

**Summary: Nomination for Critical Use Exemptions for Methyl Bromide Submitted by the  
United States of America on February 4, 2011  
[Requests 650,003 kg for 2013 calendar year]**

Nominating Party: United States of America		
1	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Post Harvest Use for Commodities
	Crop Name or Post-Harvest Use	Walnuts, dried fruit (prunes, raisins, figs), and dates produced in California
	Quantity of MBr requested in 2013	822 kg
	Reasons alternatives not technically and economically feasible	<p>Phosphine, alone and in combination:</p> <ul style="list-style-type: none"> <li>-- Suitable for fumigating commodities in storage, where fumigation time is not a factor, but generally too slow for treating large commodity volumes that need to be processed rapidly</li> <li>-- Switching to this slower product would require substantial operational changes that are economically infeasible</li> </ul> <p>Sulfuryl Fluoride:</p> <ul style="list-style-type: none"> <li>-- Early studies have shown that, under vacuum or atmospheric conditions, sulfuryl fluoride is effective against adult, pupal, and larval stages of insects infesting walnuts, but less effective against the egg stage</li> </ul> <p>Propylene Oxide:</p> <ul style="list-style-type: none"> <li>-- U.S. EPA has established tolerances for propylene oxide on prunes, figs, and raisins, but no comparative efficacy data for commodity fumigation seems to be currently available</li> </ul> <p>Sulfuryl Fluoride + Propylene Oxide:</p> <ul style="list-style-type: none"> <li>-- Research is ongoing to determine if this combination is more cost effective than methyl bromide, especially regarding the egg stage of several economically important insects that infest tree nuts and dried fruit</li> </ul>
2	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Cucurbits Grown in Open Fields
	Crop Name or Post-Harvest Use	Cucurbits (squash, melons, and cucumber) grown in Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.
	Quantity of MBr requested in 2013	11,899 kg
	Reasons alternatives not technically and economically feasible	<p>Maryland and Delaware:</p> <ul style="list-style-type: none"> <li>-- 1,3-D, Pic and metam use are hindered by environmental conditions</li> <li>-- The crop acreage involved is on low-lying coastal plains, and water-logged soils frequently occur in rain events near the fumigation period</li> <li>-- Water tables may be too close to the surface to allow timely fumigation with these materials</li> </ul> <p>Southeastern U.S.:</p> <ul style="list-style-type: none"> <li>-- Only 1,3-D, Pic and metam have shown potential as commercially viable replacements</li> <li>-- Non-chemical alternatives are either unviable for U.S. cucurbits or require more research and commercial development</li> <li>-- For some areas in the southeastern U.S., a three-way combination of 1,3-D + Pic, followed by Pic alone, followed by metam, has shown promise against key cucurbit pests in spring</li> </ul>

		<p>season fumigation</p> <ul style="list-style-type: none"> <li>-- The U.S. nomination includes a transition rate for the new three-way treatment system</li> <li>-- The recent Federal registration of iodomethane has not been used to adjust the amount of methyl bromide because this material has not been registered on cucurbits.</li> </ul>
3	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Eggplant Grown in Open Fields
	Crop Name or Post-Harvest Use	Eggplant grown in Florida and Georgia.
	Quantity of MBr requested in 2013	1,381 kg
	Reasons alternatives not technically and economically feasible	<ul style="list-style-type: none"> <li>-- 1,3-D + Pic: <ul style="list-style-type: none"> <li>- Limited in FL and GA due to karst topographical features in all areas plus other soil restrictions in Florida.</li> <li>- Extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices</li> <li>-not as efficacious as methyl bromide, especially against nutsedge</li> </ul> </li> <li>-- For spring solanaceous crops the new three-way treatment system has shown promise against key pests, but requires further validation before it is ready for widespread adoption</li> <li>-- The recent Federal registration of iodomethane has not been used to adjust the amount of methyl bromide because this material has not been registered on eggplants.</li> </ul>
4	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Post-Harvest Use in Food Processing Plants
	Crop Name or Post-Harvest Use	Rice mills, flour mills, and pet food manufacturing facilities.
	Quantity of MBr requested in 2013	25,334 kg
	Reasons alternatives not technically - and economically feasible	<p>Phosphine, alone and in combination:</p> <ul style="list-style-type: none"> <li>-- Limited because of corrosion to electrical equipment</li> <li>-- Takes longer, thereby delaying plant operations</li> <li>-- Temperature sensitive</li> <li>-- Some reports of resistance in stored product pests</li> </ul> <p>Heat:</p> <ul style="list-style-type: none"> <li>-- Takes longer, thereby delaying plant operations</li> <li>-- Constraints depending on building materials</li> <li>-- Cost typically very high</li> </ul> <p>Sulfuryl Fluoride:</p> <ul style="list-style-type: none"> <li>-- Efficacy is temperature dependent</li> <li>-- Requires applicator training</li> <li>-- Industry is incorporating into their IPM/best management practices</li> <li>-- Costs often higher than methyl bromide</li> <li>-- Transition rates of 15-23% depending on industry</li> <li>-- EPA has published a proposed order to revoke tolerances</li> </ul>
5	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination For Post Harvest Use on Dry Cured Pork Products
	Crop Name or Post-Harvest Use	Cured meat products, such as country hams
	Quantity of MBr requested in 2013	3,730 kg
	Reasons alternatives not technically and economically feasible	<p>Phosphine:</p> <ul style="list-style-type: none"> <li>-- Not registered in all states</li> <li>-- Not efficacious against mites</li> </ul> <p>Heat:</p> <ul style="list-style-type: none"> <li>-- Would affect the final product (rancidity, cooking)</li> </ul>

		Sulfuryl Fluoride: -- Not tested in commercial setting -- Tested for efficacy against mites, but not effective against ham mites
6	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Nursery Stock – Fruit, Nut and Rose
	Crop Name or Post-Harvest Use	Nursery-grown roses and deciduous tree planting material
	Quantity of MBr requested in 2013	541 kg
	Reasons alternatives not technically and economically feasible	-- In some situations the use of 1,3-dichloropropene (1,3-D) can provide an effective alternative to methyl bromide for nematode control to enable nurseries to attain certification for stock, but 1,3-D is restricted by township cap regulations and requires a soil type and moisture levels that are compatible with the chemical act -- Where pathogens <i>and</i> nematodes are key pests, as in most nurseries, methyl bromide is critical Other reasons why alternatives not feasible: -- 1,3-D is not an approved treatment for fine-textured soils -- Greater inputs are required for soil preparation and moisture management; -- Township caps and buffer zone requirements; -- Weed management efficacy; and -- Air quality standards related to volatile organic compounds. -- Iodomethane has not been proven effective at the use rates registered in California.
7	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Orchard Replant
	Crop Name or Post-Harvest Use	Stone fruit, almond, and walnut orchards, and table grape and raisin vineyards, in California
	Quantity of MBr requested in 2013	6,230 kg
	Reasons alternatives not technically and economically feasible	-- For situations where moisture is greater than 12% at depths to 1.5 meters, 1,3-D is not regarded as effective at available rates -- Current research is identifying non-fumigation methods to kill remnant roots of outgoing orchard trees, which provide nutrients for soil-borne pests that may infest new tree plantings - Even difficult to kill grapevine roots were effectively treated with a specifically timed application of glyphosate - Large scale adoption will require additional efficacy testing -- Experiments with Pic are promising, but only at rates that are not currently allowed in California. If efficacy can be attained with much reduced rates, a significant alternative to methyl bromide may be achieved -- The U.S. Nomination for orchard replant is for a portion of the sites where alternatives are not suitable, either because of legal restrictions or physical features, such as unacceptable soil type or moisture. -- Resistant rootstock to the specific pests present in these soils does not exist at this time
8	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Cut Flower and Bulb Ornamentals Grown in Open Fields
	Crop Name or Post-Harvest Use	Ornamental cut flowers, cut greens, and bulbs in California and Florida
	Quantity of MBr requested in 2013	48,164 kg
	Reasons alternatives not technically	-- Alternatives do not provide adequate control of the full pest

	and economically feasible	spectrum, and use restrictions limit widespread use of alternatives -- Methyl bromide is needed to control diseases (e.g., <i>Fusarium</i> spp., <i>Pythium</i> spp., <i>Phytophthora</i> spp., and <i>Rhizoctonia</i> spp.), plant parasitic nematodes (e.g., root knot, root lesion, stunt and dagger), weeds (e.g., <i>Cyperus</i> spp. and other state prohibited weeds), and previous crop propagules
9	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Peppers Grown in Open Fields
	Crop Name or Post-Harvest Use	Peppers grown in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia
	Quantity of MBr requested in 2013	5,673 kg
	Reasons alternatives not technically and economically feasible	<p>Pest control efficacy of alternatives may not be comparable to methyl bromide in some areas, making these alternatives technically and/or economically infeasible for use in pepper production.</p> <ul style="list-style-type: none"> <li>- Geographic distribution of key target pests: i.e., some alternatives may be comparable to methyl bromide as long as key pests occur at low pressure, and in such cases the U.S. is only nominating a CUE for peppers where the key pest pressure is moderate to high such as nutsedge in the Southeastern U.S.</li> <li>- Regulatory constraints: e.g., 1,3 D use is limited in Georgia and Florida due to the presence of karst topography.</li> <li>- Infeasibility of fall-season fumigation in the southeastern US, even with the best available combination of alternatives (1,3 D followed by chloropicrin followed by metam-sodium).</li> <li>- There are significant restrictions on which crops can be rotated through after use of a given alternative (e.g., halosulfuron has rotational restrictions that prevent its use in southeastern US tomatoes).</li> <li>- Resistance management prevents use of the alternative (e.g., glyphosate resistant weeds, such as Amaranth, in the southern US, prevent use of this alternative as a post-emergent weed control in those regions).</li> </ul>
10	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Strawberries Grown for Fruit in Open Fields
	Crop Name or Post-Harvest Use	Strawberry production in California
	Quantity of MBr requested in 2013	531,737 kg
	Reasons alternatives not technically and economically feasible	<p>-- In California, township caps currently restrict the use of the most thoroughly studied alternative, 1,3-D. Restrictions could affect approximately 40-62% of total strawberry land.</p> <p>-- Iodomethane has not been tested extensively on large-scale production land at the low rates specified on the California label. Furthermore, California requires much larger buffer zones (5 to 10 times those on the federal label). Research using higher rates (comparable to those on the federal label) generally indicates good efficacy. The new fumigant should be available in several formulations with chloropicrin, but impacts of buffer restrictions and use rate efficacy in California will be unclear until experience with the formulations and its activity against various pests is known.</p>
11	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for

		Strawberry Nurseries in Open Fields or in Protected Environments
	Crop Name or Post-Harvest Use	Strawberry seedlings in open fields and in screen houses in California
	Quantity of MBr requested in 2013	3,752 kg
	Reasons alternatives not technically and economically feasible	-- California nurseries currently use methyl bromide on all of their land for transplants designated as quarantine pre-shipment (QPS), which makes up 99% of methyl bromide use by nurseries. For the 2013 season, methyl bromide continues to be critical for California strawberry nurseries for 22 ha of non-QPS uses where there are regulatory restrictions on 1,3-D and chloropicrin. -- Regulations in California on the use of 1,3-D and chloropicrin restrict their use in some locations, such as clay soils and where township caps are in place. Research trials in California have indicated that iodomethane/chloropicrin, 1,3-D/chloropicrin followed by dazomet, and chloropicrin followed by dazomet provided similar pest control in runner nurseries when compared to methyl bromide/chloropicrin. The use of low permeable films has improved efficacy of alternatives.
12	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Pre-plant Soil Use for Tomato Grown in Open Fields
	Crop Name or Post-Harvest Use	Fresh market tomatoes produced in Florida, Georgia, The Mid-Atlantic (Maryland, and Virginia), and the Southeast (Alabama, Arkansas, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee)
	Quantity of MBr requested in 2013	10,741 kg
	Reasons alternatives not technically and economically feasible	-- Research results confirm that methyl bromide alternatives options provide inconsistent control of nutsedge weed species, an extremely competitive weed in tomato production that can cause significant yield losses in the mid-Atlantic and Southeast -- Methyl bromide alternatives also provide incomplete control of soil pathogens in the mid-Atlantic region -- There is a regulatory prohibition on the use of 1,3-D where karst topographical features are present in the South-Eastern United States, including Florida -- For some areas in the southeastern U.S., a three-way combination of 1,3-D + Pic, followed by Pic alone, followed by metam, has shown promise against key cucurbit pests in spring season fumigation but not in fall (late summer) fumigation -- The U.S. nomination includes a transition rate for the new three-way treatment system and for the adoption of the use of iodomethane + chloropicrin, in states where it is registered (all states except Washington and New York)
13	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Research in Multiple Sites
	Crop Name or Post-Harvest Use	Multiple
	Quantity of MBr requested	7,445 kg in 2012 and 7,537 kg in 2013
	Reasons alternatives not technically and economically feasible	This will allow researchers to include a methyl bromide standard in their test plots for statistical comparison against the alternative fumigants.