

## Registered Alternatives for Methyl Bromide

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As the cost of methyl bromide, both in dollars and regulatory burden, goes up there is increased interest in alternatives. Considerable resources are being spent on the search for alternatives, but that is for someone else to cover. I am going to discuss the main options available today.

There are basically three options. They are all fumigants and they are all restricted materials. They can only be used by or under the direct supervision of a certified private or commercial applicator. In addition, all three require a permit from the county agricultural commissioner for possession or use. They are:

1,3-D (Telone)  
metam sodium (and other MITC producing compounds)  
chloropicrin

1,3-D is currently regulated by registration and permit condition in addition to labeling requirements. There are currently no specific regulatory requirements on this pesticide. The most recent permit conditions are found in ENF 01-40. You can get a copy from your county agricultural commissioner.

Probably the biggest impacting factor is the township cap. This requirement is to mitigate excessive offsite exposure. It is implemented as a negotiated product stewardship condition of registration and marketing of the product in California. It is managed by the registrant with overview by DPR. Basically it limits application in a township to about 34,000 adjusted pounds in each of January and December of each year and 90,000 adjusted pounds annually. DPR does not allocate the pounds to growers. It is up to the industry to make that distribution.

If you are a greenhouse grower, you are out of luck. Our recommendation to the commissioners is that no permits for greenhouse use be issued.

Other requirements touch on buffer zones and reentry. The minimum buffer zone recommendation from DPR to the commissioners for permit conditioning is 100 feet. Some labels have greater buffer zones and some do exempt certain situations from buffer zone requirements altogether. The suggested permit conditions for REIs are a little stricter than standard REI requirements. During the seven day REI only pesticide handlers may enter. No other work may be done, including what would normally be allowed during a normal REI.

Metam sodium and other MITC generating compounds (Dazomet and metam potassium) are also regulated by permit condition. In addition to the label requirements and permit conditions, there is a Technical Information Bulletin. Unfortunately there is sometimes confusion among the three. This is because they were all written at different times, by different people with a different perspective. If faced with confusion, my suggestion would be to let your commissioner be the referee.

Metam sodium has what are probably the most complex requirements of any of the methyl bromide alternatives. There are site monitoring plans. Monitoring hourly is required when applied within 1500 feet of an occupied structure. There is also a general 500 foot buffer to "sensitive sites". The commissioner gets to make this determination but in general they will be based on the presence of people and will likely include most occupied structures. The monitoring extends for up to 12 hours after the completion of the application but is reduced to every two hours.

Another thing you get involved with is the, so called, water sealing, or soil capping. The addition of water (irrigation) seems to reduce, at least the rate, if not the overall amount, of off gassing so there are requirements for adding water when odor is detected during the monitoring.

The primary methods of application are shank injection, sprinkler, flood, and by rotary tiller. By far, the most troubling to DPR, from a regulatory standpoint, is sprinkler. Most of the incidents and complaints we received resulted from sprinkler applications. There are a number of equipment specifications for all types of applications, so, again, I would recommend that if you are looking at metam sodium as your methyl bromide alternative get a copy of ENF 2000-044 from your commissioner.

Chloropicrin has the least restrictions on it at the moment. You must, of course, follow the labeling. There are no specific regulations or DPR suggested permit conditions. Chloropicrin is currently undergoing reevaluation and development of a risk assessment. The general suspicion is that the eventual outcome will be that additional restrictions, probably similar to the other fumigants, are put in place.

Those are your current choices. My recommendation is that you mix and match, applying the most appropriate to each situation. The whole fumigant situation is in a state of flux. Nothing is assured except change.