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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

**EXPEDITE**

AUG 28 1991

MEMORANDUM

OFFICE OF  
PESTICIDES AND TOXIC  
SUBSTANCES

SUBJECT: Expedited Review of Inhalation Worker Exposure Protocol  
From the Metam-Sodium Task Force (HED Project # 1-2018)

TO: Christine Rice, PM 52  
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FROM: Ameesha Mehta, Chemist *Ameesha Mehta*  
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I. INTRODUCTION

A. Background:

Metam-Sodium (Vapam) is a non-selective preplant fumigant for control of weeds, soilborne diseases, and nematodes infesting field and vegetable crops. It is applied at least 14 days prior to planting by the following two methods: shank injection or by injection into a sprinkler system. The formulated product is a water miscible concentrate containing 3.18 lb ai/gallon.

B. Purpose:

SRRD has requested OREB to conduct an expedited review of the study by Pan-Agricultural Laboratories titled, "Worker Mixer/Loader and Applicator Exposure From Field Application of Metam-Sodium."

II. RECOMMENDATIONS/CONCLUSIONS

The study protocol titled, "Worker Mixer/Loader and Applicator Exposure From Field Application of Metam-Sodium," to be conducted by Pan-Agricultural Labs in the beginning of November, will be acceptable to Pesticide Assessment Guidelines, Subdivision U as long as the following revisions are made.



A. Study Design:

The present protocol states that the study will be conducted in Arizona on cotton, with a set of 5 replicates for each type of application method (shank injection and injection into sprinkler system). For the both types of application methods, the maximum label rate of 100 gallons per acre (318 lb ai/acre) will be used.

However, to meet the Subdivision U Guidelines and to obtain a reasonable cross section of the variations in individual exposure values, the Agency requires that fifteen replicates be obtained from a minimum of three application sites. However, in the case of Metam-Sodium, OREB requires that a total of 30 replicates be obtained from the two different sites.

1. Site: Arizona

In the state of Arizona, Metam-sodium will be applied on cotton using both methods. OREB requires that a set of 10 replicates be obtained with the shank injection method, and another set of 10 replicates with the method that involves injection into the sprinkler system.

2. Site: Washington

From conversations with James Wagner, Chairman of the Metam-Sodium Task Force, and Phil Jones of Pan-Agricultural Labs, the second site was eluded to be in the State of Washington, on potatoes. For this site, OREB requires that a set of 5 replicates be obtained with the shank injection method, and another set of 5 using the sprinkler system.

B. OREB finds the rest of the protocol to meet Subdivision U guidelines.

C. Rationale for not including dermal exposure is found to be acceptable by OREB. Due to the short half-life of metam-sodium, and the highly volatile state of MITC which precludes it from retaining on the dosimeters, OREB agrees that it is difficult to quantify dermal exposure at the present time.

cc: A.Mehta/OREB H7509C  
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Chemical File  
Circulation  
Correspondence

Case No.: 2390  
 Chemical No(s): 39003

Table 1. Crop Field Trial and Processing Study Parameters for Each Commodity to be Tested

Crop Group	Commodity	States <sup>1</sup>	Are Processing Studies Required?	Processed Commodities
Root/Tuber Vegetables	Carrots	CA, TX, MI/WI, FL, WA	No	N/A
	Potatoes	ND, ME, CO, CA	Yes	Peel, dry and wet Granules Chips
	Radish	MI, OH	No	N/A
	Sugar Beet	MN, CA, ID, ND	Yes	Pulp, dehydrated Molasses Sugar, refined
Leaves of Root/Tuber Vegetables	Turnip	TX, GA, CA, AL, TN	No	N/A
	Sugar Beet	MN, CA, ID, ND	No	N/A
Bulb Vegetables	Bulb Onion	CA, TX, NY, CO, MI	No	N/A
Leafy Vegetables	Leaf Lettuce	AZ, FL	No	N/A
	Celery	CA, FL, MI	No	N/A
	Spinach	CO	No	N/A
Brassica Vegetables	Broccoli	CA, TX/AZ, OR	No	N/A
	Cabbage	NY, TX, FL, CA	No	N/A
	Mustard Greens	CA, TX, GA	No	N/A
Legume Vegetables (Succulent or Dried)	Succulent Beans	FL, MI	Yes	Cannery Waste
	Dried Beans	MI, ND, NE, ID, CA, CO	Yes	Cannery Waste
	Succulent Peas	MN, OR/WA/ID, WI, IL, CA	No	N/A
	Dried Peas	WA/OR, ID, TX	No	N/A
	Soybeans	IL, IA, IN, MN, MS, ND, NE	Yes	Meal Hulls Soapstock Crude Oil Refined Oil

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Crop Group	Commodity	States <sup>1</sup>	Are Processing Studies Required?	Processed Commodities
Foliage of Legume Vegetables	Foliage of beans	FL, OR, MI, NY, WI	No	N/A
	Foliage of field peas	MN, OR/WA/ID, WI, IL, CA	No	N/A
	Foliage of soybeans	IL, IA, IN, MN, MS, ND, NE	No	N/A
Fruiting Vegetables	Peppers	FL, CA, TX, NJ, NC	No	N/A
	Tomatoes	OH, MI	Yes	Pomace, wet and dry Puree or Catsup Juice
Cucurbits	Squash	FL, CA, TX, NJ, GA, MI	No	N/A
	Cucumbers	NC/SC, FL, TX	No	N/A
Citrus Fruits	Sweet Orange	CA, FL	Yes	Dried Pulp Oil Molasses Juice
	Lemon	AZ, CA, FL	No	N/A
	Grapefruit	AZ, CA, TX	No	N/A
Pome Fruits	Apple	WA, MI, NY, CA, VA, PA	Yes	Pomace, wet and dry Juice
	Pear	WA/OR, CA, NY, MI	No	N/A
Stone Fruits	Cherry	MI, WA/OR, CA, NY, WI	No	N/A
	Peach	CA, SC, GA, MI, NJ	No	N/A
	Plums (Fresh Prunes)	WA/OR, MI, CA, ID	Yes	Dried prunes
Small Fruits and Berries	Blackberry	OR/WA, CA, TX	No	N/A
	Blueberry	MI, NJ, NC, OR/WA	No	N/A
	Cranberry	MA, WI, OR/WA	No	N/A
	Grape	CA, WA/OR, PA, NY, MI	Yes	Raisin Pomace, wet and dry Raisin waste Juice
Tree Nuts	Almond (includes hulls)	CA	No	N/A
	Pecan	GA, TX, NM	No	N/A
	English Walnut	CA, OR	No	N/A

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Crop Group	Commodity	States <sup>1</sup>	Are Processing Studies Required?	Processed Commodities
Cereal Grains	Sweet Corn	MN/WI, WA/OR	Yes	Cannery Waste
	Field Corn	IL, IA, NE, MN, IN, OH, WI, MO	Yes	Crude Oil Refined Oil Starch Grits Meal Flour
	Rice	AR, LA, CA, TX	Yes	Polished Rice Hulls Bran
	Sorghum	KS, TX/OK, NE, MO, AR	Yes	Flour Starch
	Wheat	KS, ND, OR/WA/ID, TX/OK, MT, MN	Yes	Bran Flour Middlings Shorts
Forage, fodder, and Straw of Cereal Grains	Corn	IL, IA, NE, MN, IN, OH, WI, MO	No	N/A
	Wheat	KS, ND, OR/WA/ID, TX/OK, MT, MN	No	N/A
	Rice	AR, LA, CA, TX	No	N/A
Grass Forage, fodder, and hay	Bermudagrass (includes seed and seed screenings)	AZ, CA	No	N/A
	Bluegrass (includes seed and seed screenings)	ID/OR/WA	No	N/A
	Bromegrass or Fescue (includes seed and seed screenings)	KS, SD, OR/WA	No	N/A
Non-grass animal feeds	Alfalfa	CA, OR/WA/ID, NE, MN/WI, KS, IL	Yes	Meal
	Clover	MN, ND/SD,	No	N/A
Herbs and Spices	Chives	CA	Yes	Dried
	Dill	CA	Yes	Dried
	Marjoram/Oregano	CA	Yes	Dried
	Sage	CA	Yes	Dried

<sup>1</sup>If a slash appears between states then either state may be chosen.