

MEYER INDUSTRIES

a division of E.B. Meyer, Inc

EPA Establishment #079470-ID-001

U.S. Patent Pending

Manufacturer of the



OPERATOR'S MANUAL



WARNING

Before assembling and operating this equipment, the Operator's Manual must be read and understood in order to use the Rodenator Pro™ in a safe and efficient manner.

The use of the Rodenator Pro™ is limited to the control of subterranean tunneling and burrowing animals.

Prior to using this device, you should take precautions and educate yourself on any threatened or endangered species and habitats that may be in the treatment area.

***CONTACT YOUR STATE DEPARTMENT OF AGRICULTURE
OR STATE WILDLIFE OFFICE FOR COMPLETE
INFORMATION ON THREATENED OR ENDANGERED
WILDLIFE SPECIES IN YOUR APPLICATION AREA.***

Rev. 11/07/2006

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IMPORTANT INFORMATION ABOUT THE ENDANGERED SPECIES ACT

The United States Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found.

The United States Fish and Wildlife Service and the United States Department of Interior maintains a list of threatened and endangered species. These species may include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.

The law prohibits the "taking" of a listed species, or doing anything that adversely affects protected habitat. The meaning of "taking" includes any action, activity or method that may cause disturbance or harm to the species or habitat in question.

It is recommended that prior to commencing work with the Rodenator that you check with your local Agricultural Extension Office or State Wildlife Agency to determine if any threatened or endangered species do exist within the boundaries of your work area.

In most cases, you will find that most species may be unrelated to your application and no concerns are warranted.

If you do discover that a species may be of a concern, the appropriate agency notifying you will provide options to mitigate the issues. This may be as simple as delaying an application until the species has finished nesting or has migrated to other areas for the season.

“ONE CALL” UNDERGROUND LOCATE SERVICES

Whether you live in the city, suburban or rural areas, there is a vast underground infrastructure of pipelines, conduits, wires and cables that are critical to our way of life. This infrastructure provides the nation with crude oil and refined petroleum products, natural gas, telecommunications, electricity, water, sewage, cable TV and other vital products and services.

When preparing to for subterranean pest control work with the Rodenator device in an area that has not been surveyed, it is recommended that you request your state’s “One Call” Service to perform a free underground locate to determine where, if any, are the location of buried utilities near the application area.

Most One Call agencies do not considered the Rodenator an excavating tool or explosive device. However, other One Call Associations like the state of Oklahoma’s “Okie One” have requested that prior to any applications with the Rodenator, that a locate survey be done to determine if utilities, pipelines or natural gas deposits may be effected.

This survey is free and usually can be done within 48 hours of your request. The survey will identify the location of these utilities and their depth. This service is designed to protect the user from civil damages and potential criminal charges due to lack of proper notification.

For additional information, please refer to the One Call directory on the back of the Operator’s Manual for the telephone number of your state’s local coordinator.

Effective April 2007, One Call notification can be accessed by dialing “811” on any non-cellular telephone.

Currently, some states and telephone companies have “811” access in place for One Call notifications. If this service is not available in your area, please contact your One Call Service Center by dialing the number located on the back of this Operator’s Manual.

NOTICE TO PURCHASER

E.B. Meyer, Inc., dba Meyer Industries, Midvale Idaho, gives notice to the purchaser / user of the Rodenator Pro Pest Elimination System as follows:

The purchaser / user of this product assumes all liability in the operation, application, use, and/or possession of this device, known as the Rodenator Pro, and releases the manufacturer, E.B. Meyer, Inc., dba Meyer Industries, and their agents, distributors, and/or dealers of any liability and/or damages, in whole or part, including but not limited to the Rodenator Pro device, purchased accessories, gauges, hoses, and safety equipment.

If you are not in agreement with the above terms and conditions of this release of liability, do not use this product.

Immediately notify Meyer Industries by USPS, Certified Mail that you do not accept the terms of this agreement. You have within 5 calendar days after receipt of Rodenator equipment to give notice. The mailing address for notification is:

**Meyer Industries
Legal Disclaimer Notification
PO Box 39
Midvale ID 83645-0039**

Notification by telephone will not be accepted

Upon receipt of written notice, Meyer Industries will contact you about return shipping instructions of the unused Rodenator system.

Any indication of usage, including the assembly, and/or application of this product, is considered acceptance of the agreement. Whereas the purchaser / user stipulates that liability has been accepted and the purchaser / user has released their rights for claims and damages against E.B. Meyer, Inc., dba Meyer Industries, and their agents, distributors, and/or dealers of any liability and damages, in whole or part, including but not limited to the Rodenator Pro device, purchased accessories, gauges, hoses, and safety equipment.

Time Limitation: Upon accepting delivery of this product, which includes this Operator's Manual, the purchaser / user is required to notify Meyer Industries of their intent not to agree to the terms of this release of liability.

This notification must be postmarked by certified mail within 5 calendar days after delivery.

Expiration of the time limitation without notice indicates that you have accepted the terms and conditions set forth by this release stated above.

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INTRODUCTION BY EDWIN B. MEYER

Thank you for purchasing the Rodenator Pro Pest Elimination System. You have the finest pest control device on the market to obtain complete control of burrowing rodents while protecting the environment from toxic chemicals and pesticides.

Manufactured by Meyer Industries, the Rodenator Pro is designed for farmers and ranchers, and is intended for rigorous use with agricultural, commercial and residential users worldwide.

The Rodenator Pro is made at our factory in the town of Midvale Idaho. This rural community is rich in history and represents a small "western town" in the Snake River region of Southwestern Idaho.

The employees of Meyer Industries take pride in the manufacturing of the Rodenator Pro. Their dedication to the development, research, quality control, and customer support is a reflection of this town's values and a hometown way of life.

Meyer Industries is always in the forefront of technology. We continually seek advice and recommendations from universities across the country and often acquire public studies to show the effectiveness of the Rodenator with varied species and applications. We also seek recommendations from our customers who apply the applications in varied environments.

As of January of 2006, the Rodenator Pro received US and International approval and verification for use in organic farming applications through Custom Certification Services (CCS) and is recommended for use by the Organic Crop Improvement Association, International (OCIA), one of the world's oldest, largest and most trusted leaders in the organic certification industry, and many other organic certification and accreditation organizations across the United States, Europe and Japan.

The Rodenator Pro is the only device on the market today that can be used to control burrowing pests in organic applications, with the exception of traps.

With our excellent product support and 2 year renewable warranty, the Rodenator Pest Elimination System is a tool that will always produce unparalleled results.

When you purchase the Rodenator Pro or any other product from Meyer Industries, you are not just a customer, but a part of our family and community.

Respectfully,

Edwin B. Meyer, President
E.B. Meyer, Inc.

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WHAT YOU SHOULD KNOW ABOUT THE RODENATOR PRO OPERATOR' S MANUAL

This Operator's Manual is intended to provide the purchaser / user with comprehensive information relating to the safety, operation, and recommended application techniques for the Rodenator Pro Pest Elimination system only.

You are advised to completely read this Operator's Manual before assembling and operating this device. Failure to read and understand this Operator's Manual may cause safety issues and performance problems.

This Operator's Manual and the suggested Rodenator Pro application techniques are specific for this product and are not applicable to similar products or devices.

All warnings and notices in this Operator's Manual are intended to give you necessary information for the safe and efficient operation of the Rodenator Pro.

**Study this Operator's Manual carefully.
Your safety and the safety of others depends on it!**

If you have any questions regarding the assembly, operation, or application techniques of the Rodenator Pro device, CEASE OPERATION and immediately contact Customer Support toll free at 1-800-750-4553.

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PATENTS, TRADEMARKS AND COPYRIGHTS

The Rodenator Pro, and all affiliated names, brand and trade names, trademarks, this Operator's Manual and related materials, documents, and videos, are protected by federal and state patent, trademark and copyright laws.

All materials, including, but are not limited to, written documents, brochures, web and/or internet information, videos, newsprint and magazine articles, trade names, tag lines, and logos are protected and cannot be duplicated, in any way, shape or form, without the express written authorization of E.B. Meyer, Inc.

Any attempt to copy, reproduce, and/or publish this Operator's Manual is strictly prohibited.

Meyer Industries will pursue any party or persons infringing of our patents, trademarks and copyrights, to the fullest extent of the law.

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GENERAL INFORMATION

EPA Information:

The Rodenator Pro™ is registered with the United States Environmental Protection Agency as an Application Device. The EPA Establishment number is #079470-ID-001.

Patents, Trademarks, and Copyright:

The **Rodenator Pro™** is registered with the U.S. Patent and Trademark Office with additional U.S. and Foreign Patents Pending.

Meyer Industries prohibits the use of our trademarks and copyrights and is protected by law.

Organic Verification:

The Rodenator Pro™ is verified for use in organic applications through Custom Certification Services of Nebraska (CCS). The following countries have verified its use:

- The USDA National Organic Program (NOP)
- The International Federation of Organic Agriculture Movements (IFOAM)
- The Conseil d'accréditation du Québec (CAQ)
- The Costa Rica Ministry of Agriculture and Livestock (MAG)
- Japan Agriculture Standards (JAS)

A copy of this verification is included at the end of this Operator's Manual.

CUSTOMER SUPPORT

If you have any questions relating to the assembly, operation, or application of the Rodenator Pro device, CEASE OPERATION and immediately contact Customer Support toll free at 1-800-750-4553.

If you have questions not answered in this manual, require additional copies, or if your manual is damaged or misplaced, please contact Customer Support at:

E.B. Meyer, dba, Meyer Industries
PO Box 39
Midvale ID 83645
800-750-4553
www.rodenator.com

VII

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SAFETY INFORMATION

SAFETY ALERT SYMBOLS FOUND THROUGHOUT THIS MANUAL ARE USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND SAFETY OF OTHERS.

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.



SIGNAL WORDS

Use of the following signal words **DANGER**, **WARNING**, and **CAUTION** with safety messages. Appropriate signal word for each has been selected using following guidelines:

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Notice: If you have any questions regarding the safety words or signals, do not operate this equipment until you have a full and clear understanding of the cautions and warnings in this Operator's Manual.

For additional assistance, call our Customer Support at 1-800-750-4553.

SAFETY SYMBOLS

The following Safety Symbols may be associated with the operation of the Rodenator Pro:



Indicates that the container or vessel contains a flammable gas that can ignite upon the present of flame, spark, heat or friction



Indicates that the container or vessel contains a non-flammable gas that can react to the presence of flame, spark, heat, friction or oil.



Indicates that protection of head, eyes and hearing is required. Please use provided equipment.

Please take note of these safety symbols which are associated with this Operator's Manual.

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EQUIPMENT SAFETY GUIDELINES

Every year many farm, ranch and industrial accidents occur that could have been avoided by observing safety precautions and following recommended operating procedures prior to operating or handling equipment.

You, the operator, can avoid accidents by observing all precautions in this Operator's Manual:

- ✓ Do not allow persons to operate or assemble the Rodenator Pro device or accessories until they have read the operator's manual and have developed a thorough understanding of the safety precautions and the proper operation of this equipment.
- ✓ To avoid personal injury, study precautions and insist those working with you to follow the precautions.
- ✓ Do not attempt to operate the Rodenator Pro under the influence of alcohol or drugs.
- ✓ Do not cover up, paint over, remove, or deface any safety signs or warning decals on your Rodenator Pro. If any safety, warning or instructional decals are damaged or missing, contact Customer Support at 1-800-750-4553 for immediate replacement.
- ✓ Never exceed the limits of this device. If its ability to do a job, or to do so safely is in question, **CEASE OPERATION and immediately contact Customer Support, toll free at 1-800-750-4553**
- ✓ Your best assurance against accidents is being a careful and responsible operator. Please familiarize yourself with the safety warnings in this Operator's Manual. If you do not fully understand how to apply the safety protocols in the application of this device, **CEASE OPERATION and immediately contact Customer Support, toll free at 1-800-750-4553.**

DO NOT ATTEMPT TO MODIFY OR REPAIR THE RODENATOR PRO IN ANY WAY, SHAPE OR FORM. DO NOT ATTEMPT TO MODIFY REGULATORS, HOSES, FLASH ARRESTORS OR CHECK VALVES.

ALL EQUIPMENT PROVIDED BY THE MANUFACTURER HAS BEEN SPECIFICALLY DESIGNED FOR OPTIMAL PERFORMANCE AND SAFETY. USE EXACTLY WHAT HAS BEEN PROVIDED.

ANY MODIFICATIONS, UNAUTHORIZED REPAIRS, AND/OR FAILURE TO USE COMPONENTS SUPPLIED WITH THE RODENATOR PRO WILL VOID YOUR WARRANTY!

UNDERSTANDING THE OPERATION OF THE RODENATOR PRO™

The **Rodenator Pro™** is an EPA registered application device that injects a calibrated mixture of liquefied propane gas (LPG) and compressed oxygen (O₂) into the tunnels of burrowing animals. This application is timed from 2 seconds to 3 minutes, depending on type of species, soil compositions, environmental conditions, altitude, and recommendations from the Operator's Manual.

The calibrated mixture dispensed is <2% liquefied propane gas (LPG) and 98% compressed oxygen (O₂).

During the application, it is recommended that the operator use a stopwatch or timer for each and every application to assure that the proper amount of gas being injected is within the recommended protocols for the applications and to assure safety of the operator and bystanders.

When the recommended time for injection of gasses is complete, the operator ignites the mixture by actuating the electronic ignition module button, located on the control box. This initiates a low amperage, high voltage arc (similar to a stun gun) within the nozzle, causing the gas mixture to detonate within the tunnel system.

The detonation of the propane causes the oxygen to violently react, creating a massive concussion that travels through the tunnel system. The concussive force is extreme and un-survivable to the animal within the treated tunnel system.

In addition to the shockwave effect, the rapid expansion of gases within the tunnel system generally disrupts a large portion of most closed tunnel systems, causing them to collapse. This process has been documented repeatedly by extensive field trials and customer response.



DANGER

Propane and oxygen are the only gas mixtures approved for use with the Rodenator Pro. Any attempt to use acetylene, vaporized gas, or Mapp gas, is dangerous and ineffective with this device.

Due to the explosive nature of propane and oxygen, it is extremely dangerous to attempt to duplicate this propane & oxygen process, or to experiment with equipment that is not designed or intended for use with subterranean control of burrowing pests.

“Homemade” devices have been known to cause serious injuries and burns.

PREPARING TO ASSEMBLE THE RODENATOR PRO™ SYSTEM

In order to properly assemble the **Rodenator Pro™** Pest Elimination System, inventory both boxes to assure that all components are in proper order and have not been damaged in transit. Check off each component listed:

1. INSPECTION OF COMPONENTS

CONTENTS OF BOX #1 (long box):

- Rodenator Pro™** Application Wand
- Torch Handle with Flash Arrestors
- Rodenator brand Gopher Shovel
- Operator's Manual(s) - (English and/or Spanish)

CONTENTS OF BOX #2 (Accessory Box):

- DVD or VHS Training Video
- 50-foot Dual Gas Hose Assembly
- Dual Fuel Gas Pressure Regulator
- Oxygen Gas Pressure Regulator
- Safety Accessory Package
 - Hard Hat with Removable Face Shield and integrated Hearing Protectors
 - Plastic Safety Glasses

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ASSEMBLING THE RODENATOR PRO AND ATTACHMENTS

The **Rodenator Pro™** applicator device contains the complete internal electronic controls, ignition mechanism, gas proportioning valves and flashback arrestors within the unit and are assembled at the factory.

All of the electronic controls, safety switches and batteries are contained within the rectangular canister attached to the applicator shaft.

Notice: **Do not attempt to disassemble internal components of this device without factory authorization.**

Any unauthorized repairs or disassembly will void the warranty.

INSERT THE BATTERIES (Batteries are not provided)

- Remove the battery cover on the side of the canister by unscrewing the threaded cover in a counter-clockwise motion until removed.
- Install two (2) 9-volt Alkaline batteries in the battery compartment by snapping the battery connectors to the battery terminals. Place the connected batteries into the padded battery compartment.
- Replace the threaded battery cap and tighten against the O-Ring seal snugly, by hand. **DO NOT OVER TIGHTEN THE BATTERY COVER.**

Notice: **Meyer Industries recommends using Duracell brand 9-volt alkaline batteries, “Coppertop” or “Ultra”. These recommended batteries appear to perform better than other alkaline batteries on the market.**

Avoid using rechargeable or lithium batteries as they may overheat or not function with the Rodenator properly.

When batteries become weak, the sound of the spark is barely audible and the unit will not operate. The two-battery set should provide approximately 2000 ignitions.

Replace batteries only in pairs. Do not interchange or mix alkaline batteries with non-alkaline batteries.

Battery Disposal: Meyer Industries recommends that you follow battery manufacturers instructions on proper battery disposal. Most alkaline batteries made today are “mercury free”. However, some batteries made in other countries may still have mercury and are a hazard to landfills and the environment. If in doubt, do not throw away in the trash or incinerate.

Contact your local city, county or state hazardous waste or recycling center for additional assistance. You may also check with the retail store that your batteries were purchased for recycling information.

CONNECTING GAS SUPPLY HOSES TO REGULATORS



- The fuel / oxygen supply hoses are connected between the regulators and the torch handle with 11/16-inch female brass fittings.
- The connections are compression fittings and do not require the used of pipe dope or thread tape for connections.
- The green hose attaches to the oxygen regulator (green for oxygen). Hand-tighten in a clockwise motion, followed by a wrench for a snug fit.
- The red hose attaches to the propane regulator (red for propane/fuel) using a counter-clockwise motion. Hand-tighten, followed by a wrench for a snug fit.
- Use "T"- Grade fuel hoses and regulators that are approved for the use of propane gasses only.



Do not over tighten the gas hose connections. The thread design on the hoses prevents an accidental cross connection hook-ups (oxygen vs. propane)

The coupling nut on the Propane/Fuel connection is identified with groves stamped into the coupler. This is a reverse or left-handed thread. (Counter clockwise turn to tighten.)

The coupling nut on the Oxygen connection has no identifying marks on the coupler and is a standard thread (Clockwise turn to tighten.)

Refer to the Manufacturers instructions supplied with each regulator for additional information on connection and tightening procedures.

CONNECTING PROPANE & OXYGEN REGULATORS TO GAS CYLINDERS



Liquefied Propane Gas is extremely cold in its liquid state. It is recommended that eye protection and gloves be worn when connecting the regulators.

Before connecting regulators, please read the instructions and warnings supplied included with the oxygen and propane regulators and familiarize yourself with the operating instructions for the regulators.

- Attach the Dual Fuel (propane) regulator to the propane tank. Use a counter-clockwise motion to hand-tighten the 1-1/8 inch fitting of the propane regulator to the propane tank. Complete the attachment, using a wrench to secure the connection. Do not over tighten.
- Attach the oxygen regulator to the oxygen tank (O₂), using a clockwise motion to hand-tighten the 1-1/8 inch female fitting of the oxygen regulator to the oxygen tank. Complete the attachment, using a wrench to secure the connection. Do not over tighten.

CONNECTING THE TORCH HANDLE TO GAS SUPPLY HOSES

There are three male connecting points - two at the rear of the torch handle and one at the front.

- The torch handle is made of brass and is approximately 12-inches in length. It is used to connect the gas supply hoses that are connected to the two gas regulators.
- The Torch Handle is then connected to the mixing tip at the rear of the **Rodenator Pro™** canister.
- The green hose attaches to the torch handle at the flash arrestor (green for oxygen). Hand-tighten in a clockwise motion, followed by a wrench for a snug fit.
- The red hose attaches to the torch handle at the flash arrestor (red for propane/fuel) using a counter-clockwise motion. Hand-tighten, followed by a wrench for a snug fit.

CONNECTING THE TORCH HANDLE TO THE RODENATOR APPLICATOR CANISTER

- Connect the torch handle's single 3/4-inch (19mm) male fitting to the mixing tip extending out at the end of the applicator. Hand-tighten until snug. Do not over tighten.
- Turn off Fuel (Red Knob) and Oxygen (Green Knob) controls. (Clockwise to close)



Do not over tighten the connections between the torch handle and the mixing tip as it may damage the small rubber O-ring that is located inside the mixing tip.

Over tightening may cause a dangerous gas leak or performance issues.

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TESTING CONNECTIONS FOR LEAKS

It is necessary to perform a leak test on all connections by using an oxygen safe commercial leak test solution. Failure to test for leaks may lead to dangerous gas leakage or performance issues.

Oxygen Leak Test:

Step One - Check all connections to confirm that they are tight and secure.

Step Two - Turn off propane and oxygen adjustment controls on Torch Handle.

Step Three - Prior to opening the oxygen tank valve, loosen the oxygen pressure regulator adjustment screw (left turn) 1 to 2 turns. This will eliminate overpressure to the regulator gauges when the tank valve is opened.

Step Four - Carefully open tank valve on oxygen tank only and adjust line pressure to 30 psi.

Step Five - Use leak testing solution on all connections, beginning at regulator connection to tank and continuing to all hose connections, torch handle, flash arrestors and injection and ball valves.

Step Six - If a leak is detected, close oxygen tank valve, wait for pressure to bleed off, tighten leaking connection and re-test.

When connections are tight and no leaks are detected, close oxygen tank valve, and proceed with Propane Leak Test.

Propane Leak Test:

Step One - Check all connections to confirm that they are tight and secure.

Step Two - Close propane and oxygen adjustment controls on Torch Handle

Step Three - Carefully open tank valve on propane tank only and adjust line pressure to 15 psi.

Step Four - Use leak testing solution on all connections, beginning at regulator connection to tank and continuing to all hose connections, torch handle, flash arrestors and injection and ball valves.

Step Five - If a leak is detected, close propane tank valve, wait for pressure to bleed off, tighten connection and re-test.

When connections are tight and no leaks are detected, close propane tank valve, and continue with the assembly procedure in this Operator's Manual.

Testing Connections for Leaks - Continued



Do not use any petroleum products on or near the equipment, regulators, hoses, including oils, solvents and cleaners.

Do not use any cleaners or solvents that are not “oxygen safe”.

Make sure that hands and tools are free of oil and grease.

Oxygen vigorously accelerates combustion and may form explosive compounds when exposed to combustible materials or oil, grease, and other hydrocarbon materials.

Improperly cleaned equipment and piping could result in a combustion reaction causing damage to equipment and injury to personnel.

When performing leak tests, using an “oxygen safe” testing solution is essential to preventing contamination of your oxygen source.

If you are unsure of the product you are using for leak testing, consult a welding or oxygen supply dealer for recommended products that are “oxygen safe” and free of oils and hydrocarbons.

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ADJUSTING REGULATOR PRESSURE SETTINGS ON GAS CYLINDERS

Compressed Oxygen - O₂:

Step One - Prior to opening the oxygen tank valve, loosen the oxygen pressure regulator adjustment screw (left turn) 1 to 2 turns. This will eliminate overpressure to the regulator gauges when the tank valve is opened.

Step Two - Open up the oxygen cylinder to the full open position.

Step Three - Adjust the oxygen regulator to a 30 psi reading on the gauge by turning the pressure adjustment knob on the regulator in a clockwise motion.

Step Four - After your initial adjustment to the regulator settings, occasionally check the pressure settings while the gas is flowing to assure that the pressure is correct.

Liquefied Propane Gas - LPG:

Step One - Open the Propane cylinder to the full open position.

Step Two - Adjust the propane regulator to a 15 psi reading on the gauge by turning the pressure adjustment knob of the regulator in a clockwise motion.

Step Three - After your initial adjustment to the regulator settings, occasionally check the pressure settings while the gas is flowing to assure that the pressure is correct.

It is recommended to check both regulator pressures while the gas is flowing through the hoses. This will assure that the pressures are correct during the application.

SETTING GAS MIXTURE CONTROLS ON TORCH HANDLE

- Step One** - Turn off both control knobs (fuel and oxygen) on the torch handle to the full closed position. The propane control is identified in red. The oxygen control is identified in green.
- Step Two** - Open the oxygen control knob one and one-half (1 1/2) turns from the full closed position. The control knob has a notch to assist in determining amount of turns.
- Step Three** - Open the propane control knob by turning one-eighth (1/8) to one-quarter (1/4) turn from the full closed position. The control knob has a notch to assist in determining amount of turns.

Notice:

The gas mixture settings on the torch handle will remain the same for all target species. Occasionally re-check settings for accidental movement between applications.

The correct setting for the gas mixtures and regulator settings are also shown on the information decal affixed to the top of the canister of the Rodenator.

The control knobs are notched to show how far they have been opened from the full closed position.

If you are using the Rodenator Pro in altitudes above 5000 feet above sea level, please contact customer support for additional information on high altitude settings.

Refer to page 27 for additional information on setting adjustments.

UNDERSTANDING THE USE OF GAS MIXTURES

Understanding the combined effect of both propane and oxygen in the use of the **Rodenator Pro™** is very important.

The **Rodenator Pro™** uses a proprietary method to proportion, compress and inject the gas mixture into the tunnels of burrowing animals. The mixture of gases are at a rate of less than 2% liquefied propane gas (LPG) and 98% compressed oxygen (O₂).

This mixture produces a compressed ratio of propane and oxygen at a consistent measured pressure into the tunnel system. Upon combustion, the resulting concussive shockwave travels throughout the tunnel system at over 10,000 psi.

The resulting massive concussion is sufficient to humanely exterminate the targeted pest.

The combustion of LPG and Oxygen produces carbon dioxide (CO₂) and water vapor and is non-toxic to the environment.



Liquefied Propane Gas - (LPG)

- Propane is a highly flammable gas. It is heavier than air, which gives the mixture added weight for better tunnel penetration and to assist the oxygen in the process of rapid expansion.
- Always maintain proper regulator and torch valve settings as excessive propane creates a potential fire hazard and slows down the shock wave, resulting in a fire.



FIRE HAZARD

Liquefied Propane Gas (LPG) is a highly flammable gas vapor that produces an explosive mixture with air and will easily ignite by heat, sparks, flames, build-up of static electricity, and other sources of ignition. Do not smoke or use electrically operated devices while connecting and/or operating this device. Propane vapor is denser than air and may flow along the ground, sinking to the lowest level of the surroundings and can be ignited at a considerable distance from the source of leakage.

Propane Gas Mixture Warning Statement - Continued

Propane contains an odorizer to alert you of leakage. Test all connections with an oxygen safe leak detection liquid to assure tight fittings and connections. If you detect a leak, immediately close all tank valves. Do not check for leaks with an open flame!

If a leak is detected from the propane tank and you are unable to secure the leak, immediately evacuate the area and contact the Fire Department.

Refer to the Material Safety Data Sheet on these materials before using to familiarize yourself with the precautions for handling, storage, firefighting and proper use of these materials.



INHALATION HAZARD

At very high concentrations in an enclosed area, LPG vapor is an asphyxiant which will decrease the availability of oxygen. This product will displace oxygen if released in a confined space. Maintain oxygen levels above 19.5% at sea level to prevent asphyxiation. Inhalation of high concentrations may cause dizziness, disorientation, in coordination or loss of balance, narcosis, nausea or narcotic effects.



EXTREME COLD HAZARD - EYE AND HAND PROTECTION

Liquefied Propane Gas (LPG) in its liquid state can cause cryogenic burns to the skin similar to frostbite.

Protective clothing, including hand and eye protection is recommended when affixing connections and testing for leaks.

Refer to the Material Safety Data Sheet on these materials before using to familiarize yourself with the precautions for handling, storage, firefighting and proper use of these materials.

Understanding the Use of Gas Mixtures - Compressed Oxygen



Compressed Oxygen - (O₂)

- Oxygen is an oxidizer that rapidly accelerates with an ignition source (propane). This rapid expansion creates a shockwave effect in the tunnel system at a rate of over 10,000 psi within the tunnel system.
- Always maintain proper regulator and torch valve settings as excessive compressed oxygen will cause improper detonation of the propane, which may create a potential fire hazard.



FIRE HAZARD

Compressed Oxygen is a non-flammable gas that vigorously accelerates the combustion process of the propane within the tunnel or burrow.

Do not smoke or use electrically operated devices while connecting and/or operating this device.

Test all connections with an oxygen safe leak detection liquid to assure tight fittings and connections. If you detect a leak, immediately close all tank valves. Do not check for leaks with an open flame!

If a leak is detected from the oxygen tank and you are unable to secure the leak, immediately evacuate the area and contact the Fire Department.

Do not use oil on any fittings. Keep safety caps on oxygen cylinders at all times.

Refer to the Material Safety Data Sheet on these materials before using to familiarize yourself with the precautions for handling, storage, firefighting and proper use of these materials.

WHAT IS A MATERIAL SAFETY DATA SHEET?

When purchasing liquefied propane gas (LPG) and compressed oxygen (O₂), it is required that you obtain a copy of the Material Safety Data Sheet (MSDS) for each product from the supplier. The Material Safety Data Sheet (MSDS) provides you with important information relating the hazard potential of these products, the chemical makeup, first aid measures, fire fighting, handling and storage, personal protective gear and other information as required by law.

If you have questions about these gases, contact the supplier for more specific information on the handling and transportation prior to operating the Rodenator Pro.

Familiarize yourself with this information!

TRANSPORTATION OF GASSES UPON HIGHWAYS

The US Department of Transportation has regulated certain hazardous materials, called Materials of Trade or MOT.

To qualify for MOT, hazardous materials that are carried on a motor vehicle for at least one of the following purposes:

- to protect the health and safety of the motor vehicle operator or passengers (*examples include: insect repellent, self-contained breathing apparatus, and fire extinguishers*);
- to support the operation or maintenance of a motor vehicle or auxiliary equipment (*examples include: engine starting fluid, spare battery, and gasoline*); or
- when carried by a private motor carrier to directly support a principal business that is not transportation (*examples include: lawn care, pest control, plumbing, welding, painting, door-to-door sales*).

Materials of trade are limited to the hazardous materials in the following classes and divisions:

- ✓ flammable or combustible liquids (Class 3), such as paint, paint thinner, or gasoline;
- ✓ flammable gases (Division 2.1), such as acetylene or propane;
- ✓ non-flammable compressed gases (Division 2.2), such as oxygen or nitrogen;

For additional information and a downloadable pamphlet from the FEDDOT detailing the Materials of Trade, you can access this information at www.hazmat.dot.gov or by calling the Hazardous Materials Info Line at 1-800-467-4922

SAFETY RECOMMENDATIONS



Learn how to handle your Rodenator Pro™ safely. Failure to read, understand and follow these recommendations can result in serious personal injuries and/or property damage.



The Rodenator Pro™ is designed and intended for use as a control device for subterranean pest control only.

Using this device outside of the scope of what this device is intended for and not in accordance with this Operator's Manual is strictly prohibited.

Any intentional misuse of this device may compromise the safety of the user or bystanders and may void the warranty.

Any intentional misuse of the Rodenator device outside the scope of subterranean pest control may violate Federal and State laws.

The user of this device understands and agrees that no warranties or guarantees have been made on the performance of the Rodenator Pro™ and that the responsibility of the safe operation of this device is solely upon the of the user and not by the manufacturer, Meyer Industries, and/or their representatives.

REMEMBER, the best assurance against accidents is being a careful and responsible operator. Please familiarize yourself with the safety warnings in this Operator's Manual.

If you do not fully understand how to apply the safety protocols in the application of this device, CEASE OPERATION and call Customer Support at 1-800-750-4553.

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OPERATOR SAFETY

PROTECTIVE EQUIPMENT

Clothing

- It is recommended that the operator wear loose or baggy clothing such as a long sleeve shirt and loose fitting pants. Loose fitting or baggy clothing helps absorb the blast effect from the concussive forces that may occur near the application site.
- Wear gloves to protect hands.
- Never wear shorts, t-shirts, or highly-flammable clothing.

Shoes

- Wear footwear that completely encases the foot and ankle.
- Tennis shoes are acceptable. Work boots are recommended.
- Never work without recommended footwear.

Head, Face and Hearing Protection

- Wear supplied hard hat with full face shield and hearing protectors.
- Wear supplied safety glasses.
- Provide additional hearing and eye protection to workers or observers standing nearby.



KEEP THE APPLICATION SITE CLEAR OF BYSTANDERS

- Flying dirt or mud may cause injuries.
- Loud noise may cause hearing loss or frighten people, pets or horses.
- Keep bystanders (especially children) and pets a minimum of 100 feet from the work area.
- Provide eye and hearing protection as needed.
- Stand on soil only.

Flammable Materials

- Do not use in or near dry grass and brush.
- Exercise caution when working near fuel containment areas, propane tanks, underground fuel tanks and buildings.
- Carry a NFPA approved fire extinguisher for suppression of grass or brush fires.



FIRE HAZARD

- Do not make any applications within 200 feet of any surface or underground flammable storage containers or tanks.
- Maintain a distance of 200 feet from any other flammable storage areas.
- Do not use within 75 feet of a septic tank or drain field.
- Propane and Oxygen are the only gases to be used in the **Rodenator Pro™**.
- **NEVER** use Acetylene, Mapp gas or vaporized gasoline.

Noise

- The discharge noise from the **Rodenator Pro™** may be loud.
- Wear hearing protection at all times.
- Have bystanders wear hearing protection within 100 feet of application area.
- Notify neighbors before operating the **Rodenator Pro™** unit.
- Consider contacting local law enforcement prior to use to avoid false calls.

OPERATOR SAFETY - Equipment

Check your Equipment Frequently

- Test hose connections, and all threaded connections/connectors with an “oxygen safe” leak tester to assure that all connections are tight.
- Check gauges and hoses regularly to assure proper settings and tank volumes.

Treat the Equipment With Care

- **Treat the Rodenator Pro system as you would handle and secure a firearm.**
- Do not throw the Rodenator unit into the bed of a truck or vehicle.
- Keep the unit racked and secured while traveling.
- Close both tank valves and bleed system prior to transporting to and from work area.
- Disconnect the torch handle prior to transporting to and from work area.
- Remove batteries after use.
- Store equipment in a secure area and away from children.

Secure all gas cylinders to vehicle bed

- Take every precaution to prevent cylinders from bouncing, over-turning, and damaging the gauges.
- Use DOT and OSHA approved valve protection caps while regulators are not connected to valves.
- Use DOT and OSHA approved safety caps when regulators are connected to valve.
- Use DOT and OSHA approved device to secure cylinders to vehicle, trailer or ATV.
- When in use, store cylinders in upright position, secured to tank cart or chained to wall.
- Check with your propane and oxygen supplier on local and state laws regarding the transporting and securing of the gas cylinders.

Notice: For additional information on the transportation of pressurized gas cylinders by vehicle on public roads, consult with the following:

- **Local propane and oxygen supplier**
- **State Department of Transportation**
- **Federal Department of Transportation (USDOT) web site for Information on “Materials of Trade”**

<http://hazmat.dot.gov/pubs/hm200/mot42c.pdf>

OPERATOR SAFETY - Body Positioning for Open Hole Burrows

Open Hole Burrows - Position and Stance when making an application (Ground Squirrels, Woodchucks, Prairie Dogs, Badgers, Fox & Coyote Dens)

- Stand on firm soil only.
- Do not stand directly in front of the hole.
- Position your body to be off to the side or directly behind to hole at the time of ignition to avoid exiting shockwave. (open hole animals).
- Face away from the blast. Turn your back to the direction of the hole.
- Stand to one side of the application device. Never straddle device.
- Never face towards the nozzle.
- **Keep your legs together for the protection of lower extremities.**



Stand on Firm Soil Only

- Due to the shockwave that is generated at the time of ignition, the operator must exercise caution to limit exposure of body from concussive force exiting open holes.
- Position your body behind or to side of hole to avoid shockwave.
- Face away from blast.
- Be aware of other open holes nearby and position yourself accordingly.
- Do not place or stand on any material on the ground, i.e.: plywood, boards, sheet metal, or debris.
- Look around for other materials that may become airborne and can cause body injury.
- **Keep your legs together for the protection of lower extremities.**

OPERATOR SAFETY - Body Positioning for Closed Hole Burrows

Closed Hole Tunnels - Position and Stance when making an application (Pocket Gophers, Moles, Shrews, & Voles)

- Stand on firm soil only.
- Face away from the blast. Turn your back to the direction of the hole.
- Stand to one side of the application device. Never straddle device.
- Never face towards the nozzle.
- **Keep your legs together for the protection of lower extremities.**



Stand on Firm Soil Only

- Due to the shockwave that is generated at the time of ignition, the operator must exercise caution to limit exposure of body from concussive force erupting through tunnel systems.
- Position your body to the side of hole to limit shockwave.
- Be aware of other open holes nearby and position yourself accordingly.
- Do not place or stand on any material on the ground, i.e.: plywood, boards, sheet metal, or debris.
- Look around for other materials that may become airborne and can cause body injury.
- **Keep your legs together for the protection of lower extremities.**

Operator Safety - Timing of the Application / Firing the Device

Time the Application

- To prevent the over gassing of a tunnel or burrow system, it is recommended that the operator time the application with a stopwatch or wristwatch that has a “second hand”.
- Refer to gas timing chart in this Operator’s Manual for the proper time used on the targeted species.

Notice: Misapplication of gas into a tunnel or burrow system wastes propane and oxygen.

Announce the Firing of the Device

- Call out “PREPARE TO FIRE” prior to discharge.
- Call out “FIRING” five (5) seconds before discharge.

Do not restrict the tunnel system opening

- Objects placed over open holes may create a potential hazard of flying debris.
- If using a towel or rag over open hole burrows on windy days, dampen the material to prevent any smoldering.



KEEP A MINIMUM DISTANCE OF 200 FEET FROM ANY ABOVE GROUND PROPANE OR FUEL STORAGE TANKS.

KEEP A MINIMUM DISTANCE OF 200 FEET FROM ANY UNDERGROUND PROPANE OR FUEL STORAGE TANKS.



EXERCISE EXTREME CAUTION WHEN OPERATING THE RODENATOR PRO NEAR PEOPLE, VEHICLES, BUILDINGS AND DOMESTIC ANIMALS.

BYSTANDERS SHOULD BE A MINIMUM OF 75 FEET FROM THE APPLICATION WORK AREA BECAUSE OF NOISE AND FLYING DIRT.

MINIMUM OPERATING DISTANCE AWAY FROM ANY BUILDING SHOULD BE 50 FEET.

IF WORKING NEAR STRUCTURES, DETERMINE THE LOCATION OF SEPTIC SYSTEMS AND KEEP A DISTANCE OF 75 FEET FROM THE HOLDING TANK AND DISTRIBUTION FIELDS.

OPERATION & FIRING SEQUENCE

PREPARATION

Inspect equipment before each day's use

Look for equipment damage to:

- Regulator and gauges;
- Valves and knobs;
- Hoses and hose fittings;
- Gas cylinders and valves; and
- Applicator shaft and nozzle, igniter button, applicator head, and canister damage.

Keep equipment clean

- Clean away dust and mud from the unit using damp cloth followed by dry cloth where necessary.

Test the igniter regularly

- Igniter signal, identifiable as a rapid click, should be strong and audible. Replace batteries when necessary.

Inspect applicator head frequently

- Check for dirt or mud inside the nozzle head. Remove any dirt or mud build-up with a dry cloth.



HIGH VOLTAGE

NEVER PLACE FINGERS INSIDE THE APPLICATOR HEAD (NOZZLE) WHILE IGNITER BUTTON IS BEING PRESSED.

REMOVE BATTERIES IF THE APPLICATION NOZZLE NEEDS TO BE CLEANED OR DEBRIS NEEDS TO BE REMOVED.

FIRING THE DEVICE

1. COCKING (RESETTING) THE FLASH ARRESTOR

Prior to each application, the check valve should be in the open position exposing the green ring. If it is not already in this position, pull the black ring on the check valve toward the canister until you hear or feel a “click”. You will see the green ring is exposed in front of the check valve .

2. TURN BALL VALVE TO OPEN POSITION

The ball valve is located in front of the check valve and is designed to cutoff and prevent the re-settable check valve from activating. The re-settable check valve is a secondary safety device and will last many years and thousands of applications if ball valve is used.

To operate and allow the gas mixture to flow, turn the handle of the ball valve (blue or yellow in color) towards the check valve (in line with the barrel). The valve is now open.

Note: If the ball valve is used every time and used correctly, the check valve will not need to be re-set before each shot. It is important to use the ball valve shut-off before each shot to assure proper operation of the **Rodenator Pro™**.

3. DEPRESS GAS RELEASE LEVER

Press thumb or finger on gas release lever and hold down for the correct period of time. (Refer to Application Chart below)
Remove thumb or finger from gas release lever.
Do not re-push gas release prior to ignition.

4. CLOSE BALL VALVE

Just prior to firing, turn the handle of the ball valve to the cutoff position. The cutoff position is away from the check valve and points down. The flow of gas mixture is now shut off.

5. DETONATE THE FUEL MIXTURE

Immediately activate the firing mechanism by **pressing the igniter button**. Do not press your finger straight into igniter button as the recoil may cause bruising of your fingers. Press igniter button and wait for the blast.



If any flame emerges from the hole, the propane setting on the torch handle is set too high. Turn down the propane setting on the torch handle using 1/16 increments until the flame is gone.

At lower elevations, a lower propane setting on the torch handle works more efficiently.

CHECKLIST REVIEW

ENSURE PROPER OPERATION, SAFETY AND RESULTS

- ✓ Wear loose protective clothing and safety gear.
- ✓ Inspect the **Rodenator Pro™** unit daily.
- ✓ Check all hoses and connection for leaks. Use “oxygen safe” leak tester.
- ✓ Check fire prevention equipment. Have in hand fire extinguisher or shovel.
- ✓ Set gauges and valves. Monitor gas usage and avoid running out of gas.
- ✓ Clear the area of bystanders.
- ✓ Position the body away from the blast. Keep legs together if possible.
- ✓ Announce the firing of the device.
- ✓ Proceed with the application.
- ✓ Follow the recommended treatment for the targeted animal.

APPLICATION GUIDELINES

Introduction:

The **Rodenator Pro™** is designed for subterranean pest control of *target specific* burrowing animals with den, tunnels or burrows that extend below the surface of the soil.

These subterranean application techniques vary with targeted species, composition and moisture content of the soil, altitude and time of day or night.

The following recommended methods are designed as a baseline application. Each and every application may vary in technique due to soil conditions, weather and temperature, location and construction of the tunnels, amount of time the gas mixture is injected, time of day for application and follow-up applications.

As previously discussed in this Operator's Manual, safety is paramount when operating the **Rodenator Pro™**. Please familiarize yourself with the safety warnings in this Manual.

If you are not clear or fully understand how to apply the safety protocols in the application of this device, **CEASE OPERATION AND CALL CUSTOMER SUPPORT.**

POCKET GOPHERS

Identification –

The common pocket gopher (*Thomomys* spp.) is a burrowing mammal or rodent that gets their name from the fur-lined external cheek pouches or pockets which they use for carrying food and nesting materials. They are well equipped for a digging, tunneling lifestyle with powerfully built forequarters. Pocket Gophers rarely venture out of their tunnel systems except to migrate to better food sources or to seek a mate during the breeding season.



Pocket gophers tunnel 12 to 18 inches below the surface with their dens or burrows being 6 feet deep in frost free climates and 8 to 10 feet in northern climates. Pocket gophers do not hibernate and can produce up to 3 litters per year with the first litter reaching sexual maturity in nine to twelve months.

Pocket gopher mounds are vastly different from moles or ground squirrels. These mounds are fan shaped which are the result of the pocket gopher excavating dirt from the main tunnel through a lateral tunnel and up through the surface. In most cases, the tunnel entrance at the mound is located at the base of the fan at a 45° angle.

Application Guidelines - Pocket Gophers - Continued



Pocket gophers can be active at anytime of day or night. In most cases, activity usually decreases by late morning and resumes in late afternoon due to cooler soil temperatures and increased soil moisture.

Scheduling time to perform your applications is important when treating pocket gophers.

For best results and to obtain this highest percentage of elimination, it is recommended to conduct the application during the hours of *peak activity* only.

In most cases, the best times are early morning and late afternoon when the pocket gophers are *active*. By treating active tunnels, this will assure that the tunnels are open throughout their system, and down to their den sites. On cool or cloudy days, or ~~in~~ during the fall and spring, pocket gophers may be active throughout the day.

As soil temperatures begin to increase in the late morning through the mid-afternoon hours, pocket gophers will normally cease activity and den up for the remainder of the day to avoid the heat and daytime predators. When this occurs, pocket gophers will typically place a series of blocks in their tunnels to keep out predators, other gophers and water.

Remember: Pocket gophers are primarily nocturnal animals and are not active during the heat of the day with the exception of cool or cloudy days and after a long period of rain. The best time to make your applications is early in the morning and late in the afternoon (early evening).

If you are treating old mounds that are not from recent activity, this will result in poor results as gophers place blocks in their tunnels or may abandon old tunnels.

Please Note:

One of the most common calls to Customer Support is when an application has been made on what is thought to be “active” or fresh mounds, and the next day, the pocket gopher has dug twice as many tunnels and mounds as the day before.

This is an indicator that the application was performed on old mounds and that there **were** blocks in the tunnel, preventing complete penetration to the gophers den site.

Since this application was not successful, the gopher was simply trying to establish new tunnels to replace the destroyed older tunnels.

Determining soil composition or plasticity for Pocket Gophers

Soil composition or plasticity is the determining factor in the amount of gas mixture that is injected in the burrowing animals' tunnel system for successful results.

If the soil is composed of a denser material such as clay with minimal moisture, the amount of gas necessary to inject into the tunnel would be considerably less compared to soil that is lighter in density as with sandy or loamy compositions.

More simply, dense dry clay soil helps contain the underground shockwave by allowing the shockwave to travel deeper into the tunnels without absorption of the shockwave by the tunnel. This type of soil composition may require the minimal amount of gas during the application process.

Pocket gopher tunnels in light sandy or moist clay soils have a tendency to absorb the shockwave and may require more gas during the application process.

Locating Mounds and Tunnels

Before starting your work, carefully plan your application. Start by sectioning the field into quadrants (equal sections). Work one section thoroughly before starting another.

The key to successfully treating pocket gophers is ***locating fresh mounds only***. Fresh mounds reveal which tunnel systems are active and will provide the best result in eliminating both the pocket gophers and the majority of their open tunnels.

Note: Try to schedule the applications “before breakfast” and “after dinner”. In other words, early morning and late afternoon.

This technique will get you into the field when the pocket gophers are actively working to excavate their tunnels to gather grasses and roots.

Types of Mounds

Pocket gophers normally make fan shaped mounds as part of their excavation activities. There are two other mounds that are often overlooked - small dome shaped boils and larger mounds that are from the major excavation of a den site.

Fan Shaped Mounds - Granular Appearance or Composition

These mounds are constructed by the gopher for normal excavation of soil from the gophers' main tunnel to the surface via a lateral tunnel. The excavation of these tunnels may occur as the gopher is looking for better food sources or may be cleaning tunnels that have collapsed or have been flooded.

With normal tunneling activity, the dirt excavated to the surface may appear to be a granular composition at the excavation site (mound). The application to this type of mound and tunnel will generally have good results.

Fan Shaped Mounds - Muddy Appearance or Globular Composition

A mound that has a muddy or globular composition is the result of a gopher clearing out flooded tunnels.

An application to this type of mound may not produce effective results due to excessive moisture in the gopher tunnels, blockages and diversions placed by the gopher.

The application should be delayed until normal mounding with granular soil is observed.

Large Fan Shaped Mounds or Clustered Mounds (Den Sites)

Typically in the spring or late fall, pocket gophers will excavate deep tunnel systems and prepare for winter by digging den site deep underground or to clean out their den after weaning their offspring and preparing for another litter.

This type of excavation gives the appearance to be a group of large mounds close together or an abnormally large gopher mound. This indicates the location of a gopher den site. These den sites can go as deep as 12 feet below the surface, depending on geographic locations, climate and soil.

In moderate climates, a pocket gopher will burrow a den site approximately 4 to 6 feet below the surface in a comfortable location that offers a ambient temperature of 57° and is well below the saturation point of surface water and above the groundwater table.

In extreme northern climates where there is a frost line, pocket gophers will burrow a den site approximately 5 to 7 feet below the frost line, or as deep at 12 feet below the surface in order to survive the cold climates.

Small Dome Shaped Mounds

Small dome shaped mounds or “boils” are usually created by the pocket gopher for immediate access to food at the surface. These are typically located directly above the main runway or between two mounds.

Pocket gophers use these like a hatch to quickly poke out to gather food or nesting material. A small plug is pushed back up by the gopher, creating the “boil”. These plugs are normally weak and can be opened with a finger or the gopher shovel.

RECOMMENDED TREATMENT PLAN FOR POCKET GOPHERS:

There are 3 things to remember when treating Pocket Gophers which are unique to this species. ***Patience, Persistence and Understanding!***

- 1. Patience** is the key when treating an invasive species like pocket gophers. Since they are a migrating species, totally eliminating them from an infested area may not be possible on a long term basis. However, total control can be achieved by following the application guidelines set forth in this Operator's Manual.
- 2. Persistence** to maintain a treatment regimen which will reduce the gopher population considerably with each and every application. The more you keep your regimen, the fewer pocket gophers exist now and in the future.
- 3. Understanding** the habits of these animals. Pocket gophers can tunnel a hundred feet or more per night, excavate over a ton of soil per season, cause erosion problems and cost farmers and ranchers money in lost crops, damaged equipment, injured animals and unsightly landscape.

Making your Application

It is important that during your initial application that you completely work the first section without missing any fresh mounds. The following morning or evening before starting another section, go over the previous day's work to observe any overnight activity.

If fresh mounds have appeared overnight, begin your application on the new overnight holes before starting a new section.

The appearance of new mounds the following day in a treated area does not indicate poor application results. In areas of extensive gopher infestations, additional treatments to gopher tunnels are to be expected. Some applications may be less effective than others because of complex, blocked or abandoned tunnel systems.

Mark Fresh Mounds

It is important to start early in the morning before the sun dries out the mounds, making it difficult to identify the fresh mounds dug the previous night. Place flags or markers on the fresh mounds.

Opening a Plugged Mound

Remove the plug from the mound (if plugged) with the Rodenator brand Gopher Shovel.

Insert nozzle of applicator into hole and lightly press dirt around the nozzle with your foot to help seal around the nozzle.

Inject the Gas Mixture

Inject the gas into the hole using the Gas Timing Chart for Pocket for Gophers. (Refer to Timing Chart on page 35).

Perform your application with a watch or stop watch to accurately dispense the gas into the tunnel.

Igniting the Gas Mixture

Immediately after releasing the gas release valve and closing the ball valve, depress the ignition button to detonate the air/fuel mixture.



Remember to follow the safety protocols for Closed Hole Tunnels - Position and Stance on Page 22 of this Manual.

Survey Completed Application Area

Pocket gopher tunnels are very deep by design. A successful application will result in the concussion traveling deep underground and the operator observing a loud “thump”, a slight heaving of the surface and long radiating disruption of the gopher tunnels.

Loud bangs and short tunnel disruptions may be an indication of a blocked tunnel system.

Often a gopher may place blocks in the tunnel. These blocks may prevent full penetration of the tunnel system. When this condition occurs, enter the tunnel at the point of the block and proceed to blast the remainder of the tunnel system.

Many tunnels have opposite facing tunnel runs. When this situation occurs, first blast one side and then the other where necessary.

Follow-up

Carefully examine the previous day’s work. Repeat the same application process for new mounds if they reappear. When the infestation in the area is moderate or extreme, repeated applications are often necessary to obtain control.

Note: Cold weather conditions may require follow-up applications because the gopher may have moved to deeper levels within the tunnel system and set blocks in the tunnels far below the normal sub-surface tunnels.

Perimeter Applications

After applying the **Rodenator Pro™** treatment to all sectors, check all outer property areas or borders for additional tunneling activity. If any additional tunnel activity is present, re-treat the area.

Evaluation

During the application process, when you ignite the gas mixture, a loud muffled sound (thump) in combination with a rumbling ground indicates the application has penetrated deep into the tunnel system.

If the sound is very loud, this indicates the application was blocked within the tunnel system.

Note: If the application was blocked, it is necessary to find another entrance point, or wait until a fresh mound occurs.

Pocket Gopher Timing Chart:

Clay Soil Composition –

Dry	30-45 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended

Black or Heavy Soil –

Dry	30-60 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended

Loam or Medium Soil –

Dry	60-90 seconds
Moist	30-60 seconds
Wet, Muddy or Saturated	not recommended

Sandy or Light Soil –

Dry	60-90 seconds
Moist	30-60 seconds
Wet or Saturated	not recommended

- Pocket gophers normally do not occupy wet, muddy or saturated tunnels until they have drained sufficiently to allow the pocket gopher to excavate.
- If new mounding activity occurs within a day or two of the initial application, this is an indication that the tunnels may have been blocked. Simply repeat the process when fresh mounds are present.
- In hayfields, male pocket gophers may travel through the hay at night from the perimeter of the adjacent fields, looking to mate with females. This is normal activity and evident during the next cutting when new mounds are discovered in a treated hay field that was previously cleared of gophers. It is always recommended to conduct a perimeter check of the fields several times a month to reduce the chance of re-infestation.

GROUND SQUIRRELS

Identification –

A ground squirrel (*Spermophilus*) can be one of any member of the squirrel family that lives underground for shelter. Unlike pocket gophers that live, eat and reproduce underground, the ground squirrel is active during daylight hours to forage for food above ground and retreats to its den or nest deep underground at night for warmth and protection.



There are about 30 kinds of ground squirrels in North America, including chipmunks, marmots, prairie dogs, woodchucks or groundhogs, the California and Richardson ground squirrel, and the thirteen striped ground squirrel.

Unlike the common pocket gopher, the ground squirrel is a gregarious animal and maintains a den site that may have numerous large hole entrances. Typical ground squirrel burrows may be as deep as 25 feet with multiple dens. The entrance to a ground squirrel burrow may appear to have one hole at the surface, however in some instances, just below the surface, the entrance may “Y” or split into two different burrow systems.

This may be evident when an application is made and the operator immediately observes ground squirrels running out of treated entrance unharmed after the application. It is recommended that the burrow be treated at a later time in order to repopulate the untreated burrow and complete the application.

RECOMMENDED TREATMENT FOR GROUND SQUIRRELS:

Treating ground squirrels is a fairly straight forward process that can be performed anytime of the day or night. In most rural areas where combination treatments on pocket gophers are made in the early mornings, this activity may help in keeping most ground squirrels in their burrows for later applications. What makes the treatment of ground squirrels most effective is the ease of the application and the animal’s natural defense mechanism of retreating to their burrows at any sign of danger.

This “flee and hide” mechanism gives the Rodenator process a higher success rate since the majority of the target animals are within their burrows at the time of the application.

How to treat Ground Squirrels with the Rodenator Process

When making your first application to a burrow entrance, the resulting underground shockwave will also exit through connecting tunnels that are part of the treated burrow system. The resulting smoke, steam and debris exiting these holes clearly show which burrow system have been treated.

Recommended Treatment Plan for Ground Squirrels - Continued

The key to effectively maintaining control of ground squirrels with the Rodenator process is to treat every burrow system that does not appear to have been part of the initial application and immediately fill-in these holes with dirt, pack them tight and level any mounds.

This method will reduce the chance of re-infestation by neighboring ground squirrels and will alert you at a later time if another ground squirrel has dug back into the burrow system.

When performing the application, please observe the safety protocols as detailed on page 22 of this manual for Open Hole Burrows - Position and Stance.

Making your Application

Before starting your work, carefully plan your application area. Start by locating the entrance of the burrows. Place marker flags to identify the burrow entrances. Most ground squirrel burrows have multiple entrances. Some are also for escape, air or water diversion.

It is important to know the location of all holes when performing the application in order to properly position yourself away from the exiting shockwave.

Determining Soil Composition or Plasticity for Ground Squirrels

Soil composition or plasticity is the determining factor in the amount of gas mixture that is injected in the burrowing animals' tunnel system for successful results.

If the soil is composed of a denser material such as clay with minimal moisture, the amount of gas necessary to inject into the tunnel would be considerably less compared to soil that is lighter in density as with sandy or loamy compositions.

Application in a dense dry clay soil helps contain the underground shockwave by allowing the shockwave to travel deeper into the tunnels without absorption of the shockwave by the tunnel. This type of soil composition may require the minimal amount of gas during the application process.

Ground squirrel burrows that are in light sandy or moist clay soils have a tendency to absorb the shockwave and may require more gas during the application process.

Insert the Nozzle

Ground Squirrels make large burrow openings and live in deep underground den sites. To identify the main entrance, look for an opening where the entrance has been smoothed over by the animal entering and exiting many times."

The nozzle of the Rodenator Pro needs to be inserted into the entrance of the burrow (the hole) as deep as possible in order to inject the gas mixture properly. This also assures that the gas mixture is not being drawn out of the hole by any slight breeze.

Note: For maximum effectiveness, try to avoid applications to ground squirrel burrows on windy days.

If you do perform applications on windy days, a flame proof cloth, damp towel or rag placed behind the application nozzle during the injection process will assist in preventing the gas mixture from being drawn out by a breeze.

Inject the Gas Mixture

Inject the gas into the hole using the Gas Timing Chart for Ground Squirrels. (Refer to Timing Chart below).

Perform your application with a watch or stop watch to accurately dispense the gas into the tunnel.

Igniting the Gas Mixture

Immediately after releasing the gas release valve and shutting the ball valve, depress the ignition button to detonate the air/fuel mixture.



Remember to follow the safety protocols for Open Hole Tunnels - Position and Stance on Page 22 of this Manual.

Cover the Hole after the Shot

To assure that the application was successful and to prevent re-invasion of another animal into the burrow, the hole should be buried and packed immediately after the application.”

Any evidence of the entrance, including mounds or depressions, should be leveled.

Follow-up

Carefully examine the previous day’s work. Repeat the same application process for reopened burrows.

When the infestation in the area is acute, repeated gas applications are often necessary.

Evaluation

During the application process, the sounds coming from the burrow opening may vary. In most cases, the target may have a large opening and the sound may be as loud as a shotgun blast.

You may be able to reduce the sound by packing dirt around the nozzle during the injection of the gas mixture.

Ground Squirrel Timing Chart:

Clay Soil Composition –	
Dry	45-90 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended
Black or Heavy Soil –	
Dry	30-60 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended
Loam or Medium Soil –	
Dry	75-90 seconds
Moist	30-60 seconds
Wet, Muddy or Saturated	not recommended
Sandy or Light Soil –	
Dry	75-90 seconds
Moist	30-60 seconds
Wet or Saturated	not recommended

In the western part of the United States, ground squirrels normally do not go into a deep hibernation mode like groundhogs and prairie dogs during the winter months.

Ground squirrels will emerge during fair weather or after short periods of warmer winter weather.

During the hottest days of the summer, most adult ground squirrels will retreat into the burrows to “estivate”. This estivation period may last a few days or up to 30 or more days, depending on the heat and drought conditions.

Performing applications during the ground squirrels “summer dormancy” is extremely effective.

WOODCHUCKS / GROUNDHOGS

Identification –

The woodchuck (*Marmota monax*), also known as the groundhog is one of the largest members of the squirrel family and is closely related to North American marmots.



Woodchucks are approximately 20 to 27 inches tall and weigh 5 to 15 pounds.

Woodchucks prefer to construct their burrows in open farmland and in the wooded or brushy areas adjacent to open land. However, they also can be found in woodlands, on abandoned farms, and occasionally in suburban areas where the combination of food and cover provides satisfactory habitat.

Burrows commonly are located in fields and pastures, along fence rows, stone walls, roadsides, near building foundations or the bases of trees. A woodchuck burrow serves as home to the woodchuck for mating, raising young, hibernating, and escaping danger.

Woodchuck burrows can be identified by the large mound of excavated earth at the main entrance. On this mound, which is constantly renewed by debris from within, the woodchuck frequently sits to look for danger.

Treating woodchucks and groundhogs is generally the same as other open hole burrows, and can be performed anytime of the day or night. In most rural areas where combination treatments on pocket gophers are made in the early mornings, this activity may help in keeping most woodchucks and groundhogs in their burrows for later applications.

Application of the Rodenator to woodchucks and groundhogs has a high success rate because the animals retreat into their burrows at any sign of danger.

When making your first application to a burrow entrance, the resulting underground shockwave will also exit through connecting tunnels that are part of the treated burrow system. The resulting smoke, steam and debris, exiting these holes show you what has just been treated.

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RECOMMENDED TREATMENT FOR WOODCHUCKS / GROUNDHOGS:

The key to effectively maintaining control of woodchucks and groundhogs with the Rodenator process is to treat every burrow system that does not appear to have been part of the initial application and immediately fill-in these holes with dirt, pack them tight and level any mounds.

This method will reduce the chance of re-infestation by migrating or neighboring woodchuck, skunks, badgers and such. By filling in these holes, you will be able to see if the woodchuck has dug back into the burrow system.



When performing the application, please observe the safety protocols as detailed on page 22 of this manual for Open Hole Burrows - Position and Stance.

Making your Application

Before starting your work, carefully plan your application area. Start by locating the entrance of the burrows. Place marker flags to identify the burrow entrances. Most woodchuck / groundhog burrows have large mounds for their main entrance and a single air or escape hole that is considerably smaller and may not have a mound.

It is important to know the location of all holes when performing the application in order to properly position yourself away from the exiting shockwave.

Insert the Nozzle

The nozzle of the Rodenator Pro needs to be inserted into the entrance of the burrow (the hole) as deep as possible in order to place the gas mixture properly. This also assures that the gas mixture is not being drawn out of the hole by any slight breeze.

Note: For maximum effectiveness, try to avoid applications to woodchuck / groundhog burrows on windy days.

If you do perform applications when windy, a flame-proof cloth, damp towel or rag placed behind the application nozzle during the injection process will assist in preventing the gas mixture from being drawn out by a breeze.

Inject the Gas Mixture

Inject the gas into the hole using the Gas Timing Chart for woodchucks and groundhogs. (Refer to Timing Chart below).

Perform your application with a watch or stop watch to accurately dispense the gas into the tunnel.

Igniting the Gas Mixture

Immediately after releasing the gas release valve and shutting the ball valve, depress the ignition button to detonate the air/fuel mixture.

Cover the hole after the application shot

To assure that the application was successful and to prevent re-invasion of another animal into the burrow, immediately after the application, the hole should be buried and packed.

Any evidence of the entrance, including mounds or depressions, should be leveled.

Follow-up

Carefully examine the previous day's work. Repeat the same application process for reopened burrows.

When the infestation in the area is acute, repeated gas applications are often necessary.

Evaluation

During the application process, the sounds coming from the burrow opening may vary. In most cases, the target may have a large opening and the sound may be as loud as a shotgun blast.

You may be able to reduce the sound by packing dirt around the nozzle during the injection of the gas mixture.

Woodchuck / Groundhog Gas Timing Chart:

Clay Soil Composition –

Dry	60-90 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended

Black or Heavy Soil –

Dry	60-90 seconds
Moist	60-90 seconds
Wet, Muddy or Saturated	not recommended

Loam or Medium Soil –

Dry	60 seconds
Moist	30-90 seconds
Wet, Muddy or Saturated	not recommended

Sandy or Light Soil –

Dry	75-90 seconds
Moist	30-90 seconds
Wet or Saturated	not recommended

PRAIRIE DOGS

Identification –

There are three species of prairie dogs (*Cynomys*): the black-tailed prairie dog, Gunnison's prairie dog and white-tailed prairie dog. These different species of prairie dogs inhabit most western and central United States, with the exception of the Gunnison that is found in



limited areas in Colorado. The major family indigenous to most areas is the black-tailed prairie dog.

Prairie dogs are relatively large burrowing ground squirrels that weigh 1 1/2 to 3 pounds and are 14 to 17 inches tall. Prairie dogs have reddish fur, large eyes, short ears and broad round heads.

Prairie dogs form colonies commonly referred to as prairie dog towns. Small groups, generally composed of one adult male, three adult females and six offspring, defend their territory within the larger town.

Prairie dogs live in burrows about 10 yards apart, 3 to 14 feet deep and 10 to more than 100 feet long. A mound 3 to 10 feet across and 1/2 to 1 foot high at the entrance of the burrow prevents water from rushing in and serves as a lookout station, as well as ventilation shafts for the entire burrow system. Studies show that a density of 35 black-tailed prairie dog mounds per acre is common, although up to 95 mounds have been reported. Burrow systems have one to three entrances.

Prairie dog burrow entrances and the surrounding areas are normally grazed down in order to keep grasses and weeds from obscuring their entrances and to provide a wider area of observation by the prairie dogs to locate any approaching predators.

Treating prairie dogs is generally the same as other open hole burrows, and can be performed anytime of the day or night. In most rural areas where combination treatments on pocket gophers are made in the early mornings, this activity may help in keeping most prairie dogs within their burrows for later applications. Application of the Rodenator to a prairie dog burrow system has a high success rates do to the cooperation of the animal retreating to their burrow at any sign of danger.

When making your first application to a burrow entrance, the resulting underground shockwave will also exit through connecting tunnels that are part of the treated burrow system. The resulting smoke, steam and debris, exiting these holes show you what has just been treated. Upon completing the application, it is important to fill in and pack tight any holes that are connected to this burrow system, as well as leveling out the existing mounds by hand, land plane, blade or disking.

By packing shut these treated burrows and leveling out the mounds, this method will keep most prairie dogs from re-invading the treated burrows. In addition, any scent that was near the entrances of the burrows will be spread across the area, making the entrances much more difficult to locate by invading animals.

RECOMMENDED TREATMENT FOR PRAIRIE DOGS:

The key to effectively maintaining control of prairie dogs with the Rodenator process is to treat every burrow system that does not appear to have been part of the initial application and immediately fill-in these holes with dirt, pack them tight and level any mounds. This method will reduce the chance of re-infestation by migrating or neighboring prairie dogs. By filling in these holes, you will be able to see if a prairie dog has dug back into the burrow system.



When performing the application, please observe the safety protocols as detailed on page 22 of this manual for Open Hole Burrows - Position and Stance.

Making your Application

Before starting your work, carefully plan your application area. Start by locating the entrance of the burrows. Place marker flags to identify the burrow entrances. Most prairie dog burrows have several large mounds for their main entrance.

It is important to know the location of all holes when performing the application in order to properly position yourself away from the exiting shockwave.

Insert the Nozzle

The nozzle of the Rodenator Pro needs to be inserted into the entrance of the burrow (the hole) as deep as possible in order to place the gas mixture properly. This also assures that the gas mixture is not being drawn out of the hole by any slight breeze.

Note: For maximum effectiveness, try to avoid applications to prairie dog burrows on windy days.

If you do perform applications when windy, a flame proof cloth, damp towel or rag placed behind the application nozzle during the injection process will assist in preventing the gas mixture from being drawn out by a breeze.

Inject the Gas Mixture

Inject the gas into the hole using the Gas Timing Chart for prairie dogs. (Refer to Timing Chart below). Perform your application with a watch or stop watch to accurately dispense the gas into the tunnel.

Igniting the Gas Mixture

Immediately after releasing the gas release valve and shutting the ball valve, depress the ignition button to detonate the air/fuel mixture.

Cover the hole after the application shot

To assure that the application was successful and to prevent re-invasion of another animal into the burrow, immediately after the application, the hole should be buried and packed. Any evidence of the entrance, including mounds or depressions should be leveled.

Follow-up

Carefully examine the previous day's work. Repeat the same application process for reopened burrows.

When the infestation in the area is acute, repeated gas applications are often necessary.

Upon completing all applications, it is recommended that the treated areas be plowed or disked to further disrupt any mounds and to prepare the area of seeding to re-establish grasses or prairie pasture. The establishment of grasses – prairie or grazing – is important to keep prairie dogs from invading treated areas. Prairie dogs will avoid areas of tall grass as this limits their ability to see predators approaching the community.

Evaluation

During the application process, the sounds coming from the burrow opening may vary. In most cases, the target may have a large opening and the sound may be as loud as a shotgun blast.

You may be able to reduce the sound by packing dirt around the nozzle during the injection of the gas mixture.

Prairie Dog Gas Timing Chart:

Clay Soil Composition –	
Dry	60-90 seconds
Moist	90-120 seconds
Wet, Muddy or Saturated	not recommended

Black or Heavy Soil –	
Dry	60-90 seconds
Moist	90-120 seconds
Wet, Muddy or Saturated	not recommended

Loam or Medium Soil –	
Dry	120 seconds
Moist	120 seconds
Wet, Muddy or Saturated	not recommended

Sandy or Light Soil –	
Dry	120 seconds
Moist	120 seconds
Wet or Saturated	not recommended

MOLES

Identification –



There are six species of moles in North America. Of these, three may commonly occupy a yard or pasture (Eastern Mole, Hairy-tailed Mole, and Star-nosed Mole). Moles are about the size of chipmunks (6-8 inches in length) and can weigh three to six ounces. Each year a mole can have one litter of two to six young anywhere from mid-April through May.

Moles are ***insectivores*** (they eat insects), and they may control some insect outbreaks. However, mole activity can also cause considerable damage to lawns. This damage is usually in the form of tunnels and/or mounds in lawn that can be unsightly, disturb root systems, and provide cover or travel lanes for other small mammals.

Moles have a high metabolism rate that requires that they need to feed frequently. Their primary food **sources** are earthworms, followed by grubs, ants, crickets and other subterranean insects. Moles will rarely leave their tunnel systems to forage for food. They can consume up to 1½ times their body weight in a 24 hour period.

Moles locate food by making two types of tunnel systems. Surface tunnels appear to have a ridge and secondary tunnels result in mounding activity.

Straight or arched surface ridges are used for normal travel routes when going to and from feeding areas, while short jagged surface ridges are feeding tunnels.

Mounding activity indicates that the mole is in the deeper secondary tunnels in search of food or relocating due to climatic conditions, too hot or too cold.

Determining Soil Composition or Plasticity for Moles

Soil composition or plasticity is the determining factor in the amount of gas mixture that is injected in the burrowing animals' tunnel system for successful results.

If the soil is composed of a denser material such as clay with minimal moisture, the amount of gas necessary to inject into the tunnel would be considerably less compared to soil that is lighter in density as with sandy or loamy compositions.

Applications to dense dry clay soil helps contain the underground shockwave by allowing the shockwave to travel deeper into the tunnels without absorption of the shockwave by the tunnel. This type of soil composition may require the minimal amount of gas during the application process.

Tunnels in light sandy or moist clay soils have a tendency to absorb the shockwave and may require more gas during the application process.

Locating Mounds and Tunnels

Surface Tunnels -

Mole surface tunnels require a different application method compared to pocket gophers, producing mixed results that may create more surface disruption than the original tunneling made by the mole. This is because of the highly disruptive force of the Rodenator process, creating a high pressure shockwave through the tunnel system which often opens up the tunnels to the surface.

Applications to a surface tunnel will result in the shockwave traveling short distances in the tunnel, thus requiring additional applications to get to the mole's den site.

By treating the surface tunnels, the user is basically following the shockwave to its point of termination, re-opening the tunnel, and continuing the application until the shockwave is felt underground to the mole's den site.

This method will eliminate the mole, however, it may cause damage to the turf and require moderate repair.

Secondary Tunnels (Mounds) -

The secondary tunnels of moles are the result of excavating deeper tunnel systems to locate food sources or to prepare for seasonal changes in the mole's habit.

Mole tunnels directly below the mounds are normally vertical or at a very steep angle, thereby producing dome shape mounds. These vertical tunnels may go down as far as 24 to 30 inches below the surface before branching into the main runway.

Treating a secondary tunnel system is extremely effective with the Rodenator, resulting in a high elimination rate and very little disruption of the surface areas.

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RECOMMENDED TREATMENT PLAN FOR MOLES:

Making your Application

It is important that during your initial application, that you make note of the tunnels and where they are located.

Treating mole surface tunnels or mounds near foundations, walkways, patios or under buildings or sheds, may not be advisable due to the radiating shockwave. Damage to foundations and concrete work, and underground tanks may occur.



When performing the application, please observe the safety protocols as detailed on page 22 of this manual for Open Hole Burrows - Position and Stance.

It is recommended that you follow safety procedures when working near structures, underground and above ground storage tanks, wellheads, and debris piles.

Opening a Surface Tunnel

With the Rodenator Gopher Shovel, start your application near the feeding tunnels (jagged ridge tunnels). Open the tunnel large enough to inset the nozzle of the Rodenator.

Inject the Gas Mixture

Inject the gas into the tunnel using the Gas Timing Chart for Moles.
(Refer to Timing Chart below).

Perform your application with a watch or stop watch to accurately dispense the gas into the tunnel.

Igniting the Gas Mixture

Immediately after releasing the gas release valve and closing the ball valve, depress the ignition button to detonate the air/fuel mixture.



Remember to follow the safety protocols for Closed Hole Tunnels - Position and Stance on Page 22 of this Manual.

Continue with Application to Surface Tunnels

Continue the application on surface tunnel by proceeding to the end of the tunnel where the shockwave terminated. Open the tunnel, insert nozzle, inject gas mixture and ignite.

Note: If your application is successful, your last application will result in the shockwave or concussion going deep underground to the mole den site.

This will be noticed by a loud thump, followed by a slight heaving to the surface.



Treating mole surface tunnels with the Rodenator process will result in a loud bang, similar to the sound of a shotgun or rifle. Hearing protection for the operator and bystanders is required.

Treating surface tunnels may cause flying debris. Head, eye and face protection is required.

Mole Timing Chart (Surface Tunnels):

Surface Tunnels only - 10-30 seconds

Mole Timing Chart (Secondary Tunnels):

Clay Soil Composition -

Dry 30-45 seconds

Moist 45-60 seconds

Wet, Muddy or Saturated not recommended

Black or Heavy Soil –

Dry 30-45 seconds

Moist 45-60 seconds

Wet, Muddy or Saturated not recommended

Loam or Medium Soil –

Dry 30-60 seconds

Moist 30-60 seconds

Wet, Muddy or Saturated not recommended

Sandy or Light Soil –

Dry 30-60 seconds

Moist 30-60 seconds

Wet or Saturated not recommended

QUESTIONS & ANSWERS

The following questions are often asked during our many presentations and demonstrations throughout the country. Hopefully, they will provide insight into certain issues and situations that fellow **Rodenator Pro™** owners have experienced.

Q. WHAT ABOUT DAMAGE TO UNDERGROUND IRRIGATION AND WATER PIPES?

- A.** There have been no reported cases of damage to buried concrete pipe, or PVC pipe used in irrigation or water supply. Additionally, there have been no reports of damage to buried drip irrigation lines. However, NEVER apply gas inside of pipes because damage will occur.

Q. IS THERE A POTENTIAL FOR SETTING FIRE TO DRY GRASS?

- A.** The **Rodenator Pro™** should not be used under dry conditions. The **Rodenator Pro™** should not be used during periods of high fire danger, in or near areas of dry grass or brush.

At all times, fire prevention equipment should be readily available (such as fire extinguishers, water hoses, fire blankets, shovels, and rakes, etc).

Contact your local Fire Department for any further restrictions prior to use.

Q. HOW LOUD IS THE REPORT DURING IGNITION?

- A.** The rodent type determines the loudness of the blast. For example, gophers dig very small openings and tunnels; therefore, the sound of the discharge may not be very loud. By contrast, the large burrow holes dug by ground squirrels create a very loud sound. **Always wear hearing protection.**

Q. CAN YOU GET ANY FOOT DAMAGE WHILE STANDING OVER A GOPHER TUNNEL SYSTEM AS IT IS BEING BLASTED?

- A.** The force of the shockwave will take the path of least resistance. As a safety measure, shoes should be worn during the operation of the **Rodenator Pro™** system. It is common to feel the concussion at your feet, and some dirt and debris may kick up from the disrupted tunnel network beneath your feet.

Q. WHAT ABOUT ROOT DAMAGE TO TREES AND ROW CROPS?

- A.** Because the shockwave creates low heat, the roots generally do not suffer from heat or concussive damage.

MAINTENANCE & STORAGE

The **Rodenator Pro™** system should be inspected before each day's use and cleaned after use to insure proper performance. Because much of the **Rodenator Pro™** system is encased within the canister, there are few exposed parts subject to environmental damage.

- **WIPE DOWN THE SYSTEM**

The complete system should be cleaned using a damp cloth, and followed with a dry cloth to remove excessive moisture.

- **BATTERY CHAMBER**

The battery chamber should be inspected for signs of corrosion. If corrosion appears on batteries, immediately remove corroded batteries and clean connections with a baking soda solution. Dry the connections and replace the batteries.

Follow disposal instructions by battery manufacturer for safe method of disposal.

- **CANISTER**

Do not to open the canister for cleaning, inspection or curiosity. There is no user access. **Unauthorized access may void warranty.**

- **NOZZLE**

Always check the nozzle to be sure it is clear of dirt and debris. Wipe away any mud and debris found inside of the head. Mud accumulation may prevent the electrodes from firing. Lightly rinse inside of nozzle with garden hose every 1000 shots.

- **STORAGE**

Retain all plastic dust covers and replace the covers over the gas fittings to insure against dust and moisture contamination of system.

Remove batteries from Rodenator if you are storing the device for more that 30 days.



Never attempt cleaning the inside of the nozzle while pressing the igniter button.

High voltage is passed across the electrodes when Igniter button is pressed and may cause electrocution, burns or severe injury to central nervous system.

TECHNICAL SUPPORT AND WARRANTY REGISTRATION

TECHNICAL SUPPORT

Meyer Industries offers free Technical Support to all registered customers that are the **original purchasers** of the Rodenator Pro.

Our Technical Support telephone number is 1-800-750-4553.
If you are from outside the United States, our direct number is 1-208-355-7000.
Our Fax number is 1-208-355-0103

WARRANTY REGISTRATION

To receive warranty service and technical support for your Rodenator Pro, Meyer Industries requires that you complete the attached warranty form and return the form within 30 days of purchase.

By signing this warranty form, the customer acknowledges that they have fully read and understand the information in this Operator's Manual, including the application guidelines, safety protocols, liability agreement and warning information.

Registration may be sent by U.S. Mail to Meyer Industries or by faxing to 1-208-355-0103

Please record your Rodenator Pro™ Serial Number here

RODENATOR PRO LIMITED WARRANTY

Limited Warranty:

Meyer Industries warrants the original Purchaser that the enclosed **Rodenator Pro™** Product is free from defects in material and workmanship under normal use and service for a period commencing on the date of purchase and continuing for a period of 2 years from the date of original purchase.

Registration of Product is required for warranty.

This Warranty applies to the original registered purchaser and is non-transferable.

What is covered:

During the applicable warranty period, Meyer Industries will repair or replace at their option, without charge to Purchaser, any defective component part of the Rodenator Pro application wand. Hoses, regulators, torch handle and safety equipment (accessories), are warranted by the manufacturers of those products. Warranty information on the accessories is included in the original packaging that you received with the Rodenator Pro system.

To obtain service under this limited warranty, the purchaser must contact Customer Support at 800-750-4553, to determine problem with product and to obtain a Return Merchandise Authorization Number (RMA). Meyer Industries will provide the Purchaser with the information on how to package the Product and where to ship for service.

Purchaser must return Product to Meyer Industries in a container for shipping, accompanied by the Purchaser's sales receipt or comparable proof of sale showing the date of purchase, and serial number of the device.

Please also include a detailed description of the problem you are experiencing. Be sure your name is on the Product when you ship it.

If the original box is unavailable, secure as best you can. Upon authorization of the warranty repair, Meyer Industries will pay return freight, **UPS Ground only**, within the Continental United States. Meyer Industries will **NOT** pay for professional packaging.

Return to: **Meyer Industries**
 80 S. Depot St.
 Midvale, ID. 83645

Rodenator Pro Warranty - Continued

What is not covered:

The limited warranty is conditional upon proper operation and use by the Purchaser. This limited warranty does not cover:

- Defects or damage resulting from accident, misuse, abuse, neglect, unusual physical stress, or modifications of any part of the Product.
- Equipment that has the serial number removed or made illegible.
- Malfunctions resulting from the use of the Rodenator in conjunction with ancillary or peripheral equipment not furnished by or approved by Meyer Industries.
- The use of gases not designed for the Rodenator Pro.
- Defects or damage from improper operation, maintenance, installation, adjustment or unauthorized service or repair.
- Any accessory that is included with the Product that is normally covered under a manufacturers warranty for said accessory, including but not limited to; regulators, hoses, safety equipment and any other part or accessory that has not been produced and warranted by Meyer Industries.
- All warranty repairs are to be sent ground freight only to receive to any reimbursement on the shipping. Meyer Industries will not pay for any professional packaging.

Refunds:

Meyer Industries considers all sales final with the exceptions of those outlined in the limited warranty material. Meyer Industries allows its customers to use the Rodenator Pro risk free for the first thirty (30) days. Meyer Industries must be contacted by phone if the customer wishes to return the unit during the first thirty (30) days.

If during the first 30 days, the customer experiences application or mechanical issues, the customer must call Meyer Industries to receive technical assistance if a refund is to be granted after the first 30 days from purchase. Technical support will provide the customer with a Return Merchandise Authorization Number (RMA) to ship the unit back for a refund Meyer Industries will not provide a refund on any return that does not include a valid RMA number.

Meyer Industries will send a refund check upon receipt and inspection of the returned unit and will deduct a fee based on the condition of the unit. Shipping and handling costs will also be deducted.

All sales are considered final and complete after sixty (60) days from the date of purchase.

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WARRANTY REGISTRATION

Important: To receive service and support from Meyer Industries, fill in and return this card within 30 days of purchase. By signing this warranty, the customer acknowledges that they have **read and fully understand** all of the instructions in the 64 page Operators Manual titled "The Rodenator Pro™ Operators Manual"

Registration may be completed in one of two ways:

- 1) by faxing this completed form to Meyer Industries
- 2) by mailing this form directly to Meyer Industries

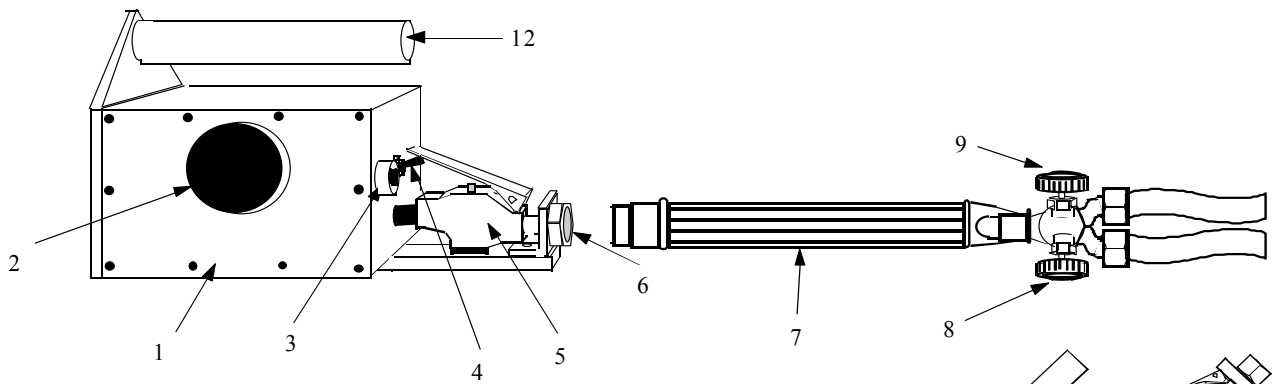
Date of Purchase: _____ Place of purchase _____ Rodenator Pro™ Serial # _____
(located on applicator canister)

Name/Company/Organization: _____

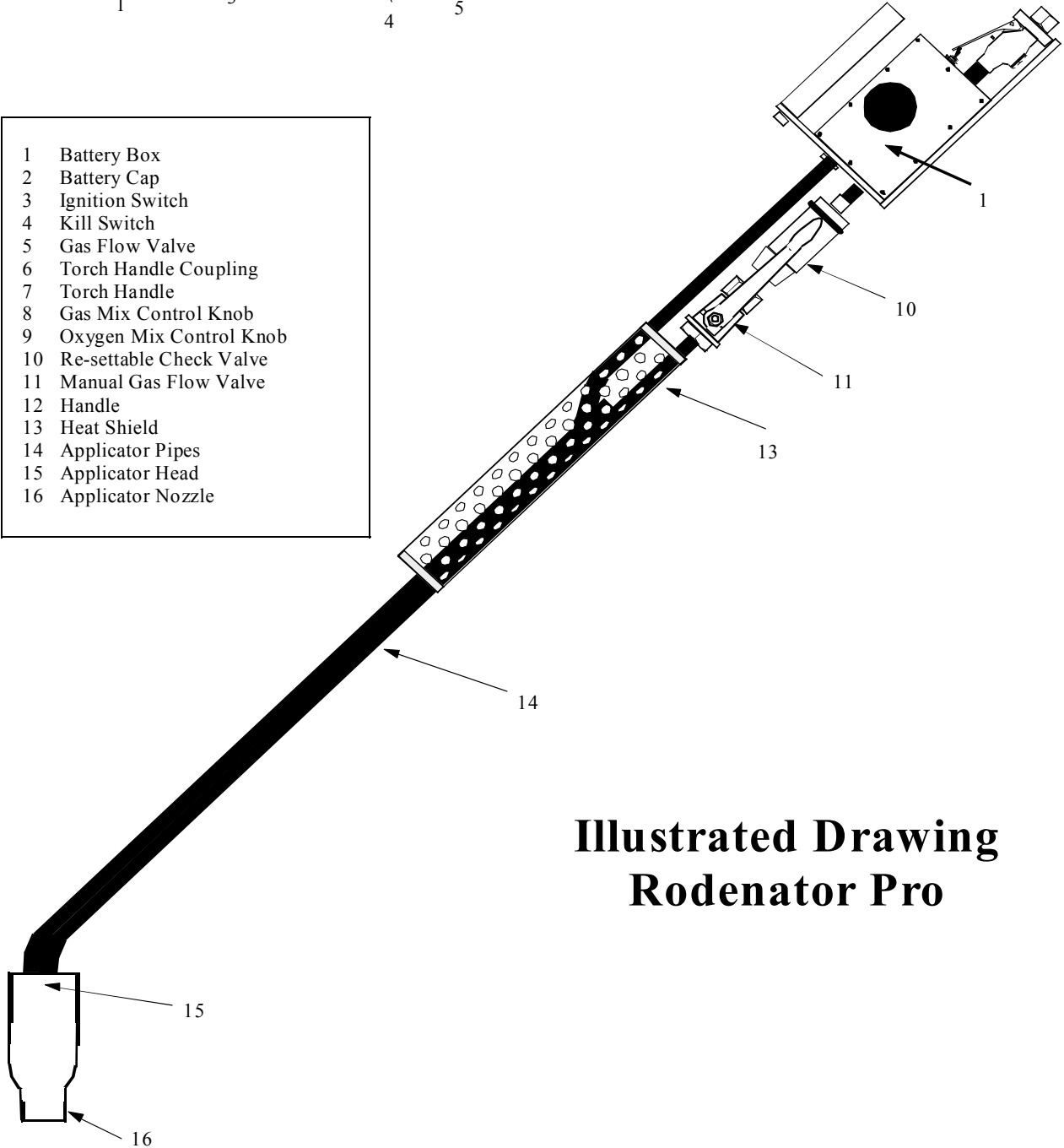
Mailing address: _____ City: _____ State: _____ Zip: _____

Shipping address: _____ City: _____ State: _____ Zip: _____

Contact Person: _____ Daytime phone:(____) _____ E-mail _____



- | | |
|----|-------------------------|
| 1 | Battery Box |
| 2 | Battery Cap |
| 3 | Ignition Switch |
| 4 | Kill Switch |
| 5 | Gas Flow Valve |
| 6 | Torch Handle Coupling |
| 7 | Torch Handle |
| 8 | Gas Mix Control Knob |
| 9 | Oxygen Mix Control Knob |
| 10 | Re-settable Check Valve |
| 11 | Manual Gas Flow Valve |
| 12 | Handle |
| 13 | Heat Shield |
| 14 | Applicator Pipes |
| 15 | Applicator Head |
| 16 | Applicator Nozzle |



Illustrated Drawing Rodenator Pro

ONE CALL LOCATE CONTACT INFORMATION

Effective April 2007, One Call Locate can be contacted by dialing “811” on any landline based telephone. In most states, this service is now available.

The following list is provided where “811” service is not yet available:

Alabama

Alabama One Call

(800) 292-8525 or (205) 252-4444

Alaska

Locate Call Center of Alaska, Inc.

(800) 478-3121 or (907) 278-3121

Arizona

Arizona Blue Stake, Inc.

(800) 782-5348 or (602) 263-1100

Arkansas

Arkansas One Call System, Inc.

(800) 482-8998 or (501) 336-8998

California

Underground Service Alert North

(800) 227-2600 or (800) 422-4133

Colorado

Utility Notification Center of Colorado

(800) 922-1987 or (800) 833-9417

Connecticut

Call Before You Dig

(800) 922-4455 or (203) 281-5435

Delaware

Miss Utility of Delmarva

(800) 282-8555 or (800) 441-8355

Florida

Sunshine State One Call of Florida, Inc.

(800) 432-4770

Georgia

Utilities Protection Center, Inc.

(800) 282-7411 or (770) 623-4344

Hawaii

Underground Service Alert North

(800) 227-2600

Idaho

Dig Line

(800) 342-1585 or (208) 342-1585

Palouse Empire Underground Coordinating Council

(800) 822-1974

Pass Word

(800) 428-4950 or (208) 667-7491

Utilities Underground Location Center

(800) 424-5555

One Call Concepts - Idaho

(800) 626-4950 or (800) 822-1974

Shoshone County One Call

(800) 398-3285 or (208) 667-7491

Illinois

Julie, Inc.

(800) 892-0123

Chicago: Digger

(312) 744-7000

Indiana

Indiana Underground Plant Protection Service, Inc.

(800) 382-5544 or (317) 842-8378

Iowa

Underground Plant Location Service, Inc.

(800) 292-8989 or (319) 322-2400

Kansas

Kansas One Call Center

(800) DIG-SAFE or (316) 687-2470

Kentucky

Kentucky Underground Protection, Inc.

(800) 752-6007 or (502) 266-5677

Louisiana

Louisiana One Call System, Inc.

(800) 272-3020

Maine

Dig Safe System, Inc. - Maine

(888) 344-7233 or (781) 721-0990

Maryland

Miss Utility of Delmarva

(800) 282-8555 or (800) 441-8355

Miss Utility

(800) 257-7777

Massachusetts

Dig Safe System, Inc. - Massachusetts

(888) 344-7233 or (781) 721-0990

Michigan

Miss Dig System, Inc.

(800) 482-7171 or (248) 647-7344

Minnesota

Gopher State One Call

(800) 252-1166 or (651) 454-0002

Mississippi

Mississippi One Call System, Inc.

(800) 227-6477 or (601) 362-4374

Missouri

Missouri One Call System, Inc.

(800) 344-7483 or (412) 415-5058

Montana

Utilities Underground Location Center

(800) 424-5555 or (800) 551-8344

Montana One Call

(800) 551-8344

Nebraska

Diggers Hotline of Nebraska

(800) 331-5666 or (402) 344-3565

Nevada

Underground Service Alert North

(800) 227-2600

New Hampshire

Dig Safe System, Inc. - New Hampshire

(888) 344-7233 or (781) 721-0990

New Jersey

New Jersey One Call

(800) 272-1000 or (732) 394-3000

New Mexico

New Mexico One Call System, Inc.

(800) 321-ALERT or (505) 260-1990

Las Cruces-Dona Ana Utility Council

(888) 526-0400 or (505) 526-0400

New York

Dig Safely New York, Inc.

1-800-962-7962

New York City - Long Island One Call Center

(800) 272-4480

North Carolina

North Carolina One-Call Center

(800) 632-4949 or (336) 855-7799

North Dakota

North Dakota One Call

(800) 795-0555

Ohio

Ohio Utilities Protection Service

(800) 362-2764

Oil and Gas Producers Underground Protection Service

(800) 925-0988

Oklahoma

Call Okie

(800) 522-6543 or (800) 654-8249

Oregon

Oregon Utility Notification Center

(800) 332-2344 or (503) 246-6699

Pennsylvania

Pennsylvania One Call System, Inc.

(800) 242-1776 or (412) 464-7100

Rhode Island

Dig Safe - Rhode Island

(888) 344-7233 or (781) 721-0990

South Carolina

Palmetto Utility Protection Service

(800) 922-0983 or (803) 939-1117

South Dakota

South Dakota One Call

(800) 781-7474 or (412) 415-5000

Tennessee

Tennessee One Call System

(800) 351-1111 or (615) 367-1111

Texas

Lone Star Notification Center

(800) 669-8344 or (713) 223-4567

Texas Excavation Safety System

(800) 344-8377

Texas One Call System

(800) 245-4545 or (412) 415-5000

Utah

Blue Stakes of Utah Utility Notification Center, Inc.

(800) 662-4111 or (801) 208-2100

Vermont

Dig Safe - Vermont

(888) 344-7233 or (781) 721-0990

Virginia

Miss Utility of Virginia

(800) 552-7001

Washington

Washington Call Before You Dig

(800) 424-5555

Washington, District of Columbia

Miss Utility

(800) 257-7777

West Virginia

Miss Utility of West Virginia

(800) 245-4848 or (412) 415-5065

Wisconsin

Diggers Hotline

(800) 242-8511 or (414) 259-0676

Wyoming

Wyoming One-Call

(800) 348-1030

Call Before You Dig of Wyoming

(800) 849-2476 or (307) 266-5661

Australia

Australian Dial Before You Dig

1100

Canada

Alberta: Alberta One-Call Location Corporation

(800) 242-3447 or (403) 531-3700

British Columbia: BC One Call

(800) 474-6886 or (604) 257-1940

Ontario: Ontario One Call Ltd.

(800) 400-2255

Quebec: Info-Excavation

(800) 663-9228 or (514) 286-9228

Saskatchewan: Sask 1st Call

866-828-4888



Custom Certification Services, Inc.
5268 RD 99
Dalton, NE 69131-8213
308-377-2272

ORGANIC INPUT VERIFICATION

Issued to: Meyers Industries
PO Box 39
Midvale, ID 83645-0039
USA

Certificate Number: CCS-0030112005

Custom Certification Services has reviewed the process for Rodenator Pro manufactured by Meyer Industries and found that this process is in compliance with the regulations dictated by the following organic programs:

- X The United States National Organic Program (NOP)**
- X International Standards accredited by the International Federation of Organic Agriculture Movements (IFOAM)**
- X Japan Agricultural Standards (JAS)**
- X Conseil Des Appellations Agroalimentaires Du Québec (CAAQ)**
- X Council Regulations (EEC) EU 2092/91 (EU)**

The verification of this process does not guarantee the quality. It only confirms that the use of this product can be considered as acceptable within the requirements of the above named regulations.

Date: 11/03/2005

Expiration of Certificate

Signed: Marva D Hoet

11/03/2006

A copy of the most current verification certificate may be provided by request or viewed on the web site at www.rodenator.com/certificate