PRO-PUMP®

A GREEN PRODUCT

OVER 17,000 SYSTEMS SAVED!

A Primer for Absorption System Flow Recovery Using

Bio-remediation

On-site Wastewater System Absorption Flow Recovery

Microbiology as a Tool for a Cleaner Environment

- *No Heavy Excavation*
- *No Permits Required (in most States)*
- *Proven Microbial Technology*
- *Documented Recovery Results (over 17,000 systems recovered)*
- *90-95% Effective in Absorption System Flow Recovery*
- *Long-lasting Recovery Effect*
- *Environmentally-friendly Method*
- *Low Man Hours and Equipment Time*
- *Enhances Overall On-site Wastewater Performance*
- *Beneficial to All Plant Life & Aquatic Environments*
- *Non-Toxic and Non-Pathogenic*

Instructions+

With Over 40 years experience in the field of industrial microbiology...

Solving Problems, Naturally!

Ecological Laboratories INC.

Testimonials

The companies listed below have successfully used ***PRO-PUMP®*** and ***PRO-PUMP® Bio-remediation Kits*** to recover failed on-site wastewater absorption Systems. Each has recovered from several systems, to over 1,000 failed absorption systems, and once flow has been restored, they report that these systems stay problem free for many years.

"I have found PRO-PUMP to be very effective in achieving absorption flow recovery. I have used this technology and method for a number of years, and now rely on bio-remediation and PRO-PUMP to resolve most of the absorption flow problems we encounter."

Tim Frank –Tim Frank Septic Tank Cleaning Co., Ohio *(Past President of NORWA, with over 40 years service in the Septic Industry)*

"We have used PRO-PUMP and bio-remediation processes to recover failed absorption systems for over nine years. Our recovery success rate is over 90%, and the systems we have treated and recovered have lasted for years following our process. We recommend Bio-remediation to most problem sites because it works and saves us and our customer's time and money."

Gary Sprauge - Koberline Septic, Pennsylvania *(35 years in the Septic & Wastewater Operations)*

"I use and recommend PRO-PUMP/Bio-remediation technology in the majority of problem systems. I have found the PRO-PUMP/Bio-remediation Kit and PRO-PUMP in general an effective tool (method) for system recovery. This process saves time, reduces cost and is well accepted by my customers."

Henry Whay - 1 Whay Sanitation, Virginia *(With over 40 years experience in the Septic Service Market)*

"I have used PRO-PUMP for many years, however from time to time I have tried them all and have always returned to PRO-PUMP because it really works in resolving problems in failing and fouled on site systems. I have used PRO-PUMP/HC to recover flow in hundreds of systems over the last several years. I recommend it to my customers because it works."

Duane Neitzey, A-Two Septic, Alaska *(With over 30 years experience in On-site Systems)*

"Our family has used PRO-PUMP for many years to resolve septic system problems. I have found PRO-PUMP/HC extremely effective in the recovery of failed on-site systems and have used it successfully on numerous systems in my area. I recommend its use to resolve the majority of system problems."

John Brehem –A Honey Dipper, Pennsylvania *(The Brehem family has over 40 years service in the Septic Industry)*

"We are a full septic supply company. We have sold PRO-PUMP for years and have over 14 Septic Service companies in Texas that use PRO-PUMP and the PRO-PUMP/Bio-remediation Kit to solve flow related problems. We can testify it worked better than 95% of the time."

Wayne Dolezal – Austin Septic Supply, Texas

"I have used PRO-PUMP for several years to achieve the recover of flow in hundreds of failed absorption systems. I use one gallon of PRO-PUMP/HC for each 100 feet of field, and have found PRO-PUMP/HC to be very effective."

Ron's Septic Tank & Drain Cleaning, Kentucky

About Our Kit

Absorption System Flow Recovery

You can rely on ***PRO-PUMP's*** high rate biological oxidation capability to recover flow in both commercial and residential on-site wastewater absorption systems. You may select a ***PRO-PUMP®/Bio-remediation Kit*** or ***Super Bio-remediation Kit***, which include ingredients that further enhance ***PRO-PUMP®/HC*** high rate degradation functions, and speed recovery of fouled absorption fields. The Kit combines select cultures with enhancement technology that rapidly breaks down and degrades the organic compounds that reduce absorption system flow.

Regular Bio-remediation Kit Contains:
2 gallons of PRO-PUMP®/HC
1 gallon of PRO-PUMP®/SA
2 lb. of PRO-PUMP®/OX

PRO-PUMP®/Bio-remediation Kits

Our ***PRO-PUMP®/Bio-remediation Kits*** are designed specifically to recover flow in fouled and ponding absorption fields. The products included in the kits are: ***PRO-PUMP®/HC*** (High Count) is a special mixture of select, live, vegetative bacteria that will break down and remove slow and difficult to degrade compounds, that often result in absorption field failure. It is designed to reduce BOD, COD, total suspended solids, treat phenolic wastes, biodegrade hydrogen sulfide, and other various pollutants. Over 90% of the bacteria contained in ***PRO-PUMP®/HC*** are facultative in nature and work aerobically and anaerobically. This bacteria is non-toxic, non-pathogenic and safe to people, animals and plants. It is capable of sustaining itself after packaging for a period exceeding 3 years. ***PRO-PUMP®/SA*** (Sludge Away) is a natural humus soil science product designed as a bio stimulant to speed the bio-remediation process working with ***PRO-PUMP®/HC*** in breaking down the Bio-Mat and other slow to dissolve solids found in a clogged drain field.

Pro/Pump®/OX (Powered Oxygenator) is a Calcium Peroxide/ Hydroxide mix used as an oxygen source for the bacteria and not released to the atmosphere like other peroxide products. It will enhance the aerobic activity of the bacteria where there is normally only anaerobic activity. ***Pro/Pump®/OX*** can accelerate the breakdown of accumulated organics, reduce odors, ponding, and turf discolorations. It is environmentally safe, purely natural and non toxic.

Each Super Bio-remediation Kit Contains:
4 gallons of PRO-PUMP®/HC • 1 gal. of PRO-PUMP®/SA
4 lb. of PRO-PUMP®/OX

Background

Background: Over 30 years ago when we developed ***PRO-PUMP®/HC*** we found this product improved many problems including failed drain fields. Next we added standard bio-remediation technology, developed over 70 years, along with our ***PRO-PUMP®/HC*** to create the ***PRO-PUMP®/Bio-remediation Kits***.

Difficult to Degrade Compounds

Absorption field flow capacity loss may be attributed to many factors that include high strength waste, excessive hydraulic loading, high tissue use, the presence of difficult to degrade compounds; such as fats, oils, greases, surfactants; as well as, the impact of sanitizers, medications and various cleaning compounds on soil microorganisms. These combined factors and chemical constituents contribute to a reduction in necessary soil microorganisms that greatly impacts the biological absorption purification cycles and contributes to the slow build up of organic matter within the absorption field.

The failure of many residential and commercial absorption systems are directly related to organic waste matter referred to as slow-to-degrade compounds. These slow-to-degrade compounds build-up in septic tanks and absorption fields due to the inability of the indigenous microbial population to degrade the compounds at the loading rate they are received in the wastewater system, i.e. organic loading vs biological organic removal.

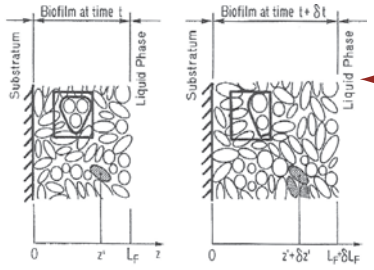
Bio Mat Formation

These slow-to-degrade organic compounds are most difficult for soil microorganisms to break down and degrade so they accumulate in septic tanks and within the bio film that develops naturally on and within the absorption field media. To compensate for this build up of organic matter, the bio film expands its polymer structural components to meet the organic loading rate. This results in the development of an expanded bio film termed an anaerobic bio-mat. Bio-mat development is caused by an increase in microbial polymer structural components that represent the assemblage of the bio film that is necessary to store these difficult to degrade organic compounds. These polymer reactions (assemblage) store the slow steady build up of waste organic matter within the bio film, resulting in absorption system flow capacity loss.

The rate of bio mat development and the degree of bio mat thickness is in direct proportion to overall microbial populations and their degradation function and capabilities. The inadequate microbial response to these slow-to-degrade compounds results in the accumulation (buildup) of slow-to-degrade organic compounds within the absorption field bio film.

Photos of Bio Mat Formation

Bio Film → *Advection of attached solid material is due to the expansion of biomass.*



Bio Film expanded with organic matter

**Reference: Bio Films Montana State University*

The absorption field media (gravel and other media material) functions as the primary site for biological bio film growth. The bio film provides a structure to achieve the process of microbial removal of collected organic waste matter. As the bio film collects more and more slow-to-degrade organic matter the oxygen up-take rate is increased to a point where aerobic capacity is exceeded (lost), and the field converts to anerobic respiration. The anerobic process being much slower in degradation rates, results in an increase in the amount of organic matter contained within the bio film. This collection process continues until absorption flow is lost due to excessive anerobic bio mat formation.

Bio mat growth reflects microbial capabilities and any reduction in necessary microbial population or activity within the bio film. This impacts bio film performance and leads to organic collection. These combined factors greatly impact bio film growth and field flow loss. This may be summarized as the inability of existing microorganisms to degrade some organic compounds fast enough to meet the organic loading rate to the absorption system. With this understanding, ***solving the problems biologically may not be as difficult as once believed.***

System Recovery

Using Bio-remediation Technology

System recovery by bio-remediation involves the addition of select microorganisms, nutrients and micronutrients to speed the biological degradation process and reduce the organic matter contained within the bio mat. This technology is well known, with over 70 years of documentation, and has been utilized extensively to resolve industrial related pollution problems in soil, ground water and contained waters. When bio-remediation techniques are properly applied, microbial remediation offers exceptional performance in the recovery of heavily fouled soil, drain fields and filter beds.

PRO-PUMP® cultures and the enhancement technologies provided in the ***PRO-PUMP®/Bio-remediation Kit*** are capable of the rapid break down and biological oxidation of the slow-to-degrade organic compounds contained within the expanded bio mat. These rapid biological oxidation reactions are performed under the anaerobic conditions that exist in the fouled absorption systems, resulting in an overall reduction and removal of organics within the fouled absorption systems.

The ***PRO-PUMP®*** recovery process is designed to effectively increase the rates of biological oxidation in the anaerobic environments that occurs as a result of oxygen depletion within the bio mat. The anerobic environment is due to the high levels of organic matter and the corresponding oxygen up-take rate, i.e. via microbial aerobic oxidation of waste solids in the bio mat.

Instructions+

System Recovery Using the PRO-PUMP®/Bio-remediation Kit

The use of ***PRO-PUMP®/HC*** and the ***PRO-PUMP®/Bio-Remediation Kit*** can result in improved system flow within as little as five days, to as long as 12 to 16 weeks. The variation in recovery time is based on system conditions, soil type, system design, organic loading to the system, bio mat thickness, temperature, ground water levels and the application procedure used.

Successful bio-remediation requires adequate review of the site to correct major system equipment problems, and to determine existing ground water level, the impact of water run off to the absorption area; as well as, the soil quality of the existing system.

To achieve effective remediation and recovery, some effluent flow to the on-site wastewater absorption field is necessary. In the event there is no flow to the absorption field, flow must first be improved by mechanical jetting or chemical reactions, such as the use of ***PRO-PUMP®/OX***. Line Jetting of the absorption systems lateral lines is recommended to assist in achieving adequate flow and culture distribution to the fouled absorption field; as well as, to remove trash and unwanted bio film material from the lines.

The following information addresses various on-site system problems, system types, and provides application suggestions and instructions.

The first sign of absorption system failure may be indicated by a high water level in the primary receiving tank (septic or aerobic). This indicates the first stage of absorption system failure as the high water level represents necessary hydraulic pressure to force effluent into the failing absorption field. To correct high water level problems in receiving on-site wastewater tanks, pump and clean the septic tank or aerobic system. Then add one gallon of ***PRO-PUMP®/HC*** to the septic tank or aerobic system. This should reduce the water level in one to three weeks. For problem systems that receive heavy organic loading or large volumes of wastewater add an additional quart each month for four months, then one quart of ***PRO-PUMP®/HC*** every six months. For failing or failed systems use the ***PRO-PUMP®/Bio-Remediation Kit***.

Instructions+

1. ***Pump & Clean:*** all tanks, pump pits and distribution/junction boxes. To assure flow to the absorption field, clean fields via mechanical cleaning, i.e. jet lines and vacuum waste from the field if possible.

2. ***Initial Treatment:*** Add entire kits contents equally to the distribution/ junction boxes. Mix each gallon with 3 to 5 gallons of water. Mix each pound of powered oxygenator with 3 to 5 gallons of water. Add one additional gallon of ***PRO-PUMP®/HC*** to the septic tank.

3. ***Follow Up Treatment:*** (Required for a totally failed drain field) After one week add one gallon of ***PRO-PUMP®/HC*** and one pound of ***PRO-PUMP®/OX*** with 3 to 5 gallons of water and apply equally to the distribution/junction boxes. Do this each week for three weeks after the initial treatment.

4. ***Maintenance Treatment:*** Add one quart to one gallon of ***PRO-PUMP®/HC*** to the septic tank annually or use the ***PRO-PUMP®/SS*** Septic Saver annual treatment kit. This will continue to protect the heart of a septic system, the drain field and assure the systems necessary biological activity remain at it's optimum all year long.

Additional Recommendations

1. ***Remove Excessive Water*** when cleaning the septic system. If you have a high pressure jetter, we recommend jetting and vacuuming the lines. This will remove trash, organic waste matter, and bio-film material, and will improve flow to the absorption area.

2. ***Cesspools & Seepage Pits:*** Pump and clean receiving septic tanks. If there is access to the cesspool or seepage pit, pump and power wash the sides, jet and vacuum the bottom of the pit. Add one kit to each pit. Wait one week and add one gallon of ***PRO-PUMP®/HC*** and two pounds of ***PRO-PUMP®/OX*** in 3 to 5 gallons of water a week for three additional weeks.

3. ***Sand Mound Recovery:*** Pump and clean the septic or aerobic system and the pump pit. Locate and uncover the sand mound lateral line ends. Remove the lateral line riser caps one at a time and flush the lines using the pump pit centrifugal pump. Following this jet each line to assure the lines are free of trash, bio-solids, and bio film material that may limit flow to the absorption area. Add one kit to the pump pit (following the instructions). Add one additional gallon of ***PRO-PUMP®/HC*** to the septic or aerobic system. Wait one week and add one gallon of ***PRO-PUMP®/HC*** and two pounds of ***PRO-PUMP®/OX*** each week for three weeks.

4. ***Totally Failed Systems:*** ***PRO-PUMP®/Bio-remediation Kit*** is designed to enhance absorption field flow recovery via microbial break down and removal of waste matter. For totally failed systems use one kit and four additional gallons of ***PRO-PUMP®/HC*** and three to six additional pounds of ***PRO-PUMP®/OX***.

5. ***Failed Commercial Septic Systems:*** call 800-326-7867 for specific project bio-remediation recommendations.

Maintenance

On-site wastewater systems rely on microorganisms to complete the recycling of waste matter and the water purification process. What goes down the drain and how you care for your on-site system does make a difference in its performance and its life span. A little thought and care can make a big difference in your system's performance and may eliminate costly repairs, or even system replacement.

- An on-site wastewater system should be inspected and serviced every three years, more frequently if problems are indicated by back-up, system odor, or wet spots. Always use ***PRO-PUMP®/HC*** after pumping to keep you system biological activity at optimum performance.
- Do not use your septic system for disposal of old chemicals, medication and detergents. Use good judgment in what goes down the drain as some material may result in system problems. Never dispose of old medication in your on-site-wastewater system.
- Limit the amount of grease, fats and oils going to your wastewater system. Use your garbage to get rid of excessive waste matter. Grease fats and oils are a major contributor to on-site system absorption failure. A few steps to the garbage can may save thousands in repairs.
- Check for leaking toilets and dripping faucets. There are 1,440 minutes in a day, and as little as a one to two gallon a minute toilet leak will result in 1,440 to 2,800 gallons of effluent going to your on-site-system each day. This will hydraulically overload your system resulting in costly system failure (most on-site systems are designed for 250 to 400 gallons of effluent daily).
- When you have your system serviced and pumped, ask your septic professional to inspect and check your tank water level, effluent baffle and overall system for performance. If there is an indication of system problems, he may be able to suggest action steps to correct on-site problems before it is too late.
- Use ***PRO-PUMP®/HC*** every six months to enhance your system's overall biological performance activity or ***PRO-PUMP®/SS*** Septic Saver Annual Maintenance Kit.

Step-by-Step

THE PRO-PUMP® BIO-REMEDIATION PROCESS OFFERS A SAFE NATURAL RECOVERY METHOD FOR A FAILING AND FOULED ON-SITE WASTEWATER SYSTEM.

The home owner will be extremely pleased with the cost of system recovery; as well as your ability to enhance and recover their on-site wastewater system without destroying their established landscape.

Bio-remediation may be completed in as little as a few hours (3 to 4 hours) with no heavy excavation, no permit requirements, no field media and no disposal of old contaminated waste field media material.

Following pumping and cleaning of all system tanks, jet and vacuum all absorption field lines.

System jetting will remove trash, line deposits, and bio films, and allow adequate distribution of the bio-remediation treatment to the absorption system.

Step-by-Step

Be sure to inspect all connecting junction box locations (level, repair and adjust distribution flow), then jet junction boxes and drop boxes (to achieve adequate flow and distribution of materials during remediation, and following the treatment process).

Following system preparation, prepare ***PRO-PUMP®*** ***Bio-remediation*** materials by pre-mixing each ***PRO-PUMP*** formulation with 3 to 5 gallons of tap water, then distribute equally to each of the system lines.

Blend each ***PRO-PUMP*** material with tap water prior to addition to the system.

Following dilution with tap water add the ***PRO-PUMP*** formulations directly to the absorption systems via the systems junction box.

Inspect and review the absorption field area for possible drainage problems and make sure the absorption field is secure from water run-off. If necessary construct a curtain drain to divert flow away from the absorption area.

On completion of the bio-remediation process, check the field grade and fill any low spots where the absorption filled lines run. This will eliminate unnecessary water collection above and within the absorption area. ***Your customers will love the technology, results and cost savings!***

The PRO-PUMP® Story

Our core technology is represented by our novel ***PRO-PUMP/HC®*** a unique microbial formulation that differs from other microbial products in design, fermentation, oxidation and overall system performance enhancement. Our unique process attacks the root cause of the problems and results in exceptional performance in low oxygen environments... the very same conditions that exist in on-site wastewater systems. Over the years our customers have come to value the ability of ***PRO-PUMP/HC®*** to resolve tough system problems and improve absorption flow even in failed systems.

To further enhance ***PRO-PUMP's*** ability to resolve flow-related problems, we developed the ***PRO-PUMP®/Bio-remediation Kit.*** Designed to speed the biological oxidation and recovery process, the kit incorporates select bacterial cultures, a bio-stimulant, and an oxygen source to accelerate biological reactions as well as information and application instructions (Pages 6-7).

This bio-remediation recovery capability is documented with over 17,000 reported system recoveries.

Here are some of the many septic professionals who actively use
PRO-PUMP® Products & PRO-PUMP® Super Bio-remediation Kits...

Drain Pro, AL • A-Two Septic, AK • Curtis Plumbing, AZ • A-1 Pumping, AR • North County Septic, CA • Modern Plumbing Supply, CA Advanced Septic, CA • Hammer Plumbing, CA • Gopher Construction, CA • Valley Drilling, CA • Art Edsberg Drilling, CA • Curt's Pumping, CA • Roto Rooter Ukiah, CA • Underground Solutions, CO • Evergreen Septic, CO • Stepule's Sanitation, CT • Shop on Wheels, DE • Arrow Sanitation DE • Crews Environmental, FL • All Florida Septic, FL • Big Bob's Sewer, FL • Coastal Septic, FL • Adams Septic, FL • All-Pro Plumbing, FL • Clean Earth Environmental, FL • Bowens Septic, GA • Universal Septic Tank, GA • Mighty Rooter Albany, GA • Akamai Pumping, HI • Luellen Brothers, IA • M&M Septic, IA • Welu Septic, IA • A-1 Plumbing, ID • AAA Sanitation, ID • Zeiters Septic, IL • Munson Excavation, IL • G&L Septic, IL • A&R Septic, IN • UR 1st Services, IN • A-1 Apche, KS • Hertal Tank, KS • A.E. Crawford, KY • Ron's Septic, KY • Joe's Septic, LA • Toney's Pumping, LA • L.W. Morgridge, ME • Jones Pump, MD • Roto Rooter, MD • C.L. Boswell Jr., MD • Essex Septic, MA • AAA Atlas, MA • Jeff Helgerson, MA • Town Sanitation, MA • Claude Dubord, MA • Williams Pumping, MI • Rapid Flush, MI Jim Kovalak, MI • Zeiters Septic, MI • Countryside Septic, MI • Flom Septic, MN • A-1 Excavating, MN • Danny Miller, MS • Burt Waste, MS All Weather Sewer, MO • JMF Services, MT • Sunnys Septic, MT • PT Construction, MT • Pollard Pumping, NE • Schlegelmilch Plumbing, NE • Herrin's Septic, NH • Soucy Sewer, NH • Septic Manager, NH • Neugent Construction, NJ • Lores Cesspool, NJ • David Zuidema, NJ All County Sewer, NJ • AAA Septic, NM • Pojoaque Septic, NM • Septic Solution, NY • Long Island Cesspool, NY • Fix Family Enterprises, NY • M&O Sanitation, NY • Swartout Septic, NY • Spagnoli Excavation, NY • Advanced Septic, NY • Bob Mule Excavation, NY • T.W. Ammons Septic, NC • Carolina Septic, NC • Tim Frank Septic, OH • Campbell Septic, OH • Winelco, OH • Savings Liquid Waste, OH • Whites Septic, OK • N.E.O. Septic, OK • Mike Hammer, OR • Middleton Septic, OR • Koberlein, PA • Gray Brothers, PA • Eric Bell Septic, PA • Devonshire Septic, PA • All American Septic, PA • Franc Septic, PA • A-Honey Dipper Septic, PA • Crawford Septic, PA • Steere Farm, RI • Electric Rooter Man, TN • Poyner Septic, TN • Watson Septic, TN • Jimmy Brittains Septic,TN • Austin Septic Supply, TX • Lenco Industrial, TX Leinneweber Plumbing, TX • Bill Sanchez Plumbing, TX • Hero Plumbing, UT • Dunton Plumbing, VT • Donald D. Dorr, VT • All Star Septic, VA Dominion Septic, VA • One Whay Sanitation, VA • Miller Septic, VA • Drain Doctor, WA • Bob's Septic, WA • Tee-Pee Septic, WA W S Treatment , WV • T.R. Davis , WV • Country Plumber, WI • Porta Potty Rental, WI • Goodwin Septic , WI • Big D Sanitation, WY

For technical assistance, you can count on **Doug Dent** and **Mark Krupka,** with over 40 years experience in the field of microbiology and wastewater operations.

PRO-PUMP® PRODUCTS ARE DISTRIBUTED ONLY THROUGH SEPTIC PROFESSIONALS

Solving Problems, Naturally!
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