodium application rate must not exceed 90 pounds active ingredient per acre.
- Soil moisture at the time of application must meet the requirements described in 3 CCR section 6450.1(b).
- Two post-fumigation water treatments as specified in 3 CCR section 6450.1(e)(2)(A) must be applied.
- Pesticide use reports must identify these applications using field fumigation method code 1413.

**Method:** Night 1:00 a.m. Sprinkler/Broadcast or Bed  
Two Post-Fumigation Water Treatments

**Method Code:** 1452  
**Emission Rating:** 77%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC SC SJV SED VEN  
      ×   ×

**Method Description:**

- The field must receive an initial irrigation at a rate of 0.20 inches immediately prior to application.
- The fumigation application must be initiated no earlier than 0100 hrs and be applied at a minimum rate of 0.20 acre-inches/hour.
- Post-fumigation water treatments must be consistent with the requirements described in 3 CCR section 6450.1(e)(2)(A).

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** Night Nontarpaulin/Shallow/Broadcast or Bed  
Two Post-Fumigation Water Treatments

**Method Code:** 1455  
**Emission Rating:** 13%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC	SC	SJV	SED	VEN
X	X	X	X	X

**Method Description:**

- Fumigation application must start no earlier than 0100 hours.
- Post-fumigation water treatments must be consistent with the requirements described in 3 CCR section 6450.1(e)(2)(A).
- The following fumigation equipment and procedures must be used:
  - i. Before application, thoroughly cultivate the field to remove clods with a disc or spring tooth bar. Soil must contain adequate moisture (as stated in 3 CCR section 6450.1(b)) prior to application.
  - ii. The application equipment must meet the following criteria:
    - The shanks must be set on three bars spaced 12 – 16 inches apart. Each bar must be fitted with shanks spaced 9 – 11 inches apart. The shanks must be staggered to produce an equal effective spacing between all of the shanks on the three bars.
    - Injection depth must be 3 – 4 inches, 6 – 7 inches, and 9 – 10 inches.
    - Nitrogen must be used to purge the system before applicator bar is lifted out of the ground at any time.
  - iii. Compaction equipment
    - The application tool bars must be followed by a ring roller that is at least as wide as the application tool bars, with four gauge wheels controlled by hydraulic cylinders to control depth and or pressure; **or**
    - The application tool bars must be followed with a coil packer that is at least as wide as the application tool bars.

**Metam-Sodium and Potassium N-methyldithiocarbamate (Metam-Potassium)**

**Field Fumigation Methods Allowed**

Title 3, California Code of Regulations, Chapter 2, Section 6450.1.

**Method:** 4 A.M. Start/ Sprinkler/Broadcast or Bed  
Two Post-Fumigation Water Treatments

**Method Code:** 1472  
**Emission Rating:** 35%

**Method allowed (X) in these NAAs (May 1 – October 31):**

SAC	SC	SJV	SED	VEN
X	X	X	X	X

**Method Description:**

- The field must receive an initial irrigation at a rate of 0.20 inches immediately prior to application.
- The fumigation application must be initiated no earlier than 0400 hrs and be applied at a minimum rate of 0.20 acre-inches/hour.
- Post-fumigation water treatments must be consistent with the requirements described in 3 CCR section 6450.1(e)(2)(A).