

## Subsection C.7.1

# 1,3-Dichloropropene Pesticides (Fumigant) Recommended Permit Conditions

## Overview

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**Introduction** These recommended permit conditions apply to the use of pesticides containing the active ingredient (a.i.) *1,3-Dichloropropene* (1,3-D) when applied by either mechanical soil injection or drip application systems. They should be used in addition to the provisions in the *California Food and Agricultural Code* (FAC), *Title 3, California Code of Regulations* (3 CCR), and product labeling.

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**When requirements differ** **When requirements differ, the most stringent requirements should be followed.** County agricultural commissioners can use more restrictive conditions based on the local use conditions.

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**Combination with chloropicrin** 1,3-D products containing chloropicrin are also subject to the recommended permit conditions in Subsection C.7.4.

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## Part 7.1.1

### Use Limitations

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#### **Greenhouses and other enclosed areas**

Currently, all but two of the 1,3-D products actively registered with DPR have labeling that expressly prohibit its use in greenhouses and other enclosed areas. The other two products have labeling instructions that are inconsistent with use in greenhouses or in enclosed areas, and therefore, preclude their use in such areas. Because of this, DPR has determined that the use of 1,3-D in these locations would be in conflict with their labeling and is prohibited.

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#### **How a recommendation to use 1,3-D is approved**

Each recommendation to use 1,3-D must be approved using the following process:

1. A registrant-authorized pest control adviser (PCA) electronically submits a recommendation for 1,3-D use to the registrant's agent for approval.
  2. The registrant's agent electronically checks the recommendation for compliance with the product labeling and DPR-recommended permit conditions, including compliance with the maximum allowable amount of 1,3-D (332 pounds of a.i. per acre).
  3. The registrant's agent validates the calculation of total adjusted pounds of 1,3-D requested, taking into consideration all application factors described by the permit.
  4. The registrant's agent checks the total amount requested against the available pounds within the township allotment. If the amount requested is available, the recommendation is approved and the permittee may file a Notice of Intent (NOI) with the CAC. If there is not enough 1,3-D available, a note is displayed, identifying available Adjusted Total Pounds (ATP) of 1,3-D and allowing the PCA to submit a modified request for available 1,3-D.
  5. When use in any township exceeds the authorized cap for that township, both DPR and the CAC will receive an informal notification from the registrant or registrant's agent.
  6. For any township that reaches 150% of the current cap (currently 135,375 ATP), the registrant will compare the registrant's agent's records to county records as a quality assurance check.
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## Use Limitations, Continued

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**Township caps** The management of chronic exposure through a township limit (cap) is a condition of registration. The 1,3-D registrants (or the registrant's agent) will be responsible for tracking, reporting, and ensuring township caps are observed.

An annual township (36 square-mile area) cap is necessary to minimize the levels of the amount of 1,3-D in the atmosphere and mitigate the potential for chronic exposure. This township cap is based on the adjusted total pounds (ATP) of 1,3-D used, which is calculated using the percentage of a.i. in different 1,3-D products.

DPR is utilizing the guidelines of the *California Management Plan: 1,3-Dichloropropene* which is posted on DPR's external website at <http://www.cdpr.ca.gov/docs/emon/methbrom/telone/mgmtplan.pdf>. **For most townships, the current cap is 90,250 ATP per calendar year.**

When county or state borders divide the township, the ATP of 1,3-D allowed per calendar year shall be approximately proportional to the area in each political subdivision.

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**Exceeding the township cap** If the need for 1,3-D in a township exceeds the cap, the Director, upon request by the registrant, may authorize supplemental allowances over the cap provided no significant increase in risk is created by the additional use.

The *California Management Plan: 1,3-Dichloropropene* authorizes supplemental allowances up to 180,500 ATP per calendar year, but only to the extent that use since 1995 in that township was under the annual cap. The unused allotment since 1995 will be, in effect, a "bank" that can be drawn upon.

Once the bank of unused allotment has been expended, use in a township must return to the authorized annual cap, unless the Director allows for exceptions.

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## Part 7.1.2

### Conditions for All Application Methods

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**Notice of Intent (NOI)**

- The permittee shall provide a valid recommendation to the CAC that has been approved by the registrant before the CAC may accept the NOI and allow the application.
- In addition to the information required in 3 CCR section 6434, the following information shall be provided on the NOI:
  1. Application depth and type
  2. The total gallons (TG) of the pesticide formulation
  3. The pounds per gallon (lbs./gal) of 1,3-D formulation
  4. The percent by weight of a.i., expressed as a decimal (.XX)
  5. The total pounds (TP) of 1,3-D a.i. applied
  6. The application factor (AF) appropriate for the proposed application from Table 1: Determining the Application Factor
  7. The adjusted total pounds (ATP) for the proposed application

Procedures for calculating TP and ATP are shown in “Calculating the ATP” later in these recommended permit conditions.

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**Restrictions for occupied structures**

Application of a product containing 1,3-D is prohibited within 100 feet of any occupied structure, measured from the perimeter of the application block to any occupied residences, occupied onsite employee housing, schools, convalescent homes, hospitals, or other similar sites identified by the CAC. If a structure is within 100 feet of the application block, no person shall be present at this structure at any time during the application and during the seven consecutive day period after the application is complete. This restriction applies even on soils that have not experienced a 1,3-D treatment in the previous two years.

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## Conditions for All Application Methods, Continued

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### **Entry into the application block**

Entry into the application block (including early entry that would otherwise be permitted by the Worker Protection Standard) by any person, other than a government official mandated to regulate pesticide use or a properly trained and equipped handler who is performing a handling task permitted by the product labeling, is prohibited from the start of the application until seven (7) days after the application is complete. This prohibition applies to all applications, including all tarp types and untarped applications.

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### **Tarp perforation and/or removal**

Note: Fumigant products that contain only 1,3-D as their active ingredient were not included in U.S. EPA's 2011-2012 label revisions. Therefore, labeling for 1,3-D only products does not include buffer zones or buffer zone credits. Nonetheless, to help specify certain low-permeability tarps, the following is recommended:

Tarps that do not meet the requirements for any percentage reduction in buffer zone distance mentioned on 1,3-D/chloropicrin labels, such as standard polyethylene tarps, may be perforated and/or removed according to fumigant labeling directions.

In contrast, tarps that meet the requirements for any percentage reduction in buffer zone distance mentioned on 1,3-D/chloropicrin labels must not be perforated until a minimum of nine (9) days (216 hours) have elapsed after the application is complete, and must not be removed until a minimum of one (1) day (24 hours) after perforation, unless a weather condition exists that necessitates early tarp perforation or removal as specified by the fumigant label.

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## Part 7.1.3

### Calculating Adjusted Total Pounds

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**Definition of Adjusted Total Pounds**

Adjusted Total Pounds (ATP) is the total quantity of 1,3-D active ingredient that is applied during a particular application, adjusted by an Application Factor (AF). The AF adjusts for the relative amount of 1,3-D that is potentially present in the air near the treated field. For more information, see “Determining the Application Factor”.

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**Purpose for calculating Adjusted Total Pounds**

The purpose for calculating the ATP is to verify that a recommendation for 1,3-D use is in compliance with the maximum allowable application rate. The maximum allowable application rate is 332 pounds of 1,3-D active ingredient per acre. If a pest control adviser submits a recommendation for 1,3-D use that exceeds this maximum allowable rate per acre, the registrant’s agent will not approve the recommendation.

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**Determining the Application Factor (AF)**

The Application Factor (AF) is a numerical value determined by DPR scientists that indicates the relative amount of 1,3-D that is potentially present in the air near treated fields. The higher the AF value, the greater the proportion of the applied 1,3-D that may escape into the air. AF values are based on the geographic location, month, and method of the specific application. The AF values are used in the formula to calculate the ATP used during the application. Use Table 1 below to determine the AF.

**Terms used in Table 1:**

- Locations consist of:
    - Within SJV – San Joaquin Valley ozone nonattainment area, as defined in Title 40, Code of Federal Regulations, Section 81.305. The nonattainment area is an eight-county region that consists of the western valley portion of Kern County, and all of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties.
    - Outside SJV – Outside the San Joaquin Valley ozone nonattainment area.
  - Tarp types consist of:
    - 60% credit – Tarp assigned a 60% buffer zone credit for products that contain both chloropicrin and 1,3-D as active ingredients, as specified by labeling for those products.
    - Non-60% credit – Either the tarp is not assigned a 60% buffer zone reduction for chloropicrin/1,3-D products as specified by product labeling, or the application is untarped.
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## Calculating Adjusted Total Pounds, Continued

**Determining the Application Factor (AF)**  
(continued)

- Fumigation methods consist of:
  - Shallow – shank injection less than 18 inches deep
  - Deep – shank injection 18 inches or deeper
  - Strip – shank injection alternating with untreated area
  - Drip – chemigation using drip irrigation system

**Table 1. Determining the Application Factor (AF)**

Location	Tarp Type	Months	Fumigation Method	Application Factor <sup>1</sup>
Within SJV	non-60% credit	Dec or Jan	Shallow	Prohibited
			Deep	1.9
			Drip	1.16
		Feb-Nov	Shallow	1.9
			Deep	1.0
			Drip	1.16
	60% credit	Dec or Jan	Shallow	0.6
			Deep	0.6
			Strip	1.2
		Feb-Nov	Drip	1.16
			Shallow	0.3
			Deep	0.3
Outside SJV	non-60% credit	Dec or Jan	Strip	0.6
			Drip	1.16
			Shallow	2.3
		Feb-Nov	Deep	1.2
			Drip	1.16
			Shallow	1.9
	60% credit	Dec or Jan	Deep	1.0
			Drip	1.16
			Shallow	0.6
		Feb-Nov	Deep	0.6
			Strip	1.2
			Drip	1.16
60% credit	Dec or Jan	Shallow	0.3	
		Deep	0.3	
		Strip	0.6	
	Feb-Nov	Drip	1.16	
		Shallow	0.3	
		Deep	0.3	

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<sup>1</sup> Drip irrigation applications on soil surface or buried drip application shall use an application factor (AF) of 1.16, regardless of depth.

## Calculating Adjusted Total Pounds, Continued

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Application rates – maximum gallons per acre (M gal/A)

**To determine the maximum number of gallons per acre of pesticide formulation (M gal/A):**

Maximum application rate in gal/A = maximum lbs./A divided by lbs./gal

The maximum lbs./A has been set at 332. Therefore:

**Divide maximum lbs./A (332) by lbs./gal**

Because percentages of a.i. differ in various 1,3-D products, the procedures below describe a method to ensure that neither the maximum rate nor the township limit is exceeded. Additionally, this procedure takes into account percentages of 1,3-D a.i. within different formulated products, allowing more gallons per acre (gal/A) when the product has a lower percentage of 1,3-D or fewer gal/A if the product has a higher percentage of 1,3-D. Use the following steps (which are summarized in Table 2):

1. The gal/A of pesticide formulation shall be based on the number of pounds per acre (lbs./A) of 1,3-D a.i.
  - a) The maximum allowable amount of 1,3-D shall be 332 lbs. of a.i./A
  - b) See pesticide labeling for detailed rate recommendations and rate calculation instructions.
  
2. Use the following information to calculate the maximum gal/A allowed for each application:
  - a) The pounds per gallon (lbs./gal) for the pesticide formulation
  - b) The percentage by weight of 1,3-D (XX%) in the pesticide formulation, expressed as a decimal (.XX)
  - c) The pounds of 1,3-D per gallon (1,3-D/gal) for the pesticide formulation
  - d) The maximum lbs./A for the application (332)

Maximum application rates cannot exceed labeling maximum rates.

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## Calculating Adjusted Total Pounds, Continued

### Maximum application rates

Use Table 2 below as a shortcut to find the maximum application rate, with or without a tarpaulin. For example, pesticide product labeling states that Pic-Clor 60, Telone™ II, Telone™ C-17, Telone™ C-35, and Tri-Form 35 shall be applied by mechanical soil injection only.

**Table 2. How to determine the maximum application rate with or without a tarpaulin, with examples from some representative 1,3-D products**

Calculations	Pic-Clor 60	Telone™ II	Telone™ C-17	Telone™ C-35*	Tri-Form 35
(1) Weight/gallon <sup>1</sup>	12.1 lbs.	10.15 lbs.	10.6 lbs.	11.2 lbs.	11.2 lbs.
(2) % 1,3-D/gallon <sup>2</sup>	39%	97.5%	81.2%	61.1%	63.4%
(3) Amt. 1,3-D/gallon <sup>3</sup> (3) = (1) x (2) ÷ 100	4.72 lbs.	9.9 lbs.	8.61 lbs.	6.84 lbs.	7.1 lbs.
<b>Maximum application rate</b>					
(4) Max. lbs. a.i./Acre <sup>4</sup>	332 lbs. a.i./A	332 lbs. a.i./A	332 lbs. a.i./A	332 lbs. a.i./A	332 lbs. a.i./A
(5) Max. gal/Acre <sup>5</sup> (5) = (4) ÷ (3)	70.34 gal/A	33.54 gal/A	38.57 gal/A	48.54 gal/A	46.76 gal/A

\* **NOTE:** See the **Telone™ C-35** product's label for the active ingredient percentages. There are presently two variations of Telone™ C-35 in the channels of trade -- 61.1% a.i. and 63.4% a.i. For Telone C-35 with 63.4% a.i., the maximum application rate calculated via the Table 2 procedure is 46.76 gal/A.

<sup>1</sup> Information for steps (1) and (2) can be found on the product label.

<sup>2</sup> Information for steps (1) and (2) can be found on the product label.

<sup>3</sup> Information for step (3) may or may not be on the product label, but can be calculated from steps (1) and (2).

<sup>4</sup> Maximum lbs. a.i./Acre in step (4) has been predetermined by the Department of Pesticide Regulation.

<sup>5</sup> Maximum gal/A in step (5) must be calculated by the applicator.

## Calculating Adjusted Total Pounds, Continued

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### Calculating the Adjusted Total Pounds (ATP)

The Adjusted Total Pounds (ATP) for each application shall be calculated based on the following:

1. The total gallons (TG) of the pesticide formulation
2. The lbs./gal for the pesticide formulation
3. The percent by weight (XX%) of 1,3-D in the pesticide formulation, expressed as a decimal (.XX)\*
4. The total pounds (TP) of 1,3-D\*\*
5. The application factor (AF) as determined from Table 1.

The ATP for each application shall be calculated using the following formula:

$$\text{TG x lbs./gal x (.XX) x AF = ATP}$$

\*To convert the 1,3-D percentage by weight (XX%) to a decimal, divide XX% by 100 = .XX

\*\*To find the TP, multiply, TG x lbs./gal x (.XX) = TP

- To find the ATP, multiply, TP x AF = ATP
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## Part 7.1.4

### Drip Application Systems

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<b>Timing for drip irrigation applications</b>	Generally, applications are allowed statewide during the entire year, however, drip applications are prohibited in the San Joaquin Valley ozone nonattainment area during December and January.
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<b>Calculating the ATP for drip irrigation applications</b>	To calculate adjusted total pounds (ATP), follow the procedure already described. All drip applications shall use an application factor (AF) of 1.16, whether on soil surface or buried, regardless of depth.
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