

norweco[®]

BIO-PERC[®]

BIOLOGICAL REMEDIATION TABLETS

GENERAL SPECIFICATIONS

Bio-Perc biological remediation tablets shall improve the performance of new or failing wastewater treatment and disposal systems by naturally removing organic material. Bio-Perc tablets shall be engineered to dissolve slowly and evenly, providing a consistent dose of select bacteria regardless of variations in the hydraulic flow rate of the system. The tablets shall be 2⁵/₈" diameter, compressed to 1" thickness with an approximate weight of 5 oz. and incorporate beveled edges to insure consistent dosage. Liquid or powder bioaugmentation products do not provide consistent bacterial dosage during variable flow conditions and therefore shall not be considered for this application.

TABLET PROPERTIES AND USAGE

When used as directed, Bio-Perc tablets shall provide a long-term, flow proportional dose of select bacterial cultures that shall naturally digest organic material. As part of a general maintenance program, Bio-Perc tablets shall enhance the performance of aerobic or anaerobic wastewater treatment systems by reducing and eliminating organic solids. Bio-Perc tablets shall remediate failing sand filters or soil-based disposal systems, allowing the system to digest accumulated organic material and naturally recover its percolation capacity. The proprietary combination of sustained release agents, dissolve rate stabilizers, enzymes and bacterial cultures shall maintain a consistent application rate regardless of changes in flow, temperature, humidity, organic or hydraulic loading. Bio-Perc tablets shall be more effective than liquid or powder bacterial products and shall reduce long-term maintenance costs of an overloaded wastewater treatment or disposal system. Therefore, the use of other biological products or formulations shall not be considered for this application.

PRODUCT APPLICATION

The 2⁵/₈" diameter by 1" thick Bio-Perc tablets shall accelerate the digestion process that naturally occurs in wastewater disposal systems and shall extend the useful life of any biological treatment process. Bio-Perc tablets shall maintain a consistent application rate at intermittent peak flow factors as high as four and shall provide reliable dosage even when the significant runoff period is six hours. Bio-Perc tablets shall be considered non-hazardous under U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (USEPA), RCRA, CERCLA and SARA Title III listings. The following is a list of some common applications where Bio-Perc tablets may be utilized: septic tanks, leach fields, surface sand filters, subsurface sand filters, sand trenches, aerobic treatment systems, anaerobic treatment systems, cesspools, mounds, low pressure distribution systems, evapotranspiration beds, constructed wetlands, septic tank effluent pump (STEP) systems and any other system prone to failure from the buildup of organic material.

DESIGN DATA

Tablet Size	2 ⁵ / ₈ " diameter, 1" thick	Inert Ingredients	Dissolve Rate Stabilizers
Approximate Tablet Weight	5 oz. (140 grams)	U.S. DOT Hazard Class	Non-hazardous
Active Ingredient	Select Bacterial Cultures	Appearance Characteristics	Bronze Tablet with Mild Odor
Active Ingredient Content	220 Billion/Pound	Special Design Features	Beveled Edges

SPECIAL INSTRUCTIONS

Read the entire product container label, the Material Safety Data Sheet and the Bio-Perc Safety and Tablet Properties and Usage instructions before handling or use. Always wear rubber gloves and either safety goggles or a face shield when handling Bio-Perc tablets or working with a tablet feeder or feed tube. Refer to tablet feeder manufacturer's instructions to determine the correct number of tubes to fill with tablets. Store Bio-Perc tablets only in their tightly sealed original container. Do not store in direct sunlight or areas where temperature may exceed 140° F. Contact with oil, petroleum products or oxidizing agents, such as Bio-Sanitizer tablets, Blue Crystal tablets or any tablet used for chlorination, is extremely dangerous. Do not mix with swimming pool chemicals. Strong acids or alkali compounds may inactivate biological cultures or cause adverse chemical reactions. Store in a cool, dry, well-ventilated area. Exposure of immunocompromised individuals to this biological product is not recommended and should be avoided. To prevent moisture contamination, exercise care when removing tablets from the container or filling feed tubes. Avoid contact with skin, eyes, mouth, respiratory system or clothing.

PRODUCT STORAGE

Bio-Perc biological remediation tablets contain spore-forming microorganisms and dissolve rate stabilizers. Tablets should be stored in a cool, dry, well-ventilated area, away from heat or flame. Avoid storage in areas subject to direct sunlight or temperature in excess of 140° F. Stock should be rotated on a first-in, first-out basis. Bio-Perc tablets must be stored in their original container with the lid tightly closed. Do not allow moisture to enter the pail during storage or while removing tablets for use. Moisture contamination may affect tablet integrity and performance. Do not reuse the empty container.

SAFETY INSTRUCTIONS

Before handling Bio-Perc tablets, carefully read the container label and the Product Storage, Tablet Handling, Caution and First Aid sections of these instructions. Do not add Bio-Perc tablets to a feed tube containing any other product, particularly oil and petroleum products or swimming pool chlorine. Such action may cause a violent reaction leading to fire or explosion. Do not contaminate food or feed during the use, storage or disposal of Bio-Perc tablets or the cleaning of chemical feed equipment. Always wear rubber gloves and either safety goggles or a face shield when handling Bio-Perc tablets or working with any tablet feeder or feed tube. Avoid contact with skin, eyes, mouth, respiratory system or clothing. Keep this product only in its tightly closed original container. Store only in a cool, dry, well-ventilated area.

TABLET HANDLING

Use only clean, dry utensils. Do not add tablets to any device containing remnants of any other product – contact with oxidizers, such as Bio-Sanitizer tablets, Blue Crystal tablets or any other tablets used for chlorination may cause a hazardous chemical reaction. Read the entire Bio-Perc tablet container label and these instructions carefully before handling this product. Use only in well-ventilated areas. Bio-Perc tablets are not rated a hazardous substance by the USDOT or USEPA, but necessary care should be taken in the use and handling of the tablets. Collected material can be dissolved in water, exercising caution, as the solution can get hot. Dispose of dissolved material in any appropriate industrial waste collection system. Consult local, state and federal regulatory agencies before disposing of any material.

FEED TUBE LOADING INSTRUCTIONS

1. Remove feed tube from dispenser housing.
2. Remove protective cap from feed tube; place cap in a clean, dry area.
3. Remove any tablet residue by gently tapping feed tube on concrete or stone surface. If tablets other than Bio-Perc have been used, rinse tube and cap with fresh water until clean and allow to dry before proceeding.
4. Hold tube, slotted end up, at a 45° angle and slide Bio-Perc tablets into the tube, one tablet at a time.
5. Insure that all tablets lie flat, on top of one another, in the feed tube.
6. Use your gloved hand to retain tablets inside the open end of the inverted tube while filling.
7. Carefully return tube to upright position.
8. Replace the cap securely.
9. Place tube back into housing, slotted end down.
10. Be sure feed tube is fully engaged and rests evenly on the floor of the housing.
11. If the tablet feeder incorporates multiple feed tubes, consult the manufacturer's instructions to determine the correct number of tubes to be filled and their placement.



CAUTION

Do not mix Bio-Perc tablets with acids or oxidizing agents such as Bio-Sanitizer tablets, Blue Crystal tablets or other tablets used for chlorination – fire or explosion could result. Keep out of the reach of children. Avoid contact with skin, eyes, mouth, respiratory system or clothing – failure to do so may cause irritation on contact. Wear rubber gloves and either safety goggles or a face shield when handling this product. Avoid breathing tablet dust. Wash contaminated clothing before reuse. Inert ingredients could support combustion at elevated temperatures. Use self-contained breathing apparatus for fire fighting.

FIRST AID INSTRUCTIONS

If contact with skin occurs, remove clothing and wash with water for 15-20 minutes. If irritation develops, seek medical attention. If eye contact occurs, hold eye open and flush with water for at least 15 minutes. Get immediate medical treatment. If swallowed, promptly drink large quantities of water or milk. Induce vomiting. Avoid alcohol. Call physician immediately. If inhaled, move victim to fresh air. If difficulty in breathing persists, get immediate medical attention. In case of fire, immediately evacuate the area and notify the fire department.

MATERIAL SAFETY DATA SHEET

BIO-PERC® BIOLOGICAL REMEDIATION TABLETS

EMERGENCY TELEPHONE: (800) 424-9300

DATE PREPARED: JANUARY 2006

NOTE: THIS PRODUCT IS NOT RATED A HAZARDOUS MATERIAL BY THE U.S. DEPARTMENT OF TRANSPORTATION OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY. THE FOLLOWING DATA IS FOR INFORMATIONAL PURPOSES ONLY.

I. PRODUCT IDENTIFICATION

TRADE NAME	Bio-Perc®
CHEMICAL	Bacterial Formulation
CHEMICAL ABSTRACT SYSTEM NO.	Not Applicable
CHEMICAL DESCRIPTION	Not Applicable
FORMULA	Compound Product
U.S. DOT SHIPPING NAME	Non-hazardous tablets, Item NM20400
U.S. DOT HAZARD CLASS	Non-hazardous

II. INGREDIENTS

HAZARDOUS INGREDIENTS	None
NON-HAZARDOUS INGREDIENTS	Viable non-pathogenic bacterial cultures Dissolve rate stabilizers

III. PHYSICAL DATA

BOILING POINT AT 760 mm Hg	Decomposes at 200° C
FREEZING/MELTING POINT	Not Applicable
SOLUBILITY IN H ₂ O; % BY WEIGHT	15% @ 20° C
SPECIFIC GRAVITY OF TABLET	2.00 (H ₂ O=1)
APPROXIMATE TABLET DENSITY	125 lbs./ft ³
pH OF SOLUTION	Alkaline
VOLUME % VOLATILE	Not Applicable
APPEARANCE AND ODOR	Bronze Tablet with Mild Odor

IV. FIRE AND EXPLOSION DATA

FLASH POINT	Not Applicable
FLAMMABLE LIMITS IN AIR	Not Applicable
EXTINGUISHING MEDIA	Use extinguishing media appropriate for burning material. Compatible with water fog, spray foam or CO ₂ .
SPECIAL FIRE FIGHTING PROCEDURES	NIOSH - Approved, positive pressure, self-contained breathing apparatus with full face piece.
UNUSUAL FIRE & EXPLOSION HAZARD	Inert ingredients could support combustion by burning, yielding carbon dioxide and water.

V. HEALTH HAZARD DATA

<u>ACUTE TOXICITY DATA (ANIMAL)</u>	
LC 50 INHALATION	Limited toxicity-see effects of overexposure
LD 50 ORAL	Limited toxicity-see effects of overexposure
LD 50 DERMAL	Limited toxicity-see effects of overexposure
LC 50 AQUATIC	Limited toxicity
<u>CHRONIC TOXICITY</u>	May cause allergic reactions in sensitive individuals. Avoid prolonged contact. Contact with lime dust and moisture will produce Sodium Hydroxide, which is toxic, corrosive, and hazardous.

VI. EFFECTS OF OVEREXPOSURE

<u>PERMISSIBLE</u>	No permissible exposure limits have been established by OSHA.
<u>ACUTE</u>	
INHALATION	Inhalation of product dust or solution may cause respiratory tract irritation.
EYE	Dust or solution may burn eyes on contact.
SKIN	Product dust or solution may result in skin irritation upon prolonged contact.
INGESTION	Ingestion may irritate gastrointestinal tract. Toxic if taken in large doses.

VII. EMERGENCY AND FIRST AID PROCEDURES

<u>INHALATION</u>	Remove to fresh air. If not breathing, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
<u>EYE CONTACT</u>	Immediately flush with large amounts of water for fifteen (15) minutes, rinsing eye thoroughly. Get medical attention.
<u>SKIN CONTACT</u>	Wash with plenty of soap and water for fifteen (15) minutes. Remove contaminated clothing. If skin irritation occurs, get medical attention. Wash clothing before reuse.
<u>INGESTION</u>	If <u>conscious</u> , drink large quantities of water or milk and induce vomiting. Call a physician immediately. Avoid alcohol. If <u>unconscious</u> , or in convulsions, seek medical attention immediately. Do not induce vomiting or give anything by mouth to an unconscious person.

VIII. STEPS FOR MATERIAL SPILL

Spills exceeding 100 pounds should be reported to the local authorities.

1. Contain all spilled material, wearing appropriate protective equipment.
2. Place spilled material in clean, dry containers for disposal. Do not flush to surface water.

WASTE DISPOSAL METHOD

Not rated a hazardous substance by USEPA. Collected material can be dissolved in water, exercising caution. Dissolved material may be discharged into an appropriate industrial waste collection system but consult local, state, and federal regulating agencies before disposing of any material. Contact with acids will release carbon dioxide gas. Material mixed with lime dust and water will produce corrosive Sodium Hydroxide (caustic soda).

IX. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	If dusty conditions are encountered, use NIOSH approved respirator with acid gas cartridge and dust pre-filter.
VENTILATION	Store and use in a well-ventilated area.
EYE PROTECTION	Chemical safety goggles.
GLOVES	Natural or synthetic rubber.
OTHER PROTECTIVE EQUIPMENT	Boots, aprons, or chemical suits as required to prevent skin contact.

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ADDITIONAL CHEMICAL PRODUCTS FROM NORWECO

BIO-DYNAMIC® TABLET FEEDERS

Bio-Dynamic tablet feeders are a technological advancement in self-contained dry chemical dosing systems for the treatment of water or wastewater. A low cost, low maintenance and extremely effective method of chemical treatment, Bio-Dynamic feeders



have no mechanical components and require no electricity. The safety, accuracy and reliability provided by Bio-Dynamic feeders outperform gas, liquid and ultraviolet systems. With fourteen different models, Bio-Dynamic feeders have multiple installation options that provide maximum flexibility, including direct burial, in-line and contact chamber mounting. Riser assemblies are available to eliminate the need for a manhole or separate enclosure during direct burial installations. Fully serviceable from finished grade, riser assemblies eliminate the need for confined space entry equipment required by OSHA regulations. Direct burial models include trim lines that allow height adjustment on site for each installation. Molded inlet and outlet hubs allow the Bio-Dynamic feeder to be directly connected to treatment system piping without the need for a separate drop box. The tiered flow deck of the Bio-Dynamic feeder accommodates variable, intermittent and surge hydraulic flows into the system. The flow deck directs liquid to the feed tubes during low flows and disperses liquid velocity throughout the feeder during peak flows, resulting in consistent chemical application. Chemical dosage is further controlled by interchangeable weir plates or an optional sluice that can be completely adjusted from a 1" to 3" outlet width. The sluice can be adjusted during tablet feeder operation using only a standard socket wrench with extension. All models are

backed by a ten year limited warranty. Standard components include one-piece feed tubes with twist lock caps, adjustable inlet baffle, molded inlet and outlet hubs, molded mounting feet and interchangeable outlet weir plates.

BLUE CRYSTAL® RESIDENTIAL DISINFECTING TABLETS

Blue Crystal tablets are the first disinfectant that has been specifically developed for use in residential wastewater treatment applications. Formulated to maintain positive disinfection during the low, sustained, variable and intermittent flow rates that are common to residential systems, Blue Crystal tablets reduce 99% of bacteria within the first ten minutes of contact. Containing a minimum of 70% available chlorine, Blue Crystal tablets are registered by the U.S. Environmental Protection Agency for wastewater treatment. Produced with a proprietary beveled edge design, Blue Crystal tablets dissolve in direct proportion to the incoming hydraulic flow rate, providing effective, economical bacteria killing power. Blue Crystal residential disinfecting tablets are packaged in easy to open, resealable 10 lb. and 100 lb. Department of Transportation approved containers.

BIO-NEUTRALIZER® DECHLORINATION TABLETS

Bio-Neutralizer dechlorination tablets are formulated to effectively remove free and combined chlorine from water or wastewater treatment system flows. Containing 35% active sodium sulfite, Bio-Neutralizer tablets will reduce or remove chlorine and protect water quality without degrading environmental conditions. Research shows that higher concentrations of sodium sulfite will reduce beneficial dissolved oxygen in receiving environments, producing harmful effects on the ecosystem. The superior formulation of Bio-Neutralizer dechlorination tablets provides consistent reduction or elimination of residual chlorine without affecting water quality, dissolved oxygen or other discharge parameters. Bio-Neutralizer tablets are packaged in easy to open, resealable 25 lb. and 45 lb. Department of Transportation approved containers.

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*Engineering the future of water
and wastewater treatment*

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