

U.S. ENVIRONMENTAL PROTECTION AGENC Office of Pesticide Programs Registration Division (H7505C) 1200 Pennsylvania Ave., N.W. Washingtor, D.C. 20460 SFA Req. Number:

45728-27

OCT 15 2003

NOTICE OF PESTICIDE:

\_x Registration
\_\_\_\_ Reregistration

Conditional

Term of Issuance:

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Metam KLR 54%

Name of Pesticide Product:

(under FIFRA, as aménded)

Name and Address of Registrant (include ZIP Code):

Taminco, Inc. 1950 Lake Park Drive Smyrna, GA 30080

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(C) provided that you:

- 1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
- 2. Make the following label changes:
  - a. Revise the EPA Registration Number to read, "EPA Reg. No. 45728-27".
  - b. There has been a recent change in the Worker Protection Standard (WPS) labeling regarding the use of the term "waterproof

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Muy J. I Lay Va	
Mary J. Waller, Product Manager	(21)

Date

10/15/03

page 2 EPA Reg. No. 45728-27

> gloves". Under Personal Protective Equipment, change "waterproof gloves" to "chemical-resistant gloves made of any waterproof material" wherever it occurs.

- 3. Enclosed are copies of the toxicology data and product chemistry data reviews.
- 4. As indicated in the product chemistry review, you must submit storage stability and corrosion characteristics data for the product upon completion of the studies.

Submit one copy of the revised final printed label for the record.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Mary L. Waller

Product Manager (21)

Mary J. Waller

Fungicide Branch

Registration Division (7505C)

Enclosures

7505C:CGrable:cg:10/15/03

# Metam KLR™54%

# Soil Fumigant Solution for All Crops

MAY BE APPLIED BY CHEMIGATION, SOIL INJECTION OR SOIL BEDDING EQUIPMENT TO SUPPRESS AND/OR CONTROL SOIL-BORNE PESTS, WHICH ATTACK ORNAMENTALS, FOOD AND FIBER CROPS. Controls or suppresses weeds such as Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Pigweed, Watercress, Amaranths species: Watergrass, Johnsongrass, Nightshade, Nutsedge, Wild Morning-Glory and Purslane, Nematodes and Symphylids. Soil-Borne diseases such as Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers. Refer to specific cropping and application methods to determine control or suppression of the target.

**ACTIVE INGREDIENT:** 

otal: 100.0%

ACCEPTED

ye ingredient per gallon.

0.4,5,20303

EPA Reg. No. 45728-xx

Under the Federal Insecticide, Fundicide, and Rodenticide Act

EPA Est. No. 32557-BEL-1

as amended, for the pesticide registered under EPA Reg. No.

CEEFOUT OF REACH OF CHILDREN

DANGER - PELIGRO

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en Jetalle. (If you do not understand the label, find someone to explain it to you in detail.)

	FIRST AID
IF IN EYES	<ul> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
IF INHALED	<ul> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
IF SWALLOWED	<ul> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>
IF ON SKIN OR CLOTHING	If on skin or clothing:  Take off contaminated clothing.  Rinse skin immediately with plenty of water for 15-20 minutes.  Call a poison control center or doctor for treatment advice.
	HOT LINE NUMBER
	container or label with you when calling a poison control center or doctor, or going for treatment. For Emergenices eak, Fire, Exposure, or Accident. Contact: CHEMTREC at (800) 424-9300. For other emergencies, phone
	NOTE TO PHYSICIAN

Possible mucosal damage may contraindicate gastric lavage

# PRECAUTIONARY STATEMENTS

### Hazards to Humans and Domestic Animals

**DANGER:** Corrosive -- Causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals. Harmful if swallowed or inhaled. Irritating to eyes, nose and throat. Avoid breathing vapor or spray mist. Do not get in eyes.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

# (1) Handlers Performing Direct-Contact Tasks

Direct-contact tasks include:

- · mixing, loading, or furnigant transfer with or without dry disconnect fittings
- · equipment calibration or adjustment
- equipment clean-up or repair
- product sampling
- application or soil-sealing outside an enclosed cab
- any activity less than 6 feet from an unshielded pressurized hose containing this product
- spill clean-up
- removal of tarp or plastic film
- · rinsate disposal
- clean-up of small spills
- · preparing containers for aeration
- any other handling task not otherwise listed in (2) or (3)

Applicators and other handlers performing direct-contact activities must wear:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, or when mixing, or transferring without drydisconnect fittings
- · Face-sealing goggles, unless full-face respirator is worn.
- A respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides
  (MSHA/NIOSH approval number prefix TX-23C), or a canister approved for pesticides
  (MSHA/NIOSH approval number TC-14G), or a NIOSH approved respirator with an organic vapor
  (OV) cartridge or canister with any N, R, P or HE prefilter.

#### (2) Handlers in Enclosed Cabs

Applicators and other handlers in enclosed cabs must wear:

- Coveralls
- Shoes and socks

Plus, if pungent, rotten-egg odor of this product can be detected inside the enclosed cab, the handlers in the cab must wear:

- Face-sealing goggles, unless full-face respirator is worn
- A respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides
  (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides
  (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P or HE prefilter.

In addition, the PPE specified in (1) for direct-contact activities must be immediately available in the enclosed cab and must be worn if the handler leaves the enclosed cab to perform any direct-contact activity. After wearing PPE clothing and if exposure or contamination from handling the product occurs, DO NOT store within the enclosed cab as handler may be exposed to vapors.

The enclosed cab must meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides -- 40 CFR 170.240(d)(5).

# (3) Handlers in Treated Areas While Entry is Restricted

While entry is restricted (see "Entry Restrictions" in the AGRICULTURAL USE REQUIREMENTS section elsewhere on this label), only the following handling tasks may be performed in a treated area:

- Assessing/adjusting the soil seal
- Assessing pest control/suppression, application technique, or application efficacy
- Sampling air or soil for this product

All other tasks are prohibited until the entry restriction is over. Handlers performing the above tasks must wear:

- · Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Chemical-resistant footwear and socks

Plus, if pungent, rotten-egg odor of this product can be detected, handlers must wear:

- Face-sealing goggles (unless full-face respirator is worn, and
- A respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides
   (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides
   (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic
   vapor (OV) cartridge or canister with any N, R, P or HE prefilter.

# **User Safety Requirements**

- Respirator Requirements: When a respirator is required for use with this product, the following criteria must be met:
  - (a) Cartridges or canisters must be replaced daily or when odor or irritation from this product becomes apparent, whichever is sooner.
  - (b) Respirators must be fit-tested and fit-checked using a program that conforms to OSHA's requirements (described in 29 CFR, Part 1910.134).
- Disposal of Contaminated Clothing: Discard clothing and other absorbent materials that have been drenched or heavily contaminated with liquid from this product. Do not reuse them.
- 3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Wash PPE after each day's use.

### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- DO NOT transport contaminated clothing inside a closed vehicle. Store in a sealed container and wash or dispose as required under "Disposal of Contaminated Clothing" and/or "Clean and Maintain PPE."

# ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate irrigation ditches or water used for irrigation or domestic purposes. Do not apply when conditions favor draft from treated areas such as adjacent crops, highways or schools. Do not use in a greenhouse or any other enclosed structure or confined area.

# DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that it will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or



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or Tribe, consult the agency responsible for pesticide regulation. Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. Refer to supplemental labeling under "Agricultural Use Requirements" in this section for information about this standard.

CALIFORNIA ONLY: Application must be in compliance with Technical Information Bulletin for California entitled "Metam Sodium Guidelines for All Application Methods in California." This information bulletin may be obtained from your local pesticide dealer or a Metam Sodium registrant.

# **Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard. 40 CFR 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) restricted entry interval and notification to workers. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

#### **Entry Restrictions**

OUTDOORS: Entry (including early entry that would otherwise be permitted under the WPS) by any person – other than a correctly trained and equipped handler who is performing a handling task permitted on this label – is PROHIBITED from the start of the application until 48 hours after application. In addition, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed.

**NOTIFICATION:** Notify workers of the application by warning them orally and by posting fumigant warning signs. The signs must state the following:

- "DANGER/PELIGRO"
- "Area under fumigation-DO NOT ENTER/NO ENTRE"
- "METAM KLR 54% Soil Fumigant in use"
- The date and time of fumigation
- Name, address, and telephone number of the applicator

Post the fumigant warning signs at entrances to treated areas. Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size, and timing and removal of posting.

**PPE FOR ENTRY DURING THE RESTRICTED PERIOD:** PPE for entry that is permitted by this labeling is listed in the "Hazards to Humans and Domestic Animals" section of this label.

#### GENERAL INSTRUCTIONS

Before applying this product, always thoroughly cultivate the area to be treated by breaking up clods and loosening soil deeply and thoroughly. If soil is not at 50-80% moisture capacity in the treatment zone, irrigate 1 to 2 weeks before treatment. Moisten soil after cultivation to the desired depth; sprinkle or flood irrigate. This step is essential for all methods of use. Immediately before application, cultivate lightly if the soil has crusted. METAM KLR 54% effectiveness is based on contact of the gaseous phase with a respiring pest. METAM KLR 54% will not control or suppress pests not actively respiring. METAM KLR 54% does not provide residual control. Pests that are dormant, protected by large clods, harbored by undecomposed plant material, not present at the time of application, or not present in the treatment zone will not be controlled. See POTATOES section for specific directions on the application of METAM KLR 54% to potato fields where no-till stubble or cover crop exist.

To prevent loss from evaporation, use only at times when air temperature is moderate and there is little wind movement (2-10 mph). Soil temperature must be 40 to 90°F in the treated zone. Treated zone is defined as the depth of treatment that METAM KLR 54% achieves at the time of application. For other conditions, see section "Days to Planting/Cultivation After Application". Do not apply to soil surface, as in the sprinkler method, when air temperature is over 90°F or when low humidity or high winds would cause loss of METAM KLR 54% before it can be drenched into the soil with additional water. If fumes become detectable during treatment, apply more water to seal the fumes into the soil where they should be confined to achieve maximum fumigation benefit. The activity of METAM KLR 54% is increased by the use of tarp (plastic, paper or fabric) spread loosely over the treated areas and secured to prevent removal by wind. Keep covered for a minimum period of 48 hours. Seven days after treatment cultivate no deeper than the depth of treatment to aerate the soil. Do not seed or transplant earlier than 21 days or later after application when tarping method is used (see "Testing of Treated Soils Before Planting" section). Use promptly after mixing with water. Do not allow solution to stand. Flush equipment with water after each day's use. Disassemble valves and clean carefully.

**Mycorrhizae:** There are occasions when METAM KLR 54% is known to temporarily reduce mycorrhizae in agricultural soils. For those crops that are mycorrhizae dependent and planted into METAM KLR 54%-treated soils, it is necessary to practice a good fertilizer program until the mycorrhizae repopulate the treated area.

#### PRODUCT INFORMATION

METAM KLR 54% is a water soluble liquid. When applied to properly prepared soil, the liquid is converted into a volatile furnigant. After sufficient interval of time, the furnigant dissipates leaving the soil reading for planting.

#### When to Use Maximum and Minimum Rates

The application rate of METAM KLR 54% is dependent on the soil type to be treated and the position in the soil of the pest to be suppressed or controlled. For maximum control or suppression, an understanding of the pest, its location and its respiring state will ensure maximum performance of METAM KLR 54%. Generally, a light sandy soil requires a lower application rate than a heavier mineral soil. In addition, if the pest is in the upper portion of the soil profile (annual weeds), a lower application rate is generally required than if the pest is deeper in the soil profile and deeper penetration is desired (perennial weed seeds and nematodes). When a range of application rates is given in this label, consult your local agricultural extension service for more specific information.

METAM KLR 54% is recommended for the suppression or control of the following soil-borne pests that attack ornamental, food and fiber crops (consult specific cropping and application instructions for recommendations): Weeds and germinating weed seeds such as Bermudagrass, Chickweed, Dandelions, Ragweed, Henbit, Lambsquarter, Pigweed, Watercress, Johnsongrass, Nightshade, Nutsedge (suppression only). Wild Morning-glory and Purslane; Nematodes (suppression only), Symphylids (Garden Centipede) and soil-borne diseases such as Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers.

Nematodes and Nutsedge: Nematode suppression is achieved when METAM KLR 54% converts to MITC and makes contact with active forms of the nematodes, preferably juveniles. Endo-parasites in plant residue may not be suppressed. Plant residues from previously infected crops should be completely decomposed prior to METAM KLR 54% application to ensure maximum exposure. Eggs are more difficult to suppress than juveniles, but are susceptible. Pre-irrigation has been demonstrated to stimulate egg hatch of some species and may enhance overall METAM KLR 54% performance. Nutsedge may be suppressed with METAM KLR 54% if actively growing and a high use rate is used (60 gal/acre). More often, rhizomes, roots and shoots will be controlled but the tuber will remain viable and at a later time regrow. Treatments made immediately prior to a crop planting (after the necessary waiting period) will give a weed-free period for crop establishment.

#### HISE PRECAUTIONS

Keep children and pets out of treated areas. METAM KLR 54% uses described on this label are intended for preplant soil preparation only. All plant foliage and any established plants growing on the treatment sites will be either severely damaged or destroyed. Keep the product off of any desirable turf or plants. Do not apply within 3 ft. of the drip line of desirable plants, shrubs, or trees. Do not use in confined areas without adequate ventilation or when fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food. NOTE: METAM KLR 54% will suppress and/or control only those pests in the fumigation zone at the time of treatment. Re-infestation may occur subsequent to the fumigants dissipation from the soil.

#### TREATMENT GUIDELINES

For optimum results, certain procedures should be observed at designated times in the treatment program. Described below are important guidelines for each of the four stages of the treatment process. Consult your Sales Representative for the appropriate treatment program for your particular needs.

- Pre-Application
- Field Preparation Prior to Application
- Application
- Pre-Planting After Application of METAM KLR 54%

#### PRE-APPLICATION

METAM KLR 54% is applied post-harvest and 14 to 21 days before a new crop is planted (see "Testing of Treated Soil Before Planting" section). In some areas, fall application is preferred, as the product will dissipate over the winter that allows planting to begin as soon as favorable springtime conditions arrive.

# **Application Rate**

Apply 30 to 60 gallons of product per treated acre depending on crop, target pest and soil properties. Some of the soil properties to consider when determining the application rate include soil texture, percent organic matter and depth of soil to be treated.

# Target Pest and Depth of Treatment

When application rates for this product are given in ranges, use the higher rate if pests (insects, nematodes, etc.) are present in high numbers or if the area to be treated has a history of pest problems. Consult with your state's nematologist, entomologist and plant pathologist to determine if crop rotation is more feasible or desirable than fumigation. NOTE: This product will only suppress or control pests that are in the fumigated zone at time of treatment. For control of weeds and fungi, which cause seed or seeding diseases, treatment of only the top 2 to 4 inches of soil may be required. Treatment depths greater than 4 inches may be required for control of nematodes and fungi, which occur throughout the rhizosphere. The required application rate should be increased proportionately with the depth of the treatment required. Always choose the appropriate application method to evenly distribute this product throughout the soil to the required treatment depth.

#### Soil Characteristics

Soil properties to consider when determining the application rate of this product include the depth of soil to be treated, soil texture, and percent organic matter. Plant materials under the soil surface (except in the case of cover crops) should be thoroughly decomposed before application. Due to the absorbing effect of humus, soils with high levels of organic matter under the surface require higher rates. For example, muck soil may require twice the rate that would be used in mineral soils. Application rates will also vary with soil texture. For example, heavy clay soils require a higher rate than light sandy soils.

#### FIELD PREPARATION PRIOR TO APPLICATION

Before applying this product, always thoroughly cultivate the area to be treated breaking up clods and loosening soil deeply and thoroughly. Then sprinkle or flood irrigate to moisten loosened soil if needed (see "General Instruction" section). Immediately before treatment, cultivate lightly to break up soil crust. See POTATOES section for specific directions on the application of METAM KLR 54% to potato fields where no till stubble of cover crop exists.

#### Soil Temperature during Treatment

Soil temperature must be from 40°F to 90°F in the treated zone. Treated zone is defined as the depth of treatment that METAM KLR 54% achieves at the time of application. To prevent rapid evaporation of the product from the soil, avoid treating soil during the time of day when soil temperatures exceed 90°F within the first two inches of soil. Instead, make the application at night or in early morning when the soil temperature is coolest.

# Soil Moisture at Time of Treatment

Applications should be made only to fields with good seedbed moisture conditions (50% to 80% of field capacity). As a simple field test, squeeze a handful of soil into a ball and then gently try to break it apart with your fingers. If it does not form a ball, the soil is too dry. If it forms a ball but breaks easily, the soil moisture content is sufficient. If it will not break apart easily or if water can be squeezed out, the soil is too wet. When necessary, sprinkle or flood irrigate the soil 1 to 2 weeks prior to treatment to increase the moisture content. The soil must be moistened to at least the desired treatment depth.

# Air Temperature during Treatment

To prevent loss from evaporation, use only at times when air temperature is moderate and there is little wind movement (2-10 mph). Do not apply to soil surface, as in the sprinkler irrigation method, when air temperature at time of application is 90°F or higher or when high winds or low humidity would cause loss of METAM KLR 54% before it can be drenched into the soil with additional water.

#### **Phytotoxicity**

METAM KLR 54% is phytotoxic. Protect valuable, non-target plants by stopping soil applications of this product at least three feet short of the drip line of the trees, shrubs and other desirable plants. For sprinkler application, crop injury and lack of effectiveness can result from non-uniform distribution of the treated water.

#### APPLICATION OF METAM KLR 54%

Apply according to the methods and rates outlined below under the section "USES, RATES AND APPLICATION METHODS."

# Use of Diluted METAM KLR 54%

Do not store the diluted product. Do not allow the diluted solution to stand overnight. Use the diluted solution promptly after mixing with water. Flush all equipment with water after each day's use; disassemble valves and clean carefully.

# Odors During or after Application

Strong odors during or after application are a signal that the furnigant is escaping and needs to be sealed in the soil. If increasingly strong odors are occurring, the application should be stopped immediately and not resumed until the source of the odor problem is identified and corrected. For sprinkler applications or whenever possible with other application methods, a water seal should be applied immediately to the treated areas of the field.

# Sealing METAM KLR 54% in Soil

To be most effective, METAM KLR 54% should be sealed in the soil at the time of application. Sealing methods include applying a water seal by sprinkler irrigation, tarping (plastic, paper or fabric), packing soil with a roller, drag or press wheel or covering with an adequate amount of soil. Tarpaulins should be spread loosely over the treated area and secured to prevent removal by wind. They should remain in place for at least 48 hours. If tarped, the sealed area should be cultivated to a depth no deeper than the treated zone to agrate the soil seven days after treatment. When tarpaulins are used to seal the soil, wait at least 21 days before planting.

# Application in Tank Mix with Liquid Fertilizer

METAM KLR 54% may be injected in a mixture with liquid fertilizers; however, a dual injection system is preferred. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each METAM KLR 54%/fertilizer tank mix should be checked by using the following procedure:

Mix a small quantity of METAM KLR 54% and liquid fertilizer in the same ratio as they will be applied to the field (e.g., if 30 gallons of METAM KLR 54% and 30 gallons of liquid fertilizer are to be applied per acre, then the mixture should be mixed in a 30:30 or 1:1 ratio). Mix in a glass container. Mixing should be done outdoors and out of direct sunlight. Agitate the liquids to attain a complete uniform mixture. IF A UNIFORM MIX CANNOT BE MADE, THE MIXTURE SHOULD NOT BE USED! If the mixture remains uniform for 30 minutes without agitation, the combination may be used. Should the mixture separate after 30 minutes but is readily remixed with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON MIX JAR AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS. USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW THE SOLUTION TO STAND. FLUSH ALL EQUIPMENT WITH WATER AFTER EACH DAYS USE. DISASSEMBLE VALVES AND CLEAN CAREFULLY.

# **General Precautions for Irrigation Systems**

Posting of areas to be chemigated is required when (1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, inpatient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or (2) when chemigated area is open to the public such as golf courses.

Posting must conform to the following requirements: (1) Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. (2) The printed side of the sign should face away from the treated area towards the sensitive area. (3) The signs shall be printed in English. (4) Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place in indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting. (5) All words shall consist of letters of at least 2-1/2 inches tall and all letters and the symbol shall be a color, which sharply contracts with their immediate background. At the top of the sign shall be the words KEEP OUT followed by an octagonal stop sign symbol of at least 8 inches in diameter containing the word STOP. Below the stop sign symbol shall be the words PESTICIDES IN IRRIGATION WATER. This sign is in addition to any sign posted to comply with the Worker Protection Standard.



#### CHEMIGATION OF METAM KLR 54%

When applying by chemigation method, the following directions or warnings must be observed:

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow, border, or drip (trickle) irrigation systems. DO NOT APPLY this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact your State Extension Service Specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless prescribed safety devices for public water systems stated on the pesticide label are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

# Chemigation Using a Public Water System

NOTE: Taminco Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated alternative application and water source options before choosing to make such a connection.

OBSERVE THE FOLLOWING PRECAUTIONS IF YOUR CHEMIGATION SYSTEM IS CONNECTED TO A PUBLIC WATER SYSTEM: Public water system is defined as a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalents in the upstream water supply line from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and top of overflow rim of the reservoir tank of at least the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional, automatic, quickclosing check valve to prevent the flow of fluid toward the injection pump.

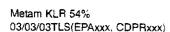
The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in the cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Any alternatives to the above-required safety devices must conform to the list of EPA approved alternative devices.

Do not apply when wind speed favors drift beyond the area intended for treatment.

# Sprinkler and Drip Chemigation Systems

See "Field Application Where Entire Area is Being Treated" under USE, RATES AND APPLICATION METHODS section of this label. The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump. The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.



The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment.

# Flood Basin, Furrow and Border Chemigation

Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

#### PRE-PLANTING AFTER APPLICATION OF METAM KLR 54%

#### **Effects of Rain**

If rain occurs within 24 hours after a METAM KLR 54% application, lack of control at and near the soil surface may occur.

#### Recontamination

Precautions must be taken to prevent recontamination of treated fields with plant pathogenic fungi, plant parasitic nematodes or weed seed. Use clean seeds or plants. Before farm equipment is driven into the treated area, it should be rinsed free of untreated soil and weed seeds from other fields.

# Days to Cultivating or Planting after Application

Because METAM KLR 54% is harmful to germinating seeds and living plants, an appropriate interval must be observed between treatments and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following the application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter or if the soil remains wet and/or cold (below 60°F) following the application, a minimum interval of 30 days should be observed. The interval before planting should be extended until the soil is sufficiently dry to allow for cultivation.

#### Cultivation of Soil before Planting

IMPORTANT: Heavier soils including soils high in clay or organic matter should be allowed to aerate and dry thoroughly after treatment with METAM KLR 54%. During cold and/or wet weather, frequent shallow cultivation can aid dissipation of METAM KLR 54% from the treated soil.

On heavy, wet soils, light surface cultivation to break up crusting and promote drying should be done 5 to 7 days after treatment if planting is to occur within 14 to 21 days after treatment. This cultivation may be repeated as necessary.

**NOTE OF CAUTION:** To avoid contaminating treated soils, care should be taken to assure that untreated soils are not mixed with treated soils.

# Testing of Treated Soils before Planting

Fields are furnigated to control soil-borne fungi, nematodes, insects, and weeds. The length of time required for furnigants to escape from the soil before plants can safely be planted varies greatly. Typically 14 to 21 days are needed under typical conditions; however, circumstances, which do not favor evaporation of the furnigant can greatly lengthen the waiting period as much as up to 30 days. The release period is short with (1) low rates of

furnigants, (2) light soil, (3) high soil temperatures, (4) low soil moisture, (5) shallow application depth and (6) repeated cultivations after furnigation. Seeded crops are less susceptible to residual soil furnigant injury than transplanted crops. In general, furnigants escape slowly from cold, wet, heavy soils.

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If in doubt, perform either the lettuce seed test or the tomato transplant test as described elsewhere in this label. If germination occurs in 1 to 3 days or if tomato plant shows signs of wilting or root burn in 2 days, the product is still available and an extended wait period must be observed.

#### PACIFIC NORTHWEST STATES OF IDAHO, NEVADA, OREGON AND WASHINGTON

NOTE: When applied in the spring, allow a minimum of 14 to 21 days before planting providing no fumes are detectable. When the soil temperature is below 60° F, allow a minimum of 21 days before planting. Check for noxious fumes and aerate as needed. Use a seedling indicator plant with a hot cap to check for activity or fumes (or follow instructions in preceding paragraph). DO NOT plant if fumes are detectable or injury to plant has occurred. Re-aerate the soil and check again.

The information below describes two simple tests to assay for harmful residual soil fumigants before planting.

#### **Lettuce Seed Test**

- With a trowel, dig into the treated soil to or just below the depth of application. Remove 2 to 4 small (1 to 2 oz) soil samples, mix lightly, and immediately place a portion in an airtight jar so that fumes will not escape. Use mason, wheat germ or similar jars with gas-tight lids.
- 2. Sprinkle lettuce seeds on the moistened surface of the soil and recap immediately. Prepare a similar jar with untreated soil (untreated check) for comparison.
- 3. Keep the jars at 65 to 85°F; do not place in direct sunlight. Direct sunlight may kill the seed by overheating. Lettuce seed will not germinate in the dark.
- 4. Inspect the jars for germination in 1 to 3 days.
- 5. The soil is safe for planting if seeds in the treated jar germinate the same as seeds in the untreated jar. IMPORTANT: Be sure (1) to sample the field properly in several areas, particularly low, wet areas; (2) that the lids are air tight and have no grit under the seal; and (3) that the jars are placed in indirect sunlight.

#### **Tomato Transplant Test**

Transplant 5 to 10 succulent, fast-growing tomato seedlings into fumigated beds approximately 4 to 6 inches deep. Do the same in a non-fumigated area. If there is variation in the field, plant into the heaviest, wettest soil. Inspect the seedlings in 2 days for wilting or "root burn". If plants in the fumigated zone look the same as those in the non-fumigated zone, it is safe to plant.

#### Which Test is Best?

Both the lettuce seed and tomato transplant tests can serve the purpose. The response of tomato seedlings varies somewhat depending on how succulent they are, the relative humidity, soil moisture and temperature. Relative differences between plants in fumigated and non-fumigated areas are key to detecting low level residues. High concentrations should produce clear-cut symptoms. Lettuce seed tested in jars are not subjected to the variations in the field that can affect the response of tomato transplants. However, the process of collecting a soil sample allows some fumigant to escape prior to sealing the jar. In addition, excess soil moisture can inhibit normal lettuce seed germination reducing the sensitivity of the test.

#### USES, RATES AND APPLICATION METHODS

#### FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

**SOIL INJECTION**: Apply with injectors such as shanks, blades, fertilizer wheels, plows, etc. Apply METAM KLR 54% at the rate of 30 to 60 gallons per treated acre. Follow immediately with a roller to smooth and compact the soil surface. Light watering or tarping after, rolling helps prevent fumigant escape. It may be necessary to stagger the injector placement on two or more tool bars to prevent soil build up during application.

When setting up your soil injection equipment with either spray blades, injection knives or coulters, make sure they area evenly and closely placed to create an even application width and depth. To accomplish this, it may require multiple tool bars with the injection tools staggered. This will help prevent build up of trash and aid in the soil sealing. For example, apply METAM KLR 54% through injectors placed 4 inches below the soil surface and 5 inches apart.

**SOIL COVERING**: METAM KLR 54% may be applied as a broadcast application immediately in front of soil covering equipment such as bed shapers, rotary tillers, discs, etc. to a minimum depth of 6 inches using a single pass to incorporate. Use 30 to 60 galls on METAM KLR 54% per treated acre followed immediately by a roller/packer to smooth and compact the soil surface.

**ROTARY TILLER OR POWER MULCHER**: Spray METAM KLR 54% immediately in front of the tiller or mulcher, set to the depth to where control is desired. Use 30 to 60 gallons per treated acre. Follow immediately with a roller, power roller or bed shaper to seal soils surface. Light watering or a tarp after rolling may be used to help prevent furnigant escape.

SPRINKLER SYSTEM: Use only those sprinkler systems, which give large water droplets to prevent excessive loss. Use 30 to 60 gallons of METAM KLR 54% per acre. Meter continuously throughout the injection period all of the METAM KLR 54% required to come in contact with the targeted pest in the treated zone. The desired depth of treatment obtained may be contingent upon soil moisture and type. Soil conditions must facilitate even moisture penetration without runoff. Flush lines following injection of METAM KLR 54%. For proper application rate and placement, consult your local METAM KLR 54% Sales Representative or County Extension Expert.

Follow instructions under "GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS" section of this label.

Application Over Cover Crops: METAM KLR 54% can be applied through sprinkler irrigation systems on cover crops such as alfalfa, clover, and grasses such as rye, oats, wheat, and sudan. When applied on cover crops, no soil cultivation is required before the application.

Effects of Air Temperature & Winds on Sprinkler Applications: When using the sprinkler application method, apply METAM KLR 54% only when the air temperature is below 90°F. This precaution is recommended to guard against evaporation of the product. Low humidity or high wind velocity can also cause premature evaporation of the fumigant before drenching into the soil. Do not apply when wind conditions favor drift from treated field.

**Prevention of Treatment Runoff:** To prevent runoff of the treatment during a sprinkler application, do not apply METAM KLR 54% at a rate greater than the absorption capacity of the field. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply to the treated field.

Check Flood (Basin), Furrow and Border: Meter METAM KLR 54% at a steady rate into water during irrigation. Depending on the kind of pest and the treatment depth, use 30 to 60 gallons per treated acre in 3 to 18 inches of water per acre. Meter METAM KLR 54% into the irrigation water at the head of the field at a point with enough turbulence to assure adequate mixing of the product in the water. IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Damage to bordering crops will occur if leaks develop. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.

Follow instructions under "GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS" section of this label.

**DRIP IRRIGATION SYSTEM:** METAM KLR 54% must be applied through a drip irrigation system designed to wet the soil thoroughly in the area being treated. Meter 30 to 60 gallons METAM KLR 54% per treated acre into the drip system during the entire irrigation period. APPLICATION MUST BE CONTINUOUSLY SUPERVISED. Flush irrigation system with adequate water after completion of application.



**Important:** WEED ELIMINATION WILL NOT BE SATISFACTORY IF TOO MUCH WATER IS APPLIED. AN ADEQUATE CONCENTRATION OF METAM KLR 54% MUST BE PRESENT AT THE TIME OF WEED SEED GERMINATION IN ORDER TO BE EFFECTIVE. Further directions for use are as follows:

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- 1. Ground must be in seedbed condition, no clods larger than % inch in diameter.
- 2. Beds must be lifted, shaped and ready for planting.
- 3. Soil moisture must be 50% to 80% of field capacity in the top 2 to 3 inches at time of application.

NOTE: If METAM KLR 54% is applied to established plant beds under plastic tarps to terminate growth of a previous crop and to furnigate the bed in preparation of planting a subsequent crop, the terminated crop must not be used for any food or feed purposes after METAM KLR 54% has been applied.

Follow instructions under the "GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS" in the previous section.

#### PACIFIC NORTHWEST ONLY

**FIELD PREPARATION**: To remove compacted areas that are in the field to be treated, rip and disc the field prior to the METAM KLR 54% application. After this soil preparation and 7 to 10 days prior to the METAM KLR 54% application, irrigate the field applying enough water so that at time of the application the soil will be 50% to 85% of field capacity.

SOIL INJECTION: METAM KLR 54% may be applied using (1) a single shank spaced no more than 6 inches apart and a spray nozzle 6 inches deep; (2) a single shank spaced no more than 6 inches apart and spray nozzles spaced 6 to 12 inches deep; (3) a single sweep spaced no more than 12 inches apart and sweep blades 12 inches wide with a spray nozzle that will give broadcast coverage from sweep tip to sweep tip; (4) a double-winged shank spaced no more than 12 inches apart and 9 inches between the wings with spray nozzles giving uniform coverage; (5) a Noble Plow Blade with spray nozzles spaced every 6 inches and set to 12 to 14 inches deep using a disc to immediately incorporate the METAM KLR 54% placed on the surface. All soil injection applications must be followed immediately with a roller/packer to smooth and compact the soil surface. Regardless of which method used, you must use 30 to 60 gallons of METAM KLR 54% per treated acre.

When applying METAM KLR 54% with injector blades such as Noble Plow Blades in spring, the following precautions must be followed:

- Apply all fertilizers after the METAM KLR 54% application. Wait a minimum of 7 days before making the application.
- Thoroughly aerate the soil 5 to 7 days after the METAM KLR 54% application by plowing, shallow ripping or discing, or the combination thereof to allow the fumes to dissipate. Do not work soil deeper than the depth of treatment.
- Planting may take place 14 to 21 days after the METAM KLR 54% application provided no fumes are detected at the time of planting.
- If noxious fumes are noticeable at planting, do not plant and rework the soil.
- If soil temperatures are below 60°F, delay planting for a minimum of 21 days from the day of the METAM KLR 54% application, regardless of any other precautions that may have been taken.
- In conjunction with the delayed planting, set indicator plants (such as tomatoes) in various places in the treated field with a "hot cap" left undisturbed for a minimum of 24 hours to ensure all of the METAM KLR 54% has left the soil. (See "Testing of Treated Soil Before Planting" section.)

#### FIELD APPLICATION TO BEDS OR ROWS

**SOIL INJECTION** (*Pre-formed Beds*): METAM KLR 54% may be injected into pre-formed plant beds following the directions in the "Soil Injection" section above. If a wider treated band is desired, space 2 or more shanks at intervals of 5 inches to cover the desired treating width. Use thin injection shanks and inject METAM KLR 54% 4 inches deep into well-prepared soil. Follow immediately with a bedshaper, roller press wheel or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. Light watering or a tarp after rolling may be used to help prevent fumigant escape. Apply at the rate of 30 to 60 gallons per treated acre (see "Method of



**SOIL INJECTION** (At Bed Forming Operation): METAM KLR 54% may be injected during the bedding or row building process, or to pre-formed beds, using one of the following delivery systems: (1) single narrow knife blade (2) a series of narrow knife blades set no more than 5 inches apart, (3) a spray blade, (4) tiered shanks, (5) spray rake or (6) similar equipment that places METAM KLR 54% in contact with the pest to be controlled or suppressed. The use rate for the above operations is 30 to 60 gallons per acre based on a broadcast application rate. Reduced rates will vary depending upon the actual width of the treated band desired (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). Apply the METAM KLR 54% at the desired depth in the soil and follow immediately with the soil capping operation, bedding process, or roller/packer to seal the furnigant into the soil.

**SOIL COVERING METHOD** (*Bed-Over Methods*): METAM KLR 54% may be sprayed in a bed wide band onto the soil immediately ahead of bed shaping equipment. Cover the METAM KLR 54% with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. Apply at the rate of 30 to 60 gallons per acre of treated soil or 11 to 22 fluid ounces per 100 linear feet of row (12-inch bed). If a narrower or wider bed is to be treated, adjust the fluid ounces/100 linear feet of row to reflect the actual treated acres (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section).

**DRENCH APPLICATION ON BEDS OR ROWS**: METAM KLR 54% may be applied to finished beds for control of shallow seeded weeds. Cultivate the area to be treated and pre-irrigate in accordance with Use Directions. Apply 30 to 60 gallons of METAM KLR 54% per treated acre in a band or bands in enough water to soak at least 2 inches deep (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). To avoid contamination by untreated soil, do not disturb the treated area.

**ROTARY TILLER or POWER MULCHER:** Spray METAM KLR 54% immediately in front of the tiller or mulcher, set to the depth to where control is desired. Use 30 to 60 gallons per treated acre (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). Follow immediately with a roller, power roller or bedshaper to seal soil surface. Light watering or a tarp after rolling may be used help prevent furnigant escape.

# Method of Determining Fluid Ounces per 100 Feet of Linear Row

- 1. Determine width of treated band in feet by dividing width of band in inches by 12 (e.g., 8" band = 8 in. 12 in/ft. = 0.666 ft).
- 2. Determine square feet in 100 linear feet of band by multiplying the width of the band by 100 (e.g., 0.666 ft. x 100 ft. = 66.66 sq. ft.)
- 3. Determine the treated acres per 100 linear feet of band by dividing the square feet by 43,560 (square feet in an acre) (e.g., 66.66 sq. ft. + 43.560 = 0.1115)
- 4. To determine the fluid ounces per 100 linear feet.
  - a) 1 gal = 128 fl. oz; 50 gals = 6400 fl. oz., 100 gals = 12,800 fl. oz.
  - b) Multiply fluid ounces by acres. Example: 50 gals = 6400 fl. oz. x. 0.0015 = 9.6 fl. oz. per 100 linear feet row.

# ADDITIONAL RECOMMENDATIONS

SEED TREATMENT: A suitable fungicide should be used to treat all crop seed being planted into the treated soil.

**PEANUTS:** For suppression and/or control of Cylindrociadium Black Rot (CBR) and nematodes, apply METAM KLR 54% at the rate of 6 gallons per acre (5.3 fluid ounces per 100 linear feet of row). Use with partially resistant cultivators (NC-10C or others as designated by your local Agricultural Extension Service) in cases of severe disease pressure. Plant other varieties only in cases of light CBR pressure.

**Soil Preparations**: Before applying METAM KLR 54%, all residues from the previous crop should be decomposed (enhance by fall discing) and plowed under in the spring with a moldboard plow. Soil incorporated pre-plant herbicides must be applied prior to the application of METAM KLR 54%.

**Application**: Apply 8 to 10 inches below seed placement with injector shank or coulter type applicator placed in front of a bedshaper to mark rows. Soil temperatures must be in the range of 60°F to 90°F at a 3-inch depth at time of treatment.

Tillage and Planting after Application: Do not mix untreated soil with treated soil by tillage or other cultural practices. Plant the peanuts in the center of the treated beds no earlier than 14 days following the application of METAM KLR 54%. An at-planting nematocide treatment will be necessary in fields with heavy infestations of Root Knot, ring and/or sting nematodes.

MINT (SUPPRESSION OF VERTICILLIUM WILT): When infestation is limited to small spots in a field, the spread of Verticillium can be reduced by treating the infected spots. Apply at the rate of up to 60 gallons of METAM KLR 54% per treated acre using injector blade or thin shank injector rig. Follow directions for "Field Application Where Entire Area Is Being Treated."

**POTATOES**: For suppression of potato pests such as nematodes, weed seeds and Verticillium dahliae (Early Maturity Disease).

For soil injection, apply a minimum of 30 gallons per treated acre of METAM KLR 54% following the directions for "Field Application Where Entire Area Is Treated." METAM KLR 54% may also be applied at the rate of 40 to 60 gallons per acre using a Noble Plow Blade set to 12 to 14 inches deep with spray nozzles spaced every 6 inches apart to give uniform coverage, plus a surface application using a disc to immediately incorporate the METAM KLR 54% placed on the surface.

Early Maturity Diseases Of Potatoes in The Pacific Northwest: Apply 40 gallons METAM KLR 54% per treated acre using the soil injection method as described in the "Field Application Where Entire Area Is Being Treated" section.

**SPRINKLER SYSTEM PRE-PLANT APPLICATIONS**: Apply 30 to 60 gallons of METAM KLR 54% per acre in sufficient water to penetrate to the desired treatment depth. Meter continuously into the irrigation system throughout the entire application period. Soil temperature should be in the range of 40°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 50% to 80% of field capacity down to the 24-inch level. Soil condition must facilitate even water penetration without runoff.

#### NOTES:

- 1. METAM KLR 54% may be applied where a crop stubble or vegetation exists without prior tillage, provided there is adequate penetration of the product.
- 2. METAM KLR 54% will suppress Root Knot nematodes in the treatment zone at the time of treatment. The treatment zone is defined as the depth of penetration that METAM KLR 54% achieves at the time of application. If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage may occur unless additional action is taken. METAM KLR 54% has no residual activity and re-infestation of a treated field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

# TOBACCO PLANT BEDS

Fall applications are recommended whenever possible. Read and follow the use directions carefully.

**TARP METHOD**: Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and furnigant action of METAM KLR 54%. The bed should be free of clods, level and in good tilth. Apply 0.6 to 0.9 gallons of METAM KLR 54% in a minimum of 30 gallons of water per 100 square yards. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. Keep covered no less than one day, but no more than two days. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after the date of application loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after the METAM KLR 54% application.

**DRENCH METHOD**: Apply 1.5 gallons METAM KLR 54% in 150 to 200 gallons of water per 100 square yards. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for "Field Applications Where Entire Area is Being Treated" section.

#### PACIFIC NORTHWEST (IDAHO, NEVADA, OREGON AND WASHINGTON)

**CARROTS**: Apply a broadcast application of 30 to 60 gallons per acre of METAM KLR 54% for the suppression of Root Knot Nematodes or 30 to 60 gallons for pre-plant suppression of soil-borne diseases.

MINT (including Peppermint and Spearmint): Apply a pre-plant broadcast application of 30 to 0 gallons per acre of METAM KLR 54% for the suppression of Root Knot Nematodes and Verticillium dahliae.

**ONIONS:** Apply a broadcast or banded application of 30 to 60 gallons per treated acre of METAM KLR 54% for the suppression of Root Knot Nematodes or 30 to 60 gallons for suppression of soil-borne diseases.

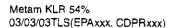
**POTATOES**: Apply a broadcast sprinkler application of 30 to 60 gallons per acre of METAM KLR 54% for the suppression of Root Knot Nematodes and Verticillium dahliae. Apply a broadcast soil application of 30 to 60 gallons per acre METAM KLR 54% for the suppression of Verticillium dahliae.

SUGAR BEETS: Apply a broadcast or a banded application of 30 to 60 gallons per acre METAM KLR 54% for the suppression of soil-borne disease. A fall application of soil herbicide followed by or tank mixed with METAM KLR 54% in a broadcast application or band application will enhance the overall weed control.

ORCHARD RE-PLANT: Apply a broadcast application rate of 56 to 60 gallons per acre of METAM KLR 54% in a minimum of 1-acre inch of water through a sprinkler system, or a row treatment of 56 to 60 gallons broadcast equivalent, to the future tree row using a weed sprayer by applying multiple passes of METAM KLR 54% while the sprinklers are running until the desired rate has been applied for the treatment of specific orchard replant disease. Trees should not be replanted into the replant site for at least 21 days after treatment. Check for noxious fumes in the soil before planting. METAM KLR 54% may also be applied at the rate of 40 to 60 gallons per acre using a Noble Plow Blade set 12 to 14 inches deep with spray nozzles spaced every 6 inches apart to give uniform coverage, with a surface application using a disc to immediately incorporate the METAM KLR 54% placed on the surface.

WHEAT AND BARLEY: Apply METAM KLR 54% at a rate of 1.5 to 6 gallons per acre 14 to 21 days prior to planting for the suppression of certain early season soil fungi, which cause root diseases of small grains. METAM KLR 54% may be diluted with water or, if compatible, non-acidic liquid fertilizers (see "Application in Tank Mix with Liquid" section) and injected into moist soil 5 to 8 inches before planting.

IN THE PACIFIC NORTHWEST, IF THE FIELD HISTORY OR SOIL SAMPLING SHOWS HIGH NEMATODE POPULATIONS, FUMIGATION WITH METAM KLR 54% AND A NEMATODE SPECIFIC FUMIGANT SHOULD BE USED. CONSULT YOUR LOCAL TAMINCO, INC. REPRESENTATIVE FOR ADDITIONAL INFORMATION.



#### STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal.

**STORAGE**: Store in a cool, dry place. Keep container closed when not in use. Do not store below  $0^{\circ}$ F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

**PESTICIDE DISPOSAL**: Pesticide wastes are toxic. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

**CONTAINER DISPOSAL**: Triple rinse (or equivalent) and, then, offer for recycling or reconditioning; puncture and dispose of in a sanitary landfill; or, if allowed by State and local authorities, burn or incinerate. Stay out of smoke, if container is burned.

#### FOR BULK AND MINI-BULK CONTAINERS

**CONTAINER DISPOSAL**: Reseal container and offer for recycling or reconditioning: triple rinse (or equivalent); or clean in accordance with manufacturer's instructions.

**CONTAINER PRECAUTIONS**: Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions and damage or worn threads on closure devices.

# REFILL ONLY WITH METAM KLR 54% SOIL FUMIGANT

The contents of this container cannot be completely removed by cleaning. Refilling with materials other than METAM KLR 54% soil furnigant will result in contamination and may weaken the container. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

#### LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants (a) that this product conform to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use, subject to the inherent risks referred to herein, when it is used in accordance with such directions; and (c) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY A GENT OR REPRESENTATIVE, TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF QUALITY OR PERFORMANCE. THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.

BUYER'S EXCLUSIVE REMEDY AND MANUFACTURER'S OR SELLER'S EXCLUSIVE LIABILITY FOR ANY AND ALL CLAIMS, LOSSES, DAMAGES, OR INJURIES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER OR NOT BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OF, OR THE REPAYMENT OF THE PURCHASE PRICE FOR, THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. IN NO EVENT, SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

Taminco, Inc. offers this product, and Buyer accepts it, subject to the foregoing Limited Warranty, which may be varied only by agreement in writing signed by an authorized representative of Taminco, Inc.

For the following emergencies, phone 24 hours a day:

CHEMTREC: (800) 424-9300



Taminco, Inc. 1950 Lake Park Drive Smyrna, GA 30080

DRAFT, not EPA approved. March 3, 2003