 U.S. ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs Registration Division (H7505C) 401 M St., S.W. Washington, D.C. 20460  <b>NOTICE OF PESTICIDE Registration</b>  (under FIFRA, as amended)	EPA Reg. Number: <b>74896-7</b>	Date of Issuance: <b>JAN 12 2005</b>
	Term of Issuance: <b>Conditional Registration</b>	
	Name of Pesticide Product: <b>RG Vaporizing Aerosol</b>	
Name and Address of Registrant (include ZIP Code): <b>RegGuide 509 Tower Valley Drive Hillsboro, MO 63050</b>		
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.		

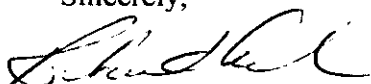
This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

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. 74896-7
3. Submit two copies 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,



Richard J. Gebken  
Product Manager 10  
Insecticide Branch  
Registration Division (7505C)

enclosure

Signature of Approving Official:	Date:
----------------------------------	-------

2818

## RG Vaporizing Aerosol

- Formicine Insecticide With Synthrin®
- 1% Thermal Fogging Aerosol
- For Use Only as a Thermal Fogger for Subsurface Injection
- A Synthetic Pyrethroid for the Control and Eradication of the Imported Fire Ant of the Genus *Solenopsis*
- For Use Exclusively with the Earthfire Fire Ant Eradication System

### ACTIVE INGREDIENT:

Resmethrin\* .....1.00%

OTHER INGREDIENTS\*\*: .....99.00%  
100.00%

\*Cis/trans isomers ratio: Max. 30% (+/-) cis and Min. 70% (+/-) trans.

\*\*Contains petroleum distillate

**ACCEPTED**  
**with COMMENTS**  
**In EPA Letter Dated**

JAN 12 2005

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.

74896-7

EPA Reg. No.: 74896-

EPA Est. No.:

## KEEP OUT OF REACH OF CHILDREN CAUTION

### FIRST AID

<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give <b>any</b> liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <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>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Immediately rinse skin with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• 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>

### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-xxx-xxx-xxxx for emergency medical treatment information.

### NOTE TO PHYSICIAN

Contains petroleum distillate – vomiting may cause aspiration pneumonia.

See Side Panel for Additional Precautions

NET CONTENTS:

**PRECAUTIONARY STATEMENTS**  
**Hazards To Humans & Domestic Animals**

**CAUTION**

Harmful if swallowed or inhaled. Avoid breathing vapor. Avoid contact with skin, eyes or clothing. Wear mask or respirator of a type recommended by NIOSH (National Institute for Occupational Safety or Health) to give adequate protection against this material. Wear protective clothing. Thoroughly wash with soap and water after handling. Wash all contaminated clothing with soap and water, separately from other clothing, before reuse.

**Environmental Hazards**

This product is toxic to fish. Do not apply directly to water.

**Physical or Chemical Hazards**

Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**For Use Only in Subsurface Injection as a Thermal Fog.**  
**Not for Use as an Open Air Fog or Aerosol.**  
**Only for Outdoor Use.**

**Thermal Application:** For the control and eradication of the Imported Fire Ant by direct injection into the mound and subsurface colony wherever found. This formulation is to be used as is in the Earthfire injection system, a subsurface thermal fogging injector system.

This product and the identified equipment is not to be used by private individuals for personal domestic application. It is to be used only by those persons who have been trained and certified by Earthfire Corp. or their representatives.

**Preparation:**

1. Screw propane into propane receptacle.
2. Screw RG Vaporizing Aerosol canister into canister receptacle.
3. Fill vaporizing coils by pushing actuator. Check for leaks before igniting chamber.
4. Ignite the vaporizing fuel by pressing ignition button – when burning, press lock-on button (see Manual). Wait at least three (3) minutes for coils to reach maximum temperature – test by pulling trigger – if ready there will be a cloud of dry, white vapor (smoke) ejected. **This vapor is highly flammable! Never fire a burst upwind of vaporizing coil. Do not breathe this vapor. Users must wear a NIOSH/MSHA approved respirator.**

**Injection:**

**NOTE:** Due to the wide variety of soil types and soil water content, you may find that by slight adjustment of the following techniques, you will product the best results for your area.

1. Begin injection by inserting lance tip into the mount three (3) to five (5) inches. Withdraw the lance tip about one (1) inch. Pull the trigger. If proper insertion has been made, the vapor will be forcefully drawn into the colony. Continue holding down the trigger until thick, white vapor comes out of the mound over its entire surface – not just the injection hole. You have now filled the entire colony. If

- you do not get these results, repeat the procedure in different locations on the mound until it is completely filled with vapor. Hold the trigger down for about three (3) seconds during each injection.
2. When you see vapor coming to the surface, you have filled this section of the mound. Move to another injection site on the mound and repeat process.

For detailed instructions, refer to your Manual. If you do not have one, contact: Earthfire Corp., P.O. Box 25396, Scottsdale, AZ 85255 or [www.Antkill.com](http://www.Antkill.com).

#### STORAGE AND DISPOSAL

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

**Storage:** Store in a cool, dry area inaccessible to children and pets and away from heat or open flame.

**Disposal:** Do Not Puncture or Incinerate! **If empty:** Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency or 1-800-CLEANUP for disposal instructions.

#### WARRANTY STATEMENT

Our recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, express or implied, is made as to the effects of such or the results to be obtained for not used in accordance with directions or established safe practice. The buyer must assume all responsibility, including injury or damage, resulting from its misuse as such or in combination with other materials.

Synthrin is a registered trademark of Valent BioSciences Corporation.

#### REGGUIDE

509 Tower Valley Drive  
Hillsboro, MO 63050

5818

**Earthfire Corp**

**Fire Ant Eradication System**

**Instruction Manual  
For  
Operation  
Service  
Maintenance**

**Earthfire Corp.  
P.O. Box 25396  
Scottsdale, Arizona 85255**

**For Assistance Call  
602-266-7800 phone  
602-266-7802 fax  
[msteveson@earthlink.net](mailto:msteveson@earthlink.net)**

# Earthfire Fire Ant Eradication System

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## Earthfire Fire Ant Eradication System

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Congratulations on your purchase of The Earthfire Fire Ant Eradication System. When operating this system, always follow the directions contained in this Manual that accompanies each machine. Although it may appear simple in design, this system is a complex piece of equipment designed to kill fire ants. Treat it as such and you should enjoy years of trouble free use. **When properly administered, this system ERADICATES the Fire Ant! It does not merely allow them to move to another location.**

- **For Use Only In Subsurface Injection As A Thermal Fog** •
- **Not For Use As An Open Air Fog Or Aerosol** •

NOTE: Always wear an approved respirator, gloves, eye protection and protective clothing when handling RG Vaporizing Aerosol and when using this machine. Wear a respirator of the type approved by NIOSH/MSHA (National Institute for Occupational Safety and Health/ Mine Safety and Health Administration) for organic vapor protection. Such masks are available upon request at additional cost.

NOTE: This system is designed to use propane as a heating fuel. **DO NOT USE MAPP GAS!** Do not leave the propane cylinder or insecticide can in direct sunlight or anywhere that they can become heated above 100°F as this can cause the container pressures to exceed the safe maximum as recommended by the manufacturers. Keep both the propane and aerosol in a cool dry place. Always follow the manufacturer's instructions and warnings on the machine, propane cylinder, aerosol can and in this manual.

NOTE: Vapor is highly flammable. Keep away from heat, sparks, open flame and extremely hot surfaces! Never discharge vapor upwind of hot vaporizing chamber on the Earthfire Fire Ant Eradication System. Do not smoke near the machine or while operating the machine.

NOTE: When in use, parts of the machine are extremely HOT and will cause severe burns. Be extremely careful not to touch the vaporizing chamber, injection lance or any metal vapor lines. Do not allow your clothing or any other flammable object to come in contact with these extremely hot parts. Use the carrying handle to transport the machine.

**Thermal Application:** The Earthfire Fire Ant Eradicator System is a thermal fog applicator used for the control and eradication of the Imported Fire Ant by direct injection into the mound and subsurface colonies. This system is to be used only with RG Vaporizing Aerosol (EPA Reg. No. 74896-xxx).

Refer to the following steps for proper operating procedures.

### PREPARATION

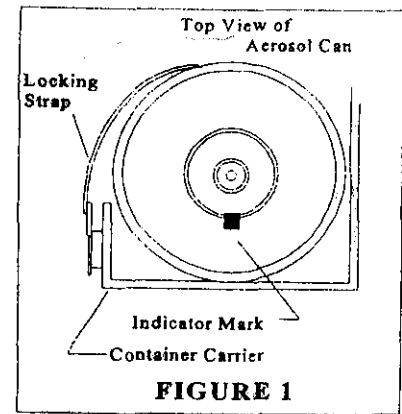
#### **Always Wear Protective Clothing As Specified In This Manual**

##### STEP:

1. Place aerosol can in container carrier located on the left hand (nozzle facing away from you) side of the injector with top of can facing up. Locate dip tube indicator mark on top of can. Rotate can in carrier so that mark faces down (See Figure 1). Secure can in carrier with locking straps.
2. Secure can valve to Earthfire Fire Ant Injection System fitting as follows: align fitting plunger to can valve opening; slide threaded locking sleeve over connection point; to prevent loss of chemical, rapidly thread sleeve onto valve in a clockwise direction until finger tight.
3. Check all connections for leaks.

## Earthfire Fire Ant Eradication System

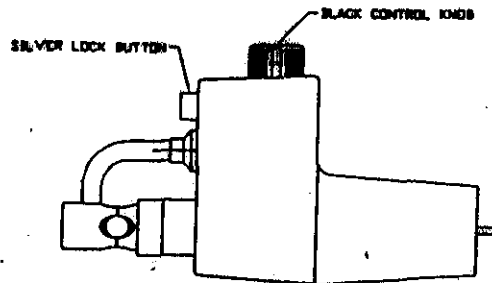
4. If the system is free of leaks, you are ready to attach the propane cylinder to the igniter mechanism located on the opposite side of the machine. **DO NOT CROSS THREAD.** Gently screw the propane bottle onto the igniter. The propane bottle is steel and the igniter is cast aluminum. **NOTE:** Some propane bottles will have a bent neck or will be of a larger diameter and will not fit properly. You should use **ONLY 14.1 ounce propane bottles** made for use with propane torches. **DO NOT USE MAPP GAS! Secure cylinder with locking strap (See Figure 1).**



**NOTE:** Do not leave the propane cylinder or insecticide can in direct sunlight or anywhere that they can become heated above 100°F (38°C) as this can cause the container pressures to exceed the safe maximum as recommended by the manufacturers. Keep both the propane and aerosol in a cool dry place. Always follow the manufacturer's instructions and warnings on the machine, propane cylinder, aerosol can and all other instructions and warnings in this manual.

**NOTE:** When starting with a new, full propane cylinder, you should ensure that the unit is parallel to the ground so that the burner does not flood with liquid propane. This is a particularly good technique in cold weather; when temperatures are 50°F (10°C) or less.

5. To ignite the propane and pre-heat the vaporizing coils, turn the black control knob, located on the top of the SureFire™ unit to "ON" and press down (pressing down enables propane to flow and also actuates the igniter) (See Figure 2.) When the propane has ignited (you will hear a low "puffing" sound), press the small, silver lock button on the front, top of the SureFire unit. This allows a constant, regulated amount of fuel to be fed into the vaporizing chamber without holding down the black control knob.



**Figure 2**

6. To shut the fuel system off, thereby shutting off the "torch", press the black control knob again. This will automatically disengage the silver lock button and extinguish the flame. Return the black control knob to the "OFF" position.

## OPERATION

1. After the system is turned on and the vaporizing coils are being heated, the next step is to obtain the proper temperature for affecting a 100% kill of a Fire Ant colony. The length of time required for the insecticide to reach the proper temperature varies greatly due to ambient (local) air temperature, temperature of the liquid in the insecticide can, altitude and the wind chill factor. Heating time can range to as much as 5 minutes. You should be able to see the coils inside the Heating Chamber glow bright orange.



## Earthfire Fire Ant Eradication System

**NOTE:** Vapor is highly flammable. Keep away from heat, sparks, open flame and extremely hot surfaces! Never discharge vapor upwind of hot vaporizing chamber on the Earthfire Fire Ant Eradicator System. Do not smoke near the machine or while operating the machine.

2. To efficiently achieve the proper operating temperature, follow these steps:

- a. Allow the system to pre-heat for approximately four (4) minutes.

**CAUTION!** RG Vaporizing Aerosol consists of primarily a petroleum solvent. In its liquid state, it is highly corrosive to certain materials such as plastics and asphalt. Although the corrosiveness is lessened once the liquid becomes a fog, it should never be allowed to come in contact with plastics, asphalt, grass and other foliage. Always perform the warm-up process in an area where expelled fluid will not impact any of the above surfaces.

- b. After four minutes, depress the trigger mechanism slightly until you see either vapor or fluid drips being expelled from the tip.
- c. Actuate the evacuation pump eight (8) to ten (10) times. This will increase the temperature of both the coil and the lance and improve the injector's fog quality.
- d. Repeat steps b. and c. until the vapor is pure white.

**CAUTION!** Do not stand downwind of the vapor. Never allow the vapor to be blown over any body of water including streams, rivers and lakes). Do not use within fifty (50) feet of animals, birds or valued insects such as honey bees. Do not use this procedure when there are gusty winds of more than 8 to 10 MPH.

3. You will have reached the right temperature when the vapor produced is absolutely CLOUD WHITE. You want to have a dense white fog for proper penetration. The more gray the vapor is, the cooler it is. The cooler the vapor is, the less active it is and the less effective it will be in reaching all of the empty spaces of a colony before it condenses on the inner walls of the colony (nest).

4. Remember, leave the lance tip pointed toward or parallel to the ground. NEVER point the lance tip directly upward into the air. Be sure that you are standing up-wind of the lance point so that when vapor is expelled you will not be touched by it. **Do not breath the vapor.**

**NOTE:** It is strongly recommended that the use of this device wear a protective mask at all times. Use a respirator of the type approved by NIOSH/MSHA (National Institute for Occupational Safety and Health/Mine Safety and Health Administration) for organic vapor protection. Such masks are available upon request at additional cost.

**IMPORTANT**

**Never allow the fog vapor to become brown or black.** This means the insecticide is overheating and this will cause carbon to form and instantly block the vaporizing coils. If this happens, the coils are no longer useable. They cannot be repaired and replacing the vaporizing coils can be expensive. Therefore, you must constantly observe the color of the vapor. To prevent this condition from blocking the coils, it is necessary to purge the coils of any formulation residue when it begins to appear a brownish color. Purge the coils by actuating the hand air pump on top of the machine 5-6 times. You will be required to do this about every 30 seconds that the machine sits idle to insure that the coils are purged. During operation, steadily stroke the pump until the vapor is pure white. The hand air pump will help to maintain an optimal fog and should be used during the application to help introduce fog into the ant mound. It is the operator's responsibility to monitor the vapor and never allow it to become brown or black!

## Earthfire Fire Ant Eradication System

### IMPORTANT

When in use, parts of the Earthfire Fire Ant Eliminator System are extremely HOT and will cause severe burns. Be extremely careful not to touch the vaporizing chamber, injection lance or any metal vapor lines. Do not allow your clothing to come in contact with these extremely hot parts. Use the carrying handle to transport the machine.

### MOUND INJECTION

For the Red Imported Fire Ant – *Solenopsis invicta* (Buren) and the Black Imported Fire Ant – *Solenopsis richteri*, *forel*.

**NOTE:** Due to the wide variety of soil types and soil water content over the range of the Imported Fire Ant, you may find that by slight adjustment of the following techniques, you will produce the best results for your area. The following descriptions are for a worst case scenario, i.e., heavy clay soils. Sandy and loamy soils are much easier to inject with near perfect results every time. The most difficult injections will be after heavy rains, when there is 90% to 100% water saturation of the soil. The next most difficult injection will be in the very dry summer mounds of heavy clay that are extremely hard and have a surface pack of grass or weeds woven into the outer cover of the mound.

**CAUTION:** You must be ready to begin your injection immediately upon approaching the mound because the worker ants will begin an evacuation of the entire colony as soon as they detect any vibration of approaching footsteps. They are so sensitive to pressure changes that they begin this evacuation when you are eight (8) to twelve (12) feet away.

An entire colony can be evacuated in less than 60 seconds! Do not mistake the swarming worker ants that will appear on the surface of the mound as the entire colony. The queen(s) and the brood—larvae, pupae and eggs—will already have been evacuated. **To eradicate the colony, you MUST eradicate all of the queens and the brood.**

### FLAGGING ANT COLONIES

In light of the above information, it is strongly suggested that prior to beginning to inject the colonies within a particular area, each colony be marked by flagging. It is preferable, if possible, to do the flagging several hours or a day in advance of actual injection. The greater the length of time between the flagging and the injection the better, because it gives the fire ants in the colony time to "settle down". That is, they will have discontinued their evacuation of the queens and the brood which began at the time of disturbance by flagging and those evacuated will have been returned to the colony. Flagging also helps the operator ensure that they are eradicating all the subject mounds in the most efficient manner. This helps prevent the inadvertent disturbing of other mounds during injection and minimizes fluid waste.

We have found that the most practical flagging device to use is a small plastic colored flag attached to a wire. These can be found at any store that supplies surveying equipment. Most large hardware stores will also carry them. These flags are re-usable, so after an area has been injected, retrieve the flags. This also gives the added advantage of providing a double check to see that ALL of the colonies were injected.

### WHY THE EARTHFIRE FIRE ANT ERADICATOR SYSTEM WORKS

The Earthfire Fire Ant Eradicator System works where nothing else does because of how it goes about eradicating ants. There are many chemicals which will eradicate fire ants on contact, the problem has always been getting the fog to the queens and brood effectively in order to actually eradicate entire colonies.

It is the Earthfire Fire Ant Eradicator System's process of getting the chemical deep into the mound that makes it unique. This system works through a scientific principal known as venturi. Venturis are used in many places today, including lawn sprayers and pool vacuum cleaners.

## Earthfire Fire Ant Eradication System

The Earthfire Fire Ant Eradicator System uses the ant mounds natural venturi which literally sucks the vapor into every crack and crevice of the mound, resulting in lethal contact with all of the queens and brood. When you treat a mound, you are actually injecting the vapor across the central shaft that is found in every mound. That is the reason that injection is done close to the ground and at a very low angle. The goal is not to inject deep into the mound, but just across the top of the central shaft. When the heated, dense vapor crosses the shaft, the venturi sucks the vapor to the bottom of the mound so that it actually fills from the bottom up. That's why you can be confident that you have a mound completely eradicated when you withdraw the lance and see the vapor flow out of the top of the mound and then curl back into the original penetration hole---if its coming out of the penetration hole at the top, you have already filled the bottom. It is the ability of the Earthfire Fire Ant Eradicator System to utilize this natural venturi effect that is critical to eradicating the entire colony and this effect is what you should always try to achieve.

### TREATMENT TECHNIQUE

1. Before approaching a mound, note its size and decide exactly where you will make your injection. Walk quickly up to the mound, preferably on the upwind side, and insert the lance tip into the mound as near as practical to the contact point between the mound and the natural earth. It will help if you imagine the fire ant colony to be a capsule inserted into the ground. In effect, it is because the interior of the colony is much more porous and permeable than the surrounding matrix (earth).
2. Hold your injection lance almost parallel to the ground, approximately 10° - 15° with the ground surface. Place the lance point on the mound just above the contact of the mound and natural earth. Steadily shove the lance into the mound.
3. Most of the time you will be able to feel a definite cavity near the center of the mound. That is, the lance point will penetrate into a void and you will feel a noticeable difference and no resistance to further penetration. You now have reached the **central cavity section** of the colony and are ready to inject!
4. As soon as you feel this "soft spot", withdraw the lance slightly, pull the trigger and continue slowly withdrawing the lance from the colony. **NOTE: It is more effective to hold the trigger down for no more than one-half (1/2) second at a time and to allow about three (3) seconds between "shots". 5 or 6 strokes of the hand pump between trigger pulls will increase the temperature and reduce the amount of chemical used. Normally you do not need to open the trigger all the way. Simply pulling the trigger slightly will produce sufficient vapor to eradicate most mounds.**

**NOTE: You have now reached the critical point in achieving 100% eradication of the colony. You must produce and observe the following effects!**

5. Continue to withdraw the lance until you see the lance tip. Carefully withdraw the tip until the opening of the tip is near the colony/ground contact point. This distance will vary by only a few inches in any given case. You will know that you have stopped in the right place when you can see the vapor from the top or sides of the mound curling back into the insertion hole and joining with the vapor being expelled from the tip as you pull the trigger. There may also be a noticeable sound, a slight "roar" or sucking sound.
6. Continue throughout the entire operation to partially pull the trigger in short bursts. Do not just hold the trigger down as this is wasteful of chemical; use 5 or 6 strokes of the hand pump between trigger pulls to aid in injecting the fog and to reduce carbon build-up in the heating coils.
7. If, at this point, you have made the proper penetration into the mound and have made the proper withdrawal of the lance, you will see heavy, white vapor coming from the mound and flowing over the surface. When the entire mound is completely covered by this vapor, you have filled the interior of the colony and will have eradicated the mound.

12 8 18

## Earthfire Fire Ant Eradication System

NOTE: Look carefully at the pattern of the vapor that is coming from the mound. If there is an area that does not have the vapor coming from the interior, then it is possible that there is a sealed off section of the mound underground. It is also possible to have two separate colonies side by side. Withdraw the lance from the original injection point and insert it into the section with no vapor. You need not insert the lance any further than the estimated center section that is to be injected.

Pull the trigger and expel vapor. You should then see vapor coming out of this section. If not, use the lance to further penetrate the mound surface repeatedly. This will break the internal structure and allow the vapor to penetrate the disturbed area. Remember, it is important to make sure that the chemical is injected throughout the colony.

8. Once you observe the vapor activity described in step 7 above, actuate the evacuation pump twice to complete the mound fill and remove excess vapor from the system before moving onto the next mound.

9. The entire process described above should take 30 to 40 seconds and use about one-half ounce of RG Vaporizing Aerosol for an average mound. Once you have mastered the technique, it is as simple as (a) walk up, (b) insert the lance, (c) withdraw slightly and shoot, (d) create the venturi and observe results, and (e) go to the next mound.

### IMPORTANT BIOLOGICAL INFORMATION

By following the above instructions you should achieve 100% eradication of each fire ant colony treated. However, you must be aware that, under all normal conditions, there will be many fire ants away from the colony, foraging for food for the colony. These ants can number in the thousands. The important thing to know is that these foraging ants are sterile females, that is, they cannot lay eggs and thus cannot reproduce. They cannot even feed themselves and cannot ingest solid food. Upon returning to the colony after you have injected it, they will try to enter it. Many will die in the process, but many will "learn" from the fate of their companions and will attempt to construct a new colony. This small, "satellite" mound is normally built at or near the southeast corner of the original colony.

These ants will die of natural causes, usually starvation, within 7 to 10 days. If the small colony persists for more than 10 days, it should be checked for the presence of a brood. A brood is composed of small white to gray organisms of the approximate size and shape of rice grains. These are the larvae and the pupae. Fire ant eggs are almost microscopic and are very difficult to see with the unaided eye. If there is living brood present it means that you have failed to eradicate all of the queens in the large colony and you must eliminate this newly forming colony to prevent reinfestation of the area by fire ants. Be aware that there can be many queens in each colony; ranging in number from 10 or less to many hundreds or even thousands in "Super Colonies".

### SHUT DOWN PROCEDURE

It is important to do the following procedure in order:

1. When you are ready to stop injecting for any prolonged period of time; such as for lunch, the end of the day, or the end of the job, you should turn off the SureFire torch when there are at least one or two more mounds (colonies) left to inject. There is enough residual heat left in the heating coils to continue to vaporize enough RG Vaporizing Aerosol to eradicate these colonies.
2. To shut the flame off, press the black control knob on the SureFire Ignitor. This will automatically disengage the silver lock button and stop the flow of propane to the torch. To prevent an accidental re-start, return the black control knob to the "OFF" position.

CAUTION: At this time, the entire unit is still VERY HOT and should be allowed to cool. Do not lay it down against or near any flammable object!

## Earthfire Fire Ant Eradication System

4. Immediately after use and while the unit is still warm, actuate the evacuation pump approximately ten times. This will remove most of the residual chemical in the system and help prevent long term carbonization of the coils.

5. Next, flip the safety latch on the trigger mechanism to its "safe" and locked position. This will prevent the accidental evacuation of fluid.

**CAUTION:** Remember, the insecticide liquid is highly flammable and you must be very careful during the shutdown procedures to not allow any of the insecticide to come in contact with the machine, particularly the vaporizing chamber, heat shield and tubing and fittings that remain HOT even after shutting off the burner!

**CAUTION:** The vaporizing chamber remains HOT when in use and for several minutes after shutting off the burner. DO NOT TOUCH the vaporizing chamber or place it near any flammable object. The injection lance, tip and related components are also extremely HOT. Never touch or place these components near any flammable object!

6. Next, carefully unscrew the propane cylinder from the SureFire torch and place it in a secure location. Never leave a propane cylinder in direct sunlight or enclosed in a car trunk in the direct sunlight. Propane is highly flammable. Observe all warnings and directions contained on the propane cylinder.

### BE SAFE! PREVENT ACCIDENTS!

7. Be sure that your system has cooled completely before storing or transporting. Ensure that the unit is transported in an upright and secure position.

## TIPS FROM THE FIELD

1. **Small Colonies.** For very small surface colonies, one injection is usually sufficient. You may also "stir" the surface part of the mound while releasing vapor as described in Number 4 of Injection.

2. **Water-Logged Colonies.** In those colonies that are water logged (100% water saturated), you will find there is a "free water" level, i.e. at a point below ground level there will also be isolated pockets of ants and brood that have been sealed off from the water. In some instances there will be some pockets of survivors below the free water level. Many of the tunnels and chambers will be sealed by a "water-lock", very much like the grease trap below your sink. These are extremely difficult colonies to eradicate because of the isolated pockets of ants. Remember, if only one queen survives, the colony survives. If practical, leave these colonies for injection when they are dry. However, if you must try to eradicate these colonies, you must do the following: (a) make your normal injection just as described above, since most of the colony will be very near the surface (warming and drying the brood); (b) next, insert your lance and with stirring motions continue to release vapor. You must virtually destroy the mound and the subsurface chambers with the lance while thoroughly treating it with RG Vaporizing Aerosol to be sure of a complete eradication of the colony.

**NOTE:** In cool and/or wet weather, the eggs, larvae, pupae and most of the colony will be very near the surface, facing the sun, warming and drying. This is particularly true in the winter or any time the ground temperature falls below 68°F (20°C). However, in hot weather, the entire colony normally will be quite deep in the nest. Fire ants and their brood cannot tolerate temperature extremes.

3. **Colonies in Sand.** In dry sand and soft loam type colonies, the diameter is usually quite large compared to clay colonies, although the colonies will not normally extend downward to any great depth. In addition, ants in those conditions will often not construct mounds of any size above the ground.

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Since this type of substrate does not allow the ants to construct their normal colony of hardened tunnels and galleries, the following steps should be taken to effect a 100% eradication of the colony. In order to prevent the collapse of the sand tunnels, the operator should carefully modulate the trigger to lessen the pressure at which the fluid is expelled. This is accomplished by pulling the trigger (and hence opening the input valve) only partially while vapor is produced.

The operator must also note whether vapor comes out of the ENTIRE colony. If not, inject the portion of the colony where no vapor was seen. Often in these colonies, an operator will not find a central shaft or void. In these cases, insert the lance into the colony near its central point and as the lance is withdrawn continue to tap the trigger to provide a continuous and steady release of vapor.

4. **Applications in Poor Weather.** This system works best when the weather is bad! That is, any condition that keeps all of the ants in the colony at a given time is, of course, the ideal time to inject. Also, those conditions that cause the entire colony to "clump" or gather into a single area of the mound are the best times to inject for a 100% eradication of the colony.

5. **Mounds at the Base of Large Trees.** Eradicating a mound located at the base of a large tree (not a shrub or small bush) can be difficult. The reason is that the ants will have tunneled under the near surface root system of the tree. For best results, inject the obvious mound and be careful to observe the vapor pattern as it covers the mound. Pay attention to whether there are small, isolated mounds or lobes that are not expelling vapor. Inject any non-expelling lobes. Then continue to probe around the base of the whole tree, feeling for cavities and looking for any indication of fire ant activity. Where found, inject as normal.

6. **Mounds Located Against Sidewalks and Other Barriers.** Where a visible mound is located next to a structure such as a sidewalk, driveway, tombstone, slab, etc., the actual heart of the colony is usually located somewhere UNDER the attendant slab of concrete. The mound is merely a heating/cooling/drying tower into which the queens and brood are moved as needed. In these cases, inject the obvious mound as usual. Note that it will normally take more vapor than usual to fill this mound. As soon as you are satisfied that you have eradicated the mound, move laterally along the cement on both sides of the mounds. As you move away, insert the lance tip into the contact point of the earth and cement every foot and continue to do so for six to eight feet. If during this process, you feel a cavity or void, make a normal injection into the opening. There may be more than one of these voids on either side of the surface mound. Inject each void.

### IMPORTANT

When using the Earthfire Fire Ant Eradication System around trees, sidewalks, concrete slabs and other rigid surfaces, be careful not to use the injection lance to pry or break open hard encrusted mounds. Doing so can break the lance and may cause severe bodily injury. Damage to the Earthfire Fire Ant Eradication System from this type of use will void the warranty.

7. **SPECIAL NOTE:** When you have treated a colony during those times when large numbers of forager ants are away from the nest, you may find that these workers will establish a small, surface colony, usually on the southeast side, near the eradicated mound. These ants are sterile; they cannot reproduce and usually they will die within a few days. Always check these small colonies for the presence of larvae and pupae. If you see any white, egg-shaped objects, then you have probably failed to eradicate the entire colony. These are escapees and should be treated at once. If you see no larvae or pupae, you need not treat any further since the original nest has been treated and will kill any ant that re-enters.

## Earthfire Fire Ant Eradication System

8. If you find larvae or pupae in more than 10% (1 out of 10 mounds) of the small, satellite colonies described above, you are failing to inject the nest properly. There are lateral foraging tunnels about one to two inches beneath the surface, leading away from the main mound chamber which the ants can use as escape tunnels. It is necessary that you completely fill the mound with vapor as rapidly as possible to prevent the use of these escape tunnels. The vapor usually paralyzes the fire ant in less than 15 seconds. Of course, every ant that is touched by the vapor will be killed, so just be sure that you have filled all of the chambers and tunnels of the mound and you will have effected a 100% eradication of that colony.

### **PREVENTIVE MAINTENANCE**

As noted previously in this manual, by the very nature of its technology, the injector is subject to carbon build-up with use over time or with improper use. This build-up is a by-product of the method that must be used to successfully eradicate fire ant mounds. It is strongly recommended that the user take preventive steps to minimize carbonization.

Periodically (when time permits), but at least after using a case of insecticide, you should clean the system as follows:

1. Remove 90° Carbon Trap Elbow (Item 72). CAUTION: Do not attempt this procedure if the coil and elbow are still hot.
2. After allowing the parts to cool, clean the elbow using Kerosene and a pipe cleaner to remove any carbon deposits. It may be necessary to soak the Elbow (Item 72) and Manifold Tube (Item 34) to remove stubborn carbon deposits.
3. To help seal the connection, apply one to two wraps of Teflon Pipe Tape to the Brass Sleeve (on item 34) before re-assembly.
4. Reinstall Carbon Trap Elbow and tighten the compression nuts(s) on Item 34.

NOTE: If you actually clog the Carbon Trap Elbow during use, removing the clog is as simple as repeating steps 1 and 2, while letting the fitting soak for a longer period (4-5 hours if possible).

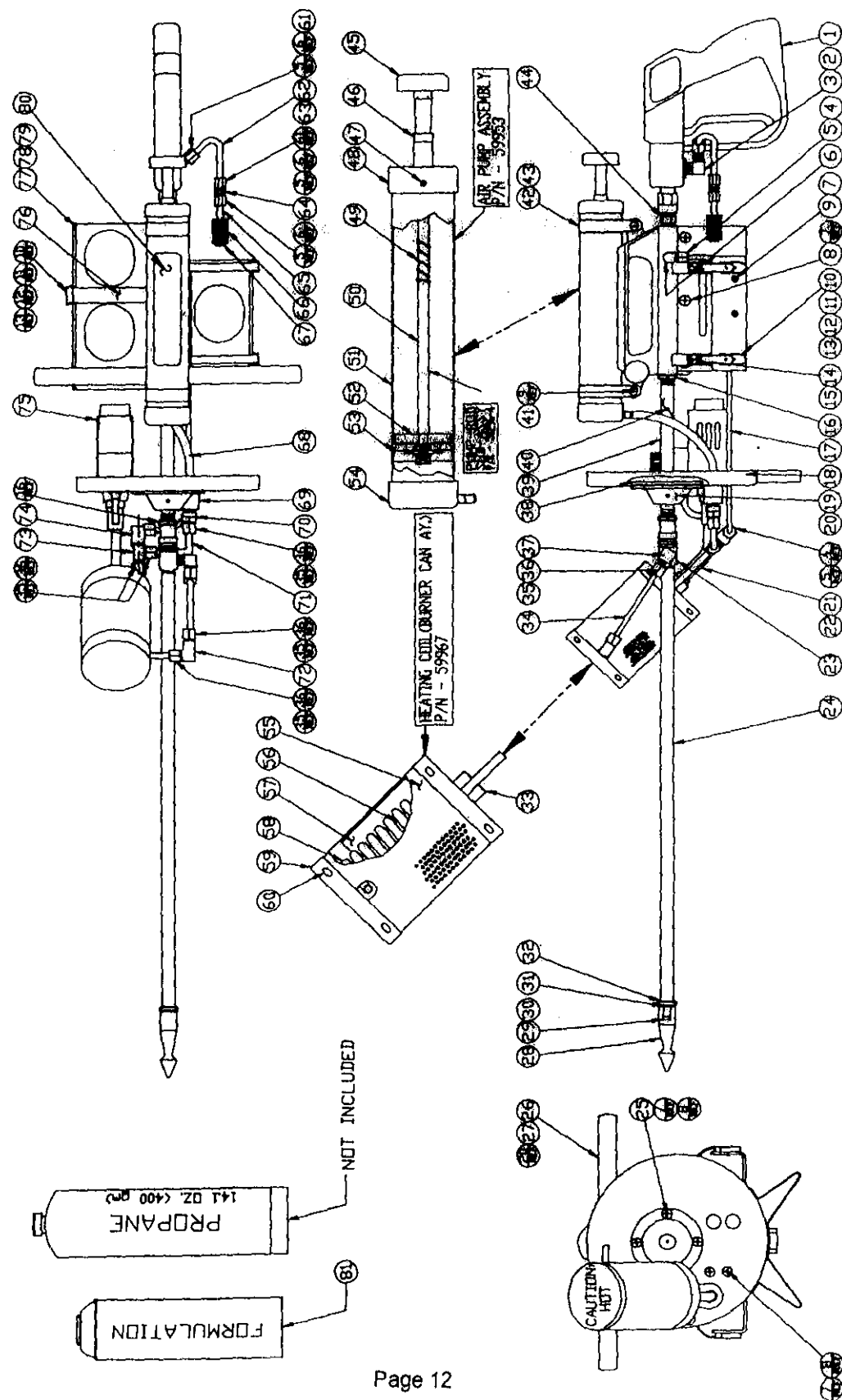
### **Proper utilization of the Air Pump will drastically reduce carbon formation!**

The previous instructions are quite detailed, but are written with you in mind. If followed, the Earthfire Fire Ant Eradication System will provide you with many years of successful and trouble-free operation. Please be advised that you cannot use any other chemicals in this system or alter the system! Any modification or chemical substitutions can cause serious malfunctions of your system. Any violation of the above rules automatically voids your warranty.

If you have any questions or need assistance, call our Customer Support Hotline at 1-602-266-7800.

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Scottsdale, AZ 85255





ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	N59924	GUN, SPRAY	41	G159929	SCREW, 10-24X5/8, PNCR
2	A63054	ELBOW, 90 DEG., MALE	42	B59925	PAD, PUMP STRAP
3	A48155	BUSHING, 3/8-1/4 NPT	43	B59960-9	STRAP, HOLDDOWN (UF)
4	N59941	SLEEVE, 3/16 T	44	A22124	HEX CONNECTOR
5	N59942	NUT, 3/16 T	45	A80133	KNOB
6	G441805	ELBOW, 1/8-3/16	46	A59989	TUBE, RUBBER BUMPER
7	G159920	SCREW, 10-24 X 1/2 PH	47	G190075	SCREW, 6-20X5/16, TAP
8	G138479	WASHER, LOCK, 10, EXTO	48	B58277	CAP, AIRPUMP, PVC
9	G190254	NUT, 10-24 LOCK, HEX	49	A80046	SPRING
10	N62437	LATCH, DRAW	50	B80026-6	ROD
11	G159034	SCREW, 4-40X 5/16	51	B58293-4	BARREL, AIR PUMP
12	G134524	NUT, 4-40, HEX	52	B80128	PISTON RETAINER
13	G147755	WASHER, LOCK, #5, INTO	53	A32811	PLUNGER
14	A59921	STRAP AY., (FORMULATION)	54	C58278-3	AIR PUMP BASE, .03 HL
15	A80345	RIVET, POP, .156 X .281	55	C59919	CAN, BURNER
16	A86162-3	NUT, 1/4 SPT THIN	56	B59915	SCREEN, BURNER (WELDED AY)
17	B59920	TUBE, FORMULATION/INJECTION	57	A59977	INSULATION, CERAMIC
18	B59931	SHIELD AY., HEAT(WELD)	58	C59930	COIL, HEATING
19	B59914	SUPPORT, LANCE	59	B59918-1	COVER, CAN LID (MODIFIED)
20	N140879	SCREW, SET, 10-32X3/16	60	N59984	SCREW, #4-24X1/4 TYP.B
21	C59943	BURNER, PROPANE (T501)	61	A58239	INSERT, BRASS, 1/4 TUBE
22	C59943-2	BURNER TIP (AS PURCHASED)	62	B58212-27	TUBING, 1/4 O.D.
23	C59957	MANIFOLD AY., INJECTION	63	A74312-2	SPRING, ANTICRIMP
24	B59905	LANCE, OUTPUT	64	G441703	UNION, 1/4T-1/4T
25	G120361	NUT, 10-24, HEX	65	59940	ADAPTER/PIN AY.
26	A59908	HANDLE, TUBE	66	A59938	NUT, ADAPTOR
27	A59962	GRIP, FOAM HANDLE	67	A59980	SEAL, CAN
28	A59906	NOZZLE, ERAD., RED ANODIZE	68	B80447-6	TUBE, VINYL, .312 GRES
29	A59958	ORIFICE, NOZZLE	69	A59904	CHECKVALVE, 1/2 PSI
30	B59936	WASHER, TEFLON	70	A74316	FEMALE CONNECTOR
31	B10100-12	ORING	71	N59947	TUBE, AIR INJECTION
32	A59961	LOCK NUT, DIAMOND KNURL	72	N59966	ELBOW/ORIFICE AY. COILOUT
33	B59964	SCREEN/HUB AY.	73	A59907	TEE AY., RESTRICTION, .040
34	A59944	TUBE, BURNER/MANIFOLD	74	C59917	ELBOW, 1/8 FP-3/16T
35	G145463	NUT, 1/4 TUBE	75	B59952	SUPPORT AY., BURNER
36	G114628	SLEEVE, 1/4 TUBE	76	A59922	STRAP AY., (PROPANE)
37	A85748	ELBOW, 90, 1/8MPT-1/4T	77	C59912	BRACKET, PROPANE TANK
38	A59913	PLATE, SUPPORT	78	A58591-5	PAD, NEOPRENE
39	B59929	LANCE, REAR	79	A58284	FOOT, RUBBER
40	A86219	WIRE RETAINER, NYLON	80	A59976	LABEL, OPERATING INSTRUCTIONS
			81	AM-1-0442-501	AIRE-MATE EARTHFIRE AEROSOL (1 CASE, (12) 16 OZ. CANS)

ASSEMBLY DIAGRAM