



# Residential and Commercial Application Manual

©2011Bioredex International Inc. All Rights Reserved.



## Table of Contents

Overview – What is Bio-Clean and How Does it Work? .....	3
Residential Applications .....	4
Home Drains – Initial Treatment & Maintenance Program .....	5
Garbage Disposal Odors.....	5
Septic Tanks, Cesspools.....	5
Cat Box Odors, RVs, Boats, Outhouses	
Commercial Applications.....	8
Restaurants and Commercial Kitchens – Optimizing the Environment.....	8
Grease Traps.....	9
Drains and Fixtures.....	10
Commercial Dishwashers.....	11
Special Applications – Fast Food Restaurants, 24-Hour Restaurants, Grocery Stores, Bars, Multi-story Buildings, Sewage Ejectors and Sump Pumps, Mortuaries, Urinals, Outhouses, Motor Homes & Boats, Animal Waste, Schools, Veterinary Clinics, Hospitals, Residential Lagoons, Treatment for Broken Pipes and Sewage Spills.....	12
Septic Tanks and Cesspools, Absorption Fields .....	16
Is Bio-Clean the Best Product of Its Type?.....	17
Competitive Effectiveness Test Chart .....	18
Material Safety Data Sheet (MSDS).....	19

### **What is Bio-Clean®**

Bio-Clean is a special combination of natural bacteria (non-pathogenic) that DIGESTS and liquefies (turns to water) dead organic waste – i.e. fats, oil, grease (FOG), hair, paper, food particles, cotton, blood, etc.

Bio-Clean will not digest or have any effect on inorganic material such as metal or plastic pipe. The bacteria in Bio-Clean do not produce any heat, fumes, or corrosive action like chemicals do.

### **How Does Bio-Clean Work?**

Bio-Clean is distributed as a dry powder. Within 30 minutes after the bacteria has been mixed in room temperature water, they become activated and begin feeding upon a special food which is contained in the formula.

After the first hour, the bacteria will have doubled in number. The bacteria will then begin to digest the dead organic waste that is accumulated in the pipes and grease traps. The bacteria will defy gravity by embedding themselves into the waste, resembling a honeycomb in structure.

The bacteria will clean the whole pipe (top, sides, and bottom) because they are embedded in the waste and they will continue to multiply and travel through the waste until the waste is fully digested. When all of the organic waste is gone, the bacteria will then cannibalize itself until they die from lack of food.

### **The Anti-Gravity Effect**

Gravity causes chemicals along the bottom of a clogged pipe. Thus chemicals cannot clean the whole pipe. Chemicals only burn a hole in the waste at the bottom of the pipe that the chemical comes into contact with. Once the initial reaction of the chemical is over it will run out of the pipe and into the environment creating more pollution.

### **Need for Additional Applications**

Bio-Clean is applied in repeat applications and regularly for these reasons:

- Bacteria age and die
- A certain amount of bacteria is carried off as waste falls from the pipe
- Waste continues to build up over time
- Compliance with anti-pollution laws (where applicable)

## RESIDENTIAL APPLICATION OF BIO-CLEAN

The 2-pound standard jar of Bio-Clean comes with a complete set of instructions as well as a one tablespoon plastic measure scoop.

### Initial Treatment

For best results you will want to “purge” the system. Treat drains at some time when Bio-Clean will have 6-8 hours to work undisturbed, overnight, for example, or in the morning when everyone is leaving the house for the day. You purge the system by applying Bio-Clean to EACH drain for 5 consecutive days. For most drains, mix one tablespoon (15 milliliters) with one pint (.5 liters) of warm water (NEVER hot). If possible, let it stand for 45 minutes before pouring it into the drain.

Alternatively, you can simply pour 1 tablespoon of Bio-Clean into the drain and follow with approximately 1 pint of warm water. The first method is the preferred way, but either will work. For drains 2 inches (5 centimeters) or larger, use 1 tablespoon per inch of pipe diameter. For example, a 4-inch pipe would get 4 tablespoons mixed with 4 pints of water. After completing this purge program, you will apply a **maintenance treatment** of Bio-Clean once a month under normal conditions.

Here are some tips for best results:

- 1) Hair build-ups in great quantities in bathtubs and lavatories. Remove as much of it as you can manually before treatment. Otherwise, daily treatments for 30 to 60 days may be necessary because hair decomposes very slowly. This is still better than replacing the pipes.
- 2) Bio-Clean will not digest inorganic materials such as those made from metal or plastic found in common bathroom objects such as bath toys, combs, toothbrushes, etc. If flow does not improve after recommended treatment, the cause is probably inorganic. Remove the obstruction manually and continue treatment with Bio-Clean.
- 3) You can mix up enough Bio-Clean at once in a bucket to apply to all drains, but remember that the mixture must be used within about 60 minutes – it cannot be stored in solution. Once the bacteria are activated by water, they must have waste to act on or they will digest themselves and die.
- 4) After the initial period of daily application, it is recommended to apply Bio-Clean as drain cleaner on a monthly basis. This will also help keep septic tanks and fields healthier. The recommended application is one tablespoon per month in bath and shower, kitchen sink, lavatory sink, toilet, laundry, and dishwasher. Floor drains should be given 2 tablespoons per month.

### ADDITIONAL NOTES:

- Never use other drain products while using Bio-Clean
- For homes on a septic system – treat septic BEFORE house drains
- On multi-story homes or buildings, start initial treatment on the lowest level and progress to the top. Complete the 5-day treatment before going to the next higher floor.

- Buildings with main sewer problems over 100 feet from the building need additional amounts according the length of sewer. For 200 feet double original dosage and water. Triple or 300 feet, etc.
- Drain pipe flow will improve within 1 to 3 weeks. During this time a stoppage may occur due to chunks of waste loosened. Use a plunger or cable to restore flow. Do not become discouraged – this means Bio-Clean is removing the build-up and with periodic treatment will prevent re-accumulation.
- Very hard water causes slime in reservoir tanks. Add 1 tablespoon as needed to eliminate slime. Do not flush for several hours.
- Mouthwash should be disposed of into toilet during treatment periods. If sink must be used, flush with large volume of water. (Mouthwash will kill the active bacteria in Bio-Clean.)
- Roots – Although Bio-Clean will not attack live tissue, its use will discourage root growth by eliminating waste buildup that the roots feed on. If roots are known to exist within the sewer pipes, enough root killer for the length of line should be used before trees start new growth in spring. Allow two weeks of use before re-starting the use of Bio-Clean.

## MAINTENANCE

Apply Bio-Clean once a month per the following chart:

Floor Drains	2 Tablespoons (30 milliliters)
All other drains	1 Tablespoon (15 milliliters)

Homes on a septic system having garbage disposal, dishwasher, or washing machine: one spoonful of Bio-Clean should be added each week to each of these drains.

## MOST ECONOMICAL METHOD:

Use ½ of the Bio-Clean called for. Mix with water at the ratio of ½ tablespoon per pint of lukewarm water. Let stand for 1 hour. Stir up and pour 1 quart of mixture into drain for each tablespoon called for. (Example: 4 tablespoons called for – mix 2 tablespoonfuls with 4 quarts of water) DO NOT LET MIXTURE STAND LONGER THAN 1 HOUR!

## GARBAGE DISPOSAL ODORS

Mix 1 tablespoon Bio-Clean with 1 pint water. Turn on disposal. Dump mixture in and quickly turn off disposal. Do not use for several hours. Repeat as needed.

## SEPTIC TANKS, CESSPOOLS

- Before using Bio-Clean check the solids on top of the waste. IF IT IS HARD, MEASURE IT. Pump the tank/cesspool if the crust is more thick six inches thick OR if the sludge build-up on the bottom is 12 inches or more. If there is a thin crust, break it up thoroughly and slosh initial treatment over the top.

- Wait 2-3 weeks after pumping before applying product.

INITIAL TREATMENT

Tank Size	Amt Bio-Clean	Water
500 gals.	1.0 lb.	2 gals.
750 gals.	1.5 lbs.	3 gals.
1000 gals.	2.0 lbs.	4 gals.
1250 gals.	2.5 lbs.	5 gals.
1500 gals.	3.0 lbs.	6 gals.

Cesspools: Double the amount of Bio-Clean

Stir up the mixture and pour directly into tank, cesspool or into a drain going into tank, cesspool or into a drain going into tank. Apply at a time when no water will be run for several hours, e.g. at bedtime.

- Biodegradable cleaners help your tank/cesspool work better.
- Conservative and occasional use of bowl cleaners and bleaches is compatible. Avoid using chlorinated dishwashing and laundry detergents. Do not use automatic bowl cleaners (the type the dispense with each flush.) Your system **depends on bacteria**. Killing them with chemicals will result in expensive pumping or even field replacement.
- Absorption fields which have water coming to the surface may require 3 months or so to fully restore percolation. The field can be restored faster if an amount of Bio-Clean equal to the initial tank treatment is mixed with twice the amount of water and poured in the distribution box.

MAINTENANCE

- Unlike other products you will not need periodic tank treatments provided the house drains are given initial treatments and weekly maintenance treatments.

IF YOU HAVE WELL WATER

Acid water is very detrimental to biological action and plumbing. You can prevent costly repair bills by contacting us if the pH of your water is below 7.0.

Nothing is more effective for biodegrading waste in septic systems than Bio-Clean. But no product can fix mechanical problems. We recommend Bio-Clean as part of a program of preventative maintenance which includes regular inspection of the tanks and baffles, and the proper use of water and drainage systems.

**CAT BOXES, RV'S, BOATS AND outhouses**

Cat litter boxes: After putting new litter in cat box, lightly cover entire surface area with dry Bio-Clean.

Motor Homes, Boats: After first use of facilities, sprinkle 1 tablespoon into the toilet. This should be sufficient until the toilet facilities are emptied. If an odor is noticed before dumping occurs, an additional 1 tablespoon may be used.

Outhouses: Mix 1 cup of Bio-Clean with 2 gallons of water. Use of a sprinkling can or sprayer set for coarse spray to distribute mixture over the waste. Since the microorganisms must have moisture to work, waste should be kept wet by spraying periodically with clear water. Then once a month mix 2 tablespoons of Bio-Clean in ½ gallon of water and distribute over the waste material.

**MONEY BACK WARRANTY**

BIO-CLEAN should be allowed sufficient time to perform and when used as per instructions is warranted to give customer satisfaction. All warranties are limited to the refund of the purchase price, by the dealer from whom it was purchased, upon presentation of the can with the unused portion of the product and proof of purchase.

## COMMERCIAL APPLICATIONS

### RESTAURANTS & COMMERCIAL KITCHENS

The use of Bio-Clean in commercial kitchens can substantially reduce the expense of pumping out grease traps. By eliminating backups, Bio-Clean also eliminates the risk of costly shutdowns, fines by city inspectors, and foul odors that may be detected by customers.

### OPTIMIZING CONDITIONS FOR TREATMENT

To obtain the maximum benefit from use of Bio-Clean in a commercial kitchen, it is helpful to understand the relationship of sanitizing chemicals, pH levels, and dishwasher temperatures.

### NEUTRALIZING SANITIZERS

All commercial kitchens use sanitizers to disinfect countertops, floors, cookware, dishes, and utensils. They work by **killing bacteria**, which obviously works against the effectiveness of Bio-Clean. Quaternary or bleach sanitizers are used for counters, utensils, cookware and floors. Sodium hypochlorite is usually used in dishwashers.

To neutralize sanitizers, we offer an exclusive product called **KONTROL** which when mixed with water brings pH levels into a range suitable for the Bio-Clean to work.

pH is a standard measure of acidity and alkalinity that runs on a scale from 0 to 14. 0-7 is acidic, 7 is neutral, and 7-14 is alkaline. Bio-Clean only works in a range from 6.5 to 8.0, with 7 as the ideal target. Therefore, it is important to measure pH levels of water entering the drains and get them to a level for optimal biological activity at the drain pipe and grease trap.

### DISHWASHER WATER TEMPERATURE

Commercial dishwashers come in 2 categories: 180° (F) and 140° (F). 180° dishwashers sanitize with the heat of the water. Using the higher heat is the **preferred** method, along with a bio-degradable, non-chlorinated detergent. Chlorine in detergent will kill friendly bacteria down line in the plumbing system.

140° dishwashers sanitize with chemicals, which again, will destroy the friendly bacteria down the line. So the **preferred method** for is to use a 180° dishwasher with **non-chlorinated, bio-degradable detergent**. This not only helps Bio-Clean to work effectively, it will dramatically reduce the consumption of chemical sanitizers and Kontrol for pH modification.

## GREASE TRAPS

### INITIAL TREATMENT

The single biggest source of expense and odors in food service operations is the **grease trap**. Bio-Clean can eliminate the odor, reduce the frequency of pumping and stop untimely drain blockages. It also provides **community benefit** by significantly reducing fat, oil, and grease deposits (FOG waste) into local sewer systems, a major concern for municipalities around the world.

If you are working with an **indoor grease trap**, remove the cover. If there is a 1-inch or more layer of grease on the top, it will have to be cleaned manually. Mix the recommended amounts of Bio-Clean and water and let it soak while you remove both the solids and water from the trap. Next, fill the tray with warm water. Stir the mixture and pour it directly into the trap.

If there is less than 1-inch of solids in the trap, check the pH. If the pH is between 6.5 and 7.5, pour in the initial treatment. If the pH is below 6.0, pour in a mixture of baking soda or Kontrol DISSOLVED in water, until the pH hits 7.0. Then add the Bio-Clean.

**Outdoor traps** will have to be pumped if the solids on top are 1-inch or more thick. Once the trap is cleaned, there is very little food or water for the bacteria. So wait one day after the trap has refilled before adding the initial treatment of Bio-Clean. If the solids are less than 1-inch thick in the grease trap, be sure the pH is in the 7 pH neutral range before applying the Bio-Clean.

### MAINTENANCE

Usually, the maintenance treatment of the drains connected to the grease trap will supply a regular dosage of Bio-Clean to the trap. However, sometimes there may be a drain from a dishwasher or other fixture that is not accessible to treatment. In this situation, you will need to apply the "Maintenance Dosage" of Kontrol and Bio-Clean into another drain connected to the grease trap.

Always check the pH in the grease trap once a week for the first month to make sure the pH is close to neutral. You will usually need to apply some Kontrol and Bio-Clean to the grease trap on a weekly basis. This can be done through a fixture connected to the grease trap. For instance slowly mix a gallon of warm water and Kontrol in the sink. Pull the plug to drain. Follow with the same mixing Bio-Clean with warm water and again pulling the plug. NEVER mix the two together! Kontrol is used first.

## **DRAINS AND FIXTURES**

Just as when treating grease traps, it is important to take into account the use of sanitizers and other substances finding their way into drains within specific locations. For example, **pickle juice** should only be poured in to drains not connected to the grease trap, because it has an acid pH of about 3.0 and will inactivate the Bio-Clean.

Mop bucket water should be dumped down the toilet to prevent the sanitizer from ending up in the grease trap.

### **INITIAL TREATMENT**

Begin the initial treatment for drains the day after you have treated the indoor grease trap or after pumping an outdoor trap. Drains should be assessed as to how much sanitizer is going into each one on a daily basis. These drains must be treated with Kontrol before being treated with Bio-Clean. Use one ounce of Kontrol for every ounce of sanitizer used.

For example, if they are using 4 ounces of sanitizer in the sink, you would use 4 ounces of Kontrol to neutralize it. Basically, it is a 1:1 ratio. When done sanitizing, simply add 4 ounces of Kontrol, stir slowly for a few seconds, and then pull the plug. They must do this every time before dumping the sink.

Remember, Bio-Clean should be applied at a time when it will have the longest time to work undisturbed. Treat each drain for 5 consecutive days. This initial treatment is done to purge the system. Use one tablespoon per pint of water except for drains 2 –inches or larger, use 1 tablespoon per inch of pipe diameter. Mix with one pint of warm water per tablespoon used.

### **MAINTENANCE TREATMENT**

Identify any high use or frequently troubled drains. Examples would be steam kettles, pot sinks, deli or bakery drains, meat preparation areas and spray sinks by dishwashers. Continue to treat these drains daily. Use the initial treatment dose of both Kontrol and Bio-Clean. Although dishwashers are heavy use drains, they main not need daily treatment. Ask how often this drain has been cabled in the last twelve month. If it is more than ONCE, continue DAILY treatment. Otherwise, once a week should do.

For odors in small garbage disposals, mix 1 tablespoon of Bio-Clean with 1 pint of lukewarm water. Turn on the disposal. Dump the mixture in and quickly turn off the disposal. Do not use for several hours. Repeat as necessary. For large disposals, use 2 tablespoons and 2 pints of water.

For drains with moderate use, cut the initial dosage in half and treat weekly. Drains that have little or no water and organic material going into them can be treated once a month. Obviously, these are very general rules. Remember, if you are not sure, it is always better to use more and treat more often. You can always back off. But, if you use too little, not only will drains give you trouble, the grease trap will too.

Drains not connected with the kitchen such as bathrooms, waitress stations, etc. are treated with the initial 5-day PURGE and then once a month.

### **COMMERCIAL DISHWASHERS**

As described in a previous section, commercial dishwashers fall into two water temperature categories. The 140° causes more problems. If the dishwasher does not go through the grease trap, we will have to treat the drain the dishwasher dumps into with Kontrol before you apply Bio-Clean. In most installations where there is an internal grease trap, the dishwasher doesn't go through it. If the 140° has a large volume of water going through a small interior grease trap, the dishwasher will usually wash the grease downstream. So you need to apply the Kontrol and then the Bio-Clean to the outlet side of the grease trap. Wait at least 30 minutes after the last run of the day before treating.

If the 140° dishwasher goes into an outdoor grease trap, have the grease trap pumped or make sure the pH is close to 7 before applying Bio-Clean. Remember, you will either treat the dishwasher line that dumps into the grease trap with Kontrol and Bio-Clean or apply the dishwasher treatment to another drain that goes into the grease trap.

Now let's look at the 180° dishwasher. If the 180° dishwasher goes through an interior trap, allow the ½ hour for the water in the grease trap to cool down. Then apply the Bio-Clean to the clean out side of the grease trap. Kontrol will not be needed as long as a non-chlorinated, bio-degradable detergent is used.

If the dishwasher goes through an exterior grease trap, it is extremely important to check the trap. If there is more than 1-inch of solids, pump the trap. When the trap refills, check to make sure the pH is 7 or neutral. Then treat with Bio-Clean. Pour it directly into the trap.

Remember, a NON-CHLORINATED, BIO-DEGRADABLE detergent must be used. Many chemical suppliers will state that chlorine is not a problem, but is a chemical that will KILL the friendly bacteria used in bioremediation treatments.

## **SPECIAL APPLICATIONS**

### **FAST FOOD RESTAURANTS**

Fast food restaurants use basically the same application as regular restaurants. Since they generally do not have a dishwasher, you will only be dealing with a 3 or 4 compartment sink and an interior or exterior grease trap.

### **24-HOUR RESTAURANTS**

When it is impossible to provide overnight or 6-8 hours retention time for the bacteria in the drain, choose a 4-hour period when the drains will not be used or will receive the least amount of waste water. This is usually in the very early morning hours. Mix required amounts of Bio-Clean and water 45 minutes ahead of non-use period. When time is up, stir thoroughly and pour into drains. Do not allow mixture to stand more than one hour.

### **GROCERY STORES**

In a grocery store you will generally find more than 1 grease trap. The deli, the bakery, and the meat department are all likely areas. First determine what fixtures are being dumped into the grease trap. Each department will have its own set of circumstances. Grocery store grease traps have a tendency to become very acidic because of chicken and animal fats. If this occurs, treat the grease traps like those in a restaurant. Because fats, barbecue and tomato sauce, pickle juice and vinegar create an acid problem in the trap, you may have to use more Kontrol to keep the pH at around 7. This requires checking the pH level in the grease trap weekly during the first 3 or 4 weeks to adjust the dosage of Kontrol.

### **BARS**

Most bars without a kitchen do not have a grease trap. The dishwasher can be 140° or 180° so treat the drain that the dishwasher dumps into at least 1 hour after the dishwasher has run its cycle. Treat the dishwasher drain according to size.

Example: a 2-inch drain = 2 tablespoons of Bio-Clean mixed with 2 pints of warm water. If they have a 3 or 4 compartment sink for washing glasses and bar utensils, they will usually use a sanitizer in the 3<sup>rd</sup> compartment. Make sure the sanitizer is neutralized with baking soda or Kontrol before applying Bio-Clean. Indirect bar wastes such as beer taps, soda lines and ice chests can be treated by mixing a tablespoon of Bio-Clean with a pint of water and applied every 3 days. This should be done for each drain and always at closing time or when the drains are not in use for a 6-8 hour period. All other fixtures follow normal home maintenance treatment. Do not dump unused ice in the drains being treated with Bio-Clean because the cold temperature will inhibit bacterial action.

### **MULTI-STORY BUILDINGS (Hotels, Office Buildings)**

If a full treatment program is to be followed in treating the drains of a building, then treatment should begin by treating the drains on the bottom floor (the basement if there is one) and then progress

upward another floor every week until the purge is completed. Each drain would be treated as it would be according to the home maintenance schedule. Application time should be when drains are least likely to be used. If there is a kitchen or a bar in the building, follow the procedure for bars and kitchens when treating those areas.

### **SEWAGE EJECTORS AND SUMP PUMPS**

Use of Bio-Clean in sump pumps will not only reduce the buildup grease and organic material on the walls, but it will also keep the pump and floats clean. This will greatly reduce maintenance. Setting the floats to keep at least 3 feet of water in the chamber makes it easier to treat with Bio-Clean. Figure out the capacity of the chamber in gallons. Treat accordingly. Use 2 tablespoons of Bio-Clean for every 5 gallons of sump capacity. Mix with 2 pints of warm water. Pour into the sump. Large sumps of over 50 gallons may require weekly treatment. If sinks and other drains that are treated on a daily and weekly basis flow into the sump, sometimes the amount of Bio-Clean used can be cut down or eliminated. If sanitizers are going into the sump, refer to the "Kitchen Section on Sanitizers" for treatment procedures.

### **MORTUARIES**

Mortuaries have a lot of problems with plugged drains because of the formaldehyde used in the embalming process. This is usually collected in a tank and must be neutralized. Dissolve sodium bisulfate in water and pour in tank. Apply at the ratio of 1 lb. bisulfate per pint of formaldehyde in the tank. Stir, if possible. Otherwise, allow one hour for neutralization. Next, dissolve sodium bicarbonate in water and add enough to bring the pH of the tank up to 7 or neutral. Bio-Clean can then be applied.

### **URINALS**

The initial treatment should be the same as for a sink drain. Do not use chemicals or tables while using Bio-Clean. To eliminate odor from ceramic or concrete area around urinals, mix Bio-Clean and lukewarm water (1 tablespoon to 1 pint of water). Let it stand one hour. Wet down the affected areas 15 minutes ahead of application time. Pour mixture on affected areas and do not squeeze off or mop up. When dry, sweep or vacuum. Repeat as necessary for control. Bio-Clean eliminates the slimy, odorous accumulation. Mineral build can only be removed with acid. If acid has been used, flush the system with baking soda dissolved in water and repeat the purge with Bio-Clean.

### **OUTHOUSES**

Mix one cup of Bio-Clean with 2 gallons of water to form a slurry. Distribute this slurry over the mass of waste material with a sprinkling can or a sprayer. Set the sprayer on a coarse setting. Since the bacteria must have moisture to work, waste should be kept wet by spraying periodically with clear water.

Following the initial application, thoroughly mix two tablespoons of Bio-Clean in ½ gallon of water and distribute over the waste material once a month. Such treatment promotes the biological reduction of the waste mass and provides effective odor control. High traffic public outhouses should have an initial treatment of 1 lb. Bio-Clean mixed with 2 gallons of water. This should be followed up with 1 cup of Bio-

Clean to a gallon of water per week. Check the facility every week for a month as you may have to adjust the dosage.

### **MOTOR HOMES, BOATS**

Start with an empty tank. After the first use of the facility, sprinkle one tablespoon into the toilet. This should be sufficient until the tank is emptied, which should not be longer than one week. If an odor is noticed before dumping occurs, add one tablespoon more. Use 2 tablespoons if there are more than 2 or more people using the facility. Always empty the tank at least once a week.

### **ANIMAL WASTE**

Before putting new litter in a cat box, wash and dry the litter pan. Sprinkle a light coating of dry Bio-Clean on the bottom of the pan. Put new litter in the pan and lightly cover the entire surface area with dry Bio-Clean. Bio-Clean will be worked into the litter by the natural actions of the cat, and will be activated by the addition of moisture. To remove odors from concrete runs, mix Bio-Clean and warm water. One tablespoon with one pint water. Let stand for 45 minutes. Plan ahead so that hosing down is completed right before application time. Pour the mixture with a sprinkling can over wet affected areas. Do not squeegee. Let the floor dry naturally.

### **SCHOOLS**

The kitchens in a school are treated the same as the kitchens in a restaurant. Neutralize the sanitizers with Kontrol. Keep the pH around 7 in the grease trap and apply Bio-Clean. The rest of the school is treated like a commercial building. If they are on a septic system, follow the directions for septics.

### **VETERINARY CLINICS**

Veterinary clinics use a lot of disinfectants in animal holding pens and in their daily routines. Hair also poses a problem as it decomposes slowly. Use of disinfectants should be discontinued for a couple of days a week and wash drains with a lot of water to dilute remaining disinfectant. Then, treat the drains with Bio-Clean.

### **HOSPITALS**

The information in the restaurant section will also apply to the treatment of the kitchens in a hospital. You must find out what sanitizers are being used. Neutralize them with Kontrol. Keep the pH in grease traps and apply the Bio-Clean as directed. The rest of the hospital is a different story. They use a lot of disinfectants and sanitizers. You need to use Kontrol to neutralize them and then treat the drains the same as in a multi-story building, starting at the bottom floor and working up to the top.

### **RESIDENTIAL LAGOONS**

Bio-Clean is also effective for sewage lagoons. By digesting the organic waste it eliminates odors and dramatically prolongs the life of the lagoon. Dosages vary greatly and are based on the area and depth

of the lagoon, the amount of waste involved water temperature and amount of dissolved oxygen present. After gathering this information, please contact Bioredex for a treatment plan.

#### **TREATMENT FOR BROKEN PIPES AND SEWAGE SPILLS**

Bio-Clean can be used on sewage spills from backups, broken pipes, blow back from cleanouts, or even restaurant grease on tile floors. If the waste is wet, simply sprinkle Bio-Clean over the spill. If there is not a lot of moisture, mix Bio-Clean and water in a bucket and pour over the area. Use plenty of Bio-Clean since you don't know the concentration of the waste. Bio-Clean will eat up the waste and eliminate the odor.

## **SEPTIC TANKS AND CESSPOOLS**

Before using Bio-Clean, check the tank. The tank must be pumped if any of these conditions are present:

- 1) The solids on top are more than 6 inches (15.2 cm) thick
- 2) The mineral ask on the bottom is 12 inches (30.4 cm) or more
- 3) The pH of the tank is below 6.5 or above 8

Always wait 2-3 weeks after pumping before applying Bio-Clean.

The initial treatment if 1 pound (.45 kg) mixed with 2 gallons (7.5 liters) of water for every 500 gallons (1892.7 liters) tank capacity. It is always best to let the mixture stand for up to 45 minutes. Don't let it stand for more than one hour or the bacteria will start eating each other. Stir up the mixture and pour directly in to the tank, cesspool or drains going into the tank. For best results on tanks large enough to require more than two pounds, divide the amount into two or three parts. Let a day or two elapse between applications.

If the tank or cesspool has backed up the sanitary line into the house, determine if the line has a blockage or if the tank is full of solids. If the tank is full of solids, have it pumped. If the line is plugged, open it. Many people mistake these two problems as a failing system.

These systems depend upon bacteria. If the bacteria are killed with chemicals, the action STOPS and the trouble STARTS. Use only non-chlorinated, bio-degradable cleansers and washing compounds. Conservative and occasional use of bowl cleaners and bleaches is acceptable. Do not use automatic bowl cleaners that dispense with each flush.

## **ABSORPTION FIELDS**

Absorption fields can be restored! This is a great savings for septic owners. If there is a distribution box, use 1 pound (.45 kg) with 2 gallons (7.5 liters) of water for every 50 feet (15.24 meters) of lateral line. Example: For 150 feet (45.72 meters) of lateral line, use 3 pounds (1.36 kilograms) of Bio-Clean mixed in 6 gallons (22.71 liters) of water. Let mixture stand for 40 minutes, then stir and pour into the distribution box. If there is no distribution box, get Bio-Clean into the field by applying to the vent pipes or clean outs. It is best to apply it between the tank outlet and the field. Repeat the above dosage at 3 week intervals until 3 to 6 cans have been used.

## IS BIO-CLEAN THE BEST PRODUCT?

There are many so-called biological products on the market today, many emphasizing their enzyme content. Enzymes are supposed to activate the bacteria already in your system and help them to digest waste. But, it is impossible to activate something that doesn't exist. If your system contains inadequate amounts of the right kinds of bacteria from natural sources, or if you have killed the bacteria in your system by putting acids caustics, detergents and disinfectants in your drains (which is probably the case if you have a stoppage problem,) applying enzyme alone will be useless. Applying combination products that contain chemicals and bacteria will also be useless. The oils and grease in the traps will be emulsified and moved out into the pipes where the oils and grease will congeal.

Even if you think you have been using bacteria, ask the following questions:

- When was the last time the trap was cleaned?
- Is there an odor?
- When was the last time there was a blockage?
- Are you sure that what you are using will meet **new municipal and environmental laws?**

**CAUTION!** Look for the word “**CAUTION**” on the label. If a product only contains enzymes and/or bacteria, why do they have warnings on the label? (Because they also contain chemicals.) Bio-Clean has no **caution** because Bio-Clean is comprised of all “non-pathogenic” bacteria which can act on only dead organic waste.

### DIGESTION

Digestion converts the waste back to reusable, natural nutrients in the environment. Lab performance tests show that liquid products will do more emulsifying and hydrolyzing than digesting. While giving relief at the waste producing source, because the waste is not digested, it reconvene and builds up in places such as sewers and conduits which then become labor, time and energy intensive to maintain. The amount of organic waste involved in highly populated area places time restrictions on dealing with it. Therefore, the greatest amount of digestion that can occur in the shortest time interval should have far greater priority than the ease of automatic liquid injection systems.

The whole point is illustrated with the following graph. The lab performance tests show actual digestion in 12 hours. The substrate used consists of 8% fat, 30% protein, 27% carbohydrates, and 4.8% cellulose. One gram of each of the products was placed in 100 ml of water along with one gram of substrate and kept at 28° C.

Faster digestive ability is a greater asset in waste water treatment facilities. Whatever is not digested in a given retention period adds to the sludge disposal problem.

All tests were performed by a completely independent laboratory and all results are on file at the factory.

COMPETITIVE TESTS BY INDEPENDENT LABORATORY

