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**Portions of the California Code of Regulations submitted for U.S. EPA approval**

**California Code of Regulations**

(Title 3. Food and Agriculture)  
Division 6. Pesticides and Pest Control Operations  
Chapter 2. Pesticides  
Subchapter 4. Restricted Materials  
Article 4. Use Requirements

~~6447. Methyl Bromide Field Fumigation - General Requirements~~

~~The provisions of this section and sections 6447.1, 6447.2, 6447.3, and 6784(b) pertain to field soil fumigation using methyl bromide. For purposes of these sections, field soil fumigation does not apply to golf courses, replant of individual vine or tree sites (tree holes) less than one contiguous acre, raised-tarpaulin nursery fumigations of less than one acre, potting soil, and greenhouses and other similar structures. . . .~~

~~NOTE: Authority cited: Sections 11456, 12976, 12981, 14005 and 14102, Food and Agricultural Code.~~

~~Reference: Sections 11501, 12981, 14006 and 14402, Food and Agricultural Code.~~

**6447.3. Methyl Bromide Field Fumigation Methods.**

(a) The methyl bromide field soil fumigation must be made using only the methods described in this section. However, within the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas, the following methods are prohibited during the May 1 through October 31 time period: (1), (2), (4), and (6); and if applied as alternating fumigated and unfumigated areas (strip fumigation), methods (3) and (5). In addition to labeling requirements for each of these methods, the following requirements shall apply.

(1) Nontarpaulin/Shallow/Bed

(A) Application rate shall not exceed 200 pounds of methyl bromide per acre.

(B) The application tractor shall be equipped with an air fan dilution system.

(C) Rearward-curved (swept-back) chisels shall be used with:

1. closing shoes and bed-shaper, or closing shoes and compaction roller; and

2. chisel injection points positioned beneath and ahead of the closing shoes.

(D) Injection depth shall be between 10 and 15 inches. The injection depth to preformed beds must not be below the bed furrow.

(E) Injection spacing shall be 40 inches or less.

(F) The soil shall not be disturbed for at least three days (72 hours) following completion of injection to the application block.

(G) The application block restricted entry interval shall be three days.

(2) Nontarpaulin/Deep/Broadcast

(A) Application rate shall not exceed 400 pounds of methyl bromide per acre.

(B) Forward-curved chisel shall be used with:

1. An application tractor equipped with an air fan dilution system and the injection depth shall be at least 20 inches; or

2. Closing shoes and compaction roller and the injection depth shall be at least 24 inches.

(C) Injection spacing shall be 68 inches or less.

(D) The soil shall not be disturbed for at least four days (96 hours) following completion of injection to the application block.

(E) The application block restricted entry interval shall be four days.

(3) Tarpaulin/Shallow/Broadcast

(A) Application rate shall not exceed 400 pounds of methyl bromide per acre.

(B) Application shall be made using either:

1. An application tractor equipped with an air fan dilution system, and with a plow consisting of horizontal v-shaped blades mounted by a vertical arm to the tool bar. The fumigant shall be injected laterally beneath the soil surface; or

2. Rearward-curved (swept-back) chisels, closing shoes, and compaction roller shall be used.

(C) Injection depth shall be at least 10 and no greater than 15 inches.

(D) Injection spacing shall be 12 inches or less.

(E) The tarpaulin shall be laid down simultaneously (with fumigant injection) by tarpaulin-laying equipment mounted on the application tractor.

(F) The tarpaulin shall not be cut until a minimum of five days (120 hours) following completion of injection to the application block. The tarpaulin shall be cut pursuant to section 6784(b)(4).

(G) Tarpaulin removal shall begin no sooner than 24 hours after tarpaulin cutting has been completed.

(H) The application block restricted entry interval shall end at completion of tarpaulin removal, and shall be at least six days.

(4) Tarpaulin/Shallow/Bed

(A) Application rate shall not exceed 250 pounds of methyl bromide per acre.

(B) Rearward-curved (swept-back) chisels shall be used with either:

1. Closing shoes and compaction roller. The closing shoes shall cover the chisel marks with soil just ahead of the compaction roller, and the tarpaulin shall be laid down simultaneously (with fumigant injection) by tarpaulin-laying equipment mounted on the application tractor; or

2. Bed shaper. The chisels shall be placed with the injection point under the bed shaper, and the tarpaulin shall be laid down simultaneously (with fumigant injection) by tarpaulin-laying equipment mounted on the application tractor; or

3. Combination bed former and bed shaper. The chisels shall be placed between the bed former and the bed shaper. The tractor with the tarpaulin-laying equipment shall immediately follow the application tractor.

(C) Injection depth shall be between 6 and 15 inches. The injection depth to preformed beds must not be below the bed furrow.

(D) Injection spacing shall be 12 inches or less.

(E) The tarpaulin shall not be cut until at least five days (120 hours) following completion of injection to the application block.

(F) If tarpaulins are removed before planting, tarpaulin removal shall begin no sooner than 24 hours after tarpaulin cutting has been completed. The application block restricted-entry interval shall end at completion of tarpaulin removal, and shall be at least six days.

(G) If tarpaulins are not to be removed before planting, the application block restricted-entry interval shall either:

1. consist of the five-day period described in subsection (E) plus an additional 48 hours after holes have been cut for planting, or

2. be at least 14 days. If this option is chosen, the methyl bromide air concentration underneath the tarpaulin must test less than five parts per million before planting begins.

(5) Tarpaulin/Deep/Broadcast

(A) Application rate shall not exceed 400 pounds of methyl bromide per acre.

(B) Forward-curved chisels shall be used with either:

1. An air fan dilution system on the application tractor; or

2. Closing shoes and compaction roller.

(C) Injection depth shall be at least 20 inches.

(D) Injection spacing shall be 66 inches or less.

(E) The tarpaulin shall be laid down simultaneously (with fumigant injection) by tarpaulin-laying equipment mounted on the application tractor.

(F) The tarpaulin shall not be cut until at least five days (120 hours) following completion of injection to the application block. The tarpaulin shall be cut pursuant to section 6784(b)(4).

(G) Tarpaulin removal shall begin no sooner than 24 hours after tarpaulin cutting has been completed.

(H) The application block restricted entry interval shall end at completion of tarpaulin removal, and shall be at least six days.

(6) Drip System - Hot Gas A hot gas application through a subsurface drip irrigation system to tarpaulin-covered beds may be used if all of the following criteria are met:

(A) Application rate shall not exceed 225 pounds of methyl bromide per acre.

(B) The fumigant shall be injected beneath the soil surface at a minimum depth of one inch.

(C) The portion of the drip system used in the fumigation shall be physically disconnected from the main water supply during the fumigation to prevent possible contamination of the water supply.

(D) All fittings and emitters underneath the tarpaulin shall be buried in the soil to a minimum depth of one inch.

(E) Prior to the start of the fumigation, all drip tubing shall be checked for blockage, and the irrigation system connections and fittings checked for blockage and leaks using pressurized air and/or water. The end of each drip tubing shall be placed under the tarpaulin prior to introduction of fumigant.

(F) The tarpaulin shall be placed and inspected for tears, holes, or improperly secured edges prior to fumigating. Repairs and adjustments shall be made before the fumigation begins.

(G) Prior to the start of the fumigation, all fittings above ground and outside of the tarpaulin shall be pressure tested with compressed air, water, or nitrogen gas to a maximum pressure of 50 pounds per square inch. A soap solution shall be used to check the fittings for leaks if using air or nitrogen. All apparent leaks shall be eliminated prior to the fumigation. All drip tubing with emitters connected to the distribution manifold not covered by the tarpaulin shall be sealed to prevent fumigant loss through the emitters.

(H) Prior to introducing the fumigant, the drip system shall be purged of water by means of pressurized gas such as CO<sub>2</sub> or nitrogen.

(I) The drip system shall be purged prior to disconnecting any line containing the fumigant.

(J) After purging, drip tubing shall be pinched off and then disconnected from the distribution manifold. All disconnected tubing leading into the treated field shall be secured to prevent gas from escaping.

(K) All fittings used for connecting or disconnecting the heat exchanger to the irrigation system manifold shall be of a positive shut-off design.

(L) All persons shall wear the eye protection specified on the label when working with a manifold system or tubing containing the fumigant under pressure.

(M) The entire fumigation system (heater, valves, and manifold) shall be purged of the fumigant at the end of each day's fumigation.

(N) The tarpaulin shall not be cut until at least five days (120 hours) following completion of injection to the application block.

(O) If tarpaulins are removed before planting, tarpaulin removal shall begin no sooner than 24 hours after tarpaulin cutting has been completed. The application block restricted-entry interval shall end at completion of tarpaulin removal and shall be at least six days.

(P) If tarpaulins are not to be removed before planting, the application block restricted-entry interval shall either:

1. consist of the five-day period described in subsection (N) plus an additional 48 hours after holes have been cut for planting, or

2. be at least 14 days. If this option is chosen, the methyl bromide air concentration underneath the tarpaulin must test less than five parts per million before planting begins.

(b) Notwithstanding section 6770, the operator of the property shall assure that only persons performing fumigation-handling activities are allowed in an application block before the restricted entry interval expires. Persons performing activities other than tarpaulin cutting, removal, and repair described in sections 6784(b)(3), (4), and (5) shall wear a full-face respirator that meets the requirements of section 6784(b)(2)(C).

(c) Notwithstanding subsection (a), a reduced volatile organic compound emission field fumigation method approved pursuant to section 6452 or a method for experimental research purposes pursuant to a valid research authorization issued according to section 6260 may be allowed.

NOTE: Authority cited: Sections 11456, 12976, 12981, 14005 and 14102, Food and Agricultural Code.

Reference: Sections 11501, 12981, 14006 and 14102, Food and Agricultural Code.

**6448.1.3 Dichloropropene Field Fumigation – General Requirements.**

The provisions of section 6448.1 apply to field soil fumigation using 1,3-Dichloropropene within the Sacramento Metro, San Joaquin Valley, South Coast, Southeast Desert, or Ventura ozone nonattainment areas during the May 1 through October 31 time period. Raised-tarpaulin nursery fumigations of less than one acre, or replant of individual vine or tree-sites (tree holes) less than one contiguous acre, are not considered field soil fumigations under the provision of section 6448.1.

NOTE: Authority cited: Sections 11456, 12976, 12981, 14005, and 14102, Food and Agricultural Code.  
Reference: Sections 11501, 12981, 14006, and 14102, Food and Agricultural Code.

**6448.1. 1,3-Dichloropropene Field Fumigation Methods.**

(a) Application rate must not exceed 332 pounds of 1,3-Dichloropropene active ingredient per acre.

(b) If there are no labeling requirements specifying soil moisture, then at time of application soil must contain at least enough moisture above the depth of application to meet the following test appropriate to the soil texture for:

(1) coarse soils (sand and loamy sand) – at least enough moisture to form a ball when compressed by hand, that may break when tapped;

(2) loamy, moderately coarse, or medium textured (coarse sandy loam, sandy loam, fine sandy loam) – at least enough moisture so that soil forms a ball that holds together when tapped;

(3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay) – at least enough moisture so that the soil is pliable, not crumbly. Forms a ribbon when squeezed between thumb and forefinger.

(c) The 1,3-Dichloropropene field soil fumigation must be made using only the methods described in this section. However within the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas, methods (1) and (2) are prohibited. In addition to labeling requirements for each of these methods, the following requirements shall apply.

(1) Nontarpaulin/Shallow/Broadcast or Bed

(A) Injection point must be at least 12 inches below the soil surface.

(B) Chisel trace must be eliminated by use of tillage equipment to mix the soil to a depth of at least three inches. Broadcast fumigation must be followed by compaction of the soil surface.

(2) Tarpaulin/Shallow/Broadcast or Bed

(A) Injection point must be at least 12 inches below the soil surface.

(B) Chisel trace must be eliminated by use of tillage equipment to mix the soil to a depth of at least three inches. Broadcast fumigation must be followed by compaction of the soil surface.

(C) Tarpaulins must be buried under at least four inches of firmly packed soil at the end of the rows.

(D) The operator of the property shall maintain a "tarpaulin repair response plan" pursuant to subsection

(d).