

# BIOMATIC®

## The Environmentally Friendly Bioremediation Parts Washer



## The Biomatic® Parts Cleaning System Is...

- **A Bioremediation System.** The Graymills Biomatic Parts Cleaning System uses the natural technology of microbial bioremediation to reduce oils, greases and other hydrocarbons introduced into the cleaning system to water and carbon dioxide (CO<sub>2</sub>). No oil and hydrocarbon buildup means the unit continues to clean parts indefinitely (we recommend cleaning the tank once a year, but the fluid can be put back in for continued use if desired.)
- **A Waste Minimization System.** Talking to your customers about “**waste minimization**” will get their attention. With the Graymills Biomatic Parts Cleaning System, users will go from monthly dumping of fluid and unit cleanup...to once a year. That’s a “**waste minimization**” sales story few customers can resist.
- **A Tough Cleaner.** Aqueous based **Super Biotene®** is pH neutral with a mild, pleasant odor. A mixture of emulsifiers and surfactants, they contain no VOCs, so they’re EPA and air quality friendly! Super Biotene cleans grease and grime off even the dirtiest parts, then the microbes go to work, reducing the hydrocarbon contaminants (oils, greases) to water and CO<sub>2</sub>.
- **A Good Investment.** Recycling costs are slashed...parts cleaner waste is minimized...the dirtiest parts come clean...and the system is operator friendly.

## How The Biomatic® Parts Cleaning System Works

It is important to understand that the **Biomatic® Parts Cleaning System** is more than individual products - it is a total cleaning environment. The Biomatic Parts Cleaning System relies on the perfect balance between the **Super Biotene®** cleaning solution and the microbes introduced into the system. Rugged Biomatic Parts Cleaners are heated and remain at a constant temperature to achieve exactly the right environment for the microbes to work effectively.

The simplest explanation of how the Biomatic works is: the Super Biotene® cleaning solution cleans the parts while the active microbial action cleans the fluid. This bioremediation process takes place within your parts cleaner. The microbes work by actually breaking down the hydrocarbon contaminants into their component parts - water (H<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>) leaving the Biotene® cleaning solution free of oily, greasy contamination that can affect clean parts.

When contaminated parts are placed in the Biomatic parts cleaner, the heated Super Biotene® lifts the grease and grime from the part. An adjustable faucet and Flow-Thru brush aid the solution in the removal of especially stubborn oil, grease, and other contaminants.

Pieces of debris (as small as 50 microns) are trapped by the polyester filter cartridge located on the back of the unit. Hydrocarbon contaminants flow through the filter into the Biomatic Cleaner fluid reservoir where the microbes go to work to digest the grease and oil. Eventually the solution becomes free from hydrocarbon contaminants.

The filter must be disposed of in a non-leaching manner. In many areas, placing the used filter in a plastic bag, sealing it closed, and disposing of the package as solid waste - **in accordance with state & local regulations** - is all that must be done. *Companies are required to dispose of filters in a responsible manner, in accordance with state and local regulations.*

The result... no need to contract with hazardous-waste disposal companies to remove liquid hazardous wastes. The **Biomatic® Parts Cleaning System** ensures hydrocarbon contaminants are eliminated – while the solution remains safe to the environment as well as to employees.

The **Biomatic®** system controls operating costs by eliminating the need to contract with hazardous waste removal agencies, alleviating most “cradle to grave” liabilities. The specially designed user-serviceable system can eliminate maintenance contracts associated with other aqueous-based parts washers or solvent systems.

### **Safety**

While the thought of a product being based on live microbes might seem exotic, it is actually an ordinary, environmentally sound alternative. Microbes are a common occurrence in nature. Microbes of all types are around us- even on your body right now - though they cannot be seen with the naked eye. They're used in maintenance of restaurant grease traps, septic systems, municipal waste treatment plants, and hundreds of other applications.

The living component in the **Biomatic® Parts Cleaning Systems** is a highly specialized blend of microbes specifically selected and adapted to degrade a wide range of hydrocarbon wastes.

The microbes work by actually breaking the hydrocarbon contaminants into their component parts - water (H<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>).

Hydrocarbon-busting microbes first gained national recognition when they were used to safely assist in the cleanup of the *Exxon Valdez* oil spill in 1989. The microbes used in the **Biomatic® Parts Washing System** are very similar to their now-famous cousins!

Comparable microbes have been successfully used in petrochemical plants, chemical plants, refineries, food processing plants, marine barges, machine shop parts washers, truck washes, wood treating plants, and ground water remediation applications.

**The special blend of microbes used with Super Biotene® remediates :**

- crude oil
- oils
- solvents
- BTEX
- greases
- amines
- creosote
- phenols
- PCP
- fats
- PNA
- sulfur containing compounds
- ethylene glycol
- chlorinated hydrocarbons
- other complex organic compounds.

**features**

- ◇ degrades oil, grease and a wide variety of hydrocarbons
- ◇ contains microbes that degrade hydrocarbons and changes them into harmless byproducts
- ◇ establishes a self-sustaining, long-lasting colony of harmless microbes
- ◇ prevents deterioration of cleaning solution cutting power

**benefits**

- ◇ solves waste disposal problems right in the parts cleaner
- ◇ solves the problem, does not just move it further downstream
- ◇ safe for humans and the environment
- ◇ contributes to source reduction by limiting accumulation of potentially hazardous wastes in the workplace

**Super Biotene® Solutions**

Super Biotene® is a pH neutral (7.0) mixture of emulsifiers and surfactants containing **no** volatile organic compounds (VOCs), phosphates, formaldehyde, biocides or solvents which is blended in liquid form to produce a biodegradable, non-toxic, non-caustic, non-flammable, non-hazardous oil degreaser. The resultant fluid contains **no** known carcinogens, **no** OSHA or DOT regulated chemicals, **no** ingredients requiring SARA Title III reporting, **no** RCRA hazardous waste chemicals, **no** items on the CERCLA hazardous substances list, and **no** chemicals or ingredients listed in California's Proposition 65, as of June 2005. Super Biotene is a free flowing liquid which is infinitely soluble in water and has a specific gravity of 1.083, **no** flash point, and a boiling point of 212 degrees Fahrenheit.

**BIO-Pouch Microbes**

The microbes are introduced into the cleaning system through the BIO-Pouch. Once introduced into the cleaning system, the microbes reside in the reservoir where they work eliminating grease and oil. If microbes are destroyed or damaged, a replacement BIO-Pouch can be ordered from Graymills to re-introduce into your system.

## Commonly Asked Questions

### **Is the Biomatic® Parts Cleaning System effectiveness compromised by its gentleness to the environment?**

Absolutely not. It is completely effective in cleaning grease and grime off even the dirtiest parts, without resorting to harsh chemicals. This is important since traditionally, “environmentally friendly” cleaners have been perceived to be less effective - and more expensive - than their petrochemical-based counterparts.

While the Biomatic® Parts Cleaning System cleans just as effectively as other units using alternative solutions such as solvents, it also cleans differently. Rather than dissolving grease, the cleaning agents used in the Biomatic® Parts Cleaning System work to quickly break the surface tension of the grease and literally lift it off the part. The friendly microbes actually break down and destroy oils and greases (converts them to CO<sub>2</sub> and water) once they have been lifted away from the part by the cleaning agent. Do not be confused between cleaning differently and cleaning poorly.

### **What makes the Biomatic® Parts Cleaning System work?**

It is the microbe that eats the hydrocarbon wastes - and **only** the hydrocarbons. This microbe and similar microbes are naturally-occurring and have been used in many types of bioremediation projects, including the *Exxon Valdez* oil spill.

### **Does it clean carburetors, transmissions, aluminum, brakes, etc.?**

Yes. Not only is Super Biotene® effective on these parts, it will not damage nonmetal components that may be attached to the part being cleaned (e.g., rubber, plastic). As with all parts cleaners, some items are going to become clean at different rates than others due to the degree and type of grime encountered.

### **What happens to the grease/oil and other contaminants?**

During cleaning the filter will trap the large solid particles and the rest will be rinsed through into the fluid reservoir of the Biomatic® Parts Cleaner. The microbes in the reservoir will begin to eat away at the hydrocarbons, breaking them down into carbon dioxide and water. The combination of filtering solids and the remediation action of the microbes leaves you with a clean solution that continues to clean.

### **How much oil can I put in at a time?**

As with all parts cleaners, excess greases, oils, and fluids should be disposed of prior to washing. The **Biomatic® Parts Cleaners** can handle tough, dirty jobs, but are **not** designed to be - nor should they be treated as - a **waste oil dump**.

### **How fast do the microbes clean the Super Biotene®?**

Once activated, these microbes are constantly eating. The rate at which the hydrocarbons will be remediated is approximately 80% every 7 days, assuming the system is operating optimally (fluid temperature between 100 and 110 degrees F, filter changed monthly). Oil and grease analyses performed on used Biotene® fluid consistently averaged around 1400 parts per million (versus used non-bioremediating aqueous cleaners that average 20,000 parts per million or more).

### **Why does my cleaner have an aeration system?**

It has been discovered that the microbes work best in the presence of oxygen. For that reason, we have provided the **Biomatic®** with a constant-on aeration system.

### **Does anything kill the microbes?**

Yes. You need to keep chemicals containing biocides out of the **Biomatic® Parts Cleaner**. The same goes for bleach and Lysol. The microbes are safe against greases, oils, mineral spirits, plant fertilizers, etc.

**How often do I change the filter?**

At least once every month. This keeps trapped contaminants from reaching hazardous levels.

**What if the filter clogs up with grease?**

You can rinse excessive grease from the filter directly into the fluid reservoir. This should prolong the usefulness of the filter, but the entire filter still needs to be changed every month!

**How often do I change the fluid?**

Under normal use, you should never have to change the solution. That is one of the biggest advantages of the **Biomatic® Parts Cleaning System**. The microbes clean the solution of hydrocarbon contaminants, leaving you with a solution that continues to clean. Hazardous hydrocarbon materials are bioremediated in the **Biomatic® Parts Cleaning System** so your “used” solution does not need to be hauled away as toxic waste. Graymills recommends a once per year cleaning of your biomatic parts cleaner through draining the fluid from the sink and reservoir and transferring it into a container temporarily, then cleaning any sludge, metallic chips or debris from the sink and reservoir. The fluid can then be returned to the parts cleaner and it can be placed into service again.

**How often do I add fluid to the Biomatic® Parts Cleaning System?**

In most circumstances it will be necessary to add one 5 gallon container of pre-blended Super Biotene® every 4-6 weeks to replace drag-out and evaporation.

**Can I use Super Biotene® in other parts Cleaners?**

Yes. Although Super Biotene® is especially formulated to work in our Biomatic parts cleaners it is a very effective aqueous cleaning solution that is safe to use in other aqueous parts washers as a general purpose solution.

**Can I use other solutions in the Biomatic® Parts Cleaner?**

No. The Biomatic® Parts Cleaning System has been painstakingly developed to work effectively as a whole – machine, parts to be cleaned, fluid, and microbes. Other solutions may damage the machine or kill the microbes, thereby eliminating the advantages of the Biomatic® System. The use of other solutions in the **Biomatic® Parts Cleaners** will void the warranty.

**Why are the Biomatic® Parts Cleaners heated?**

Two reasons. First, it keeps the microbial activity at an optimal level to clean the solution as quickly as possible. Secondly, warm solution simply cleans better than cold solution (think about washing dishes in cold water versus warm). As an added benefit, the warm solution makes it more enjoyable to work with, especially in the winter!

**From a purely business perspective, what are the benefits of Biomatic® Parts Cleaning System?**

The **Biomatic® Parts Cleaning System** is the ideal purchase for companies interested in controlling operating costs and minimizing their waste streams. Simply stated, companies that use it can expect to derive the following money-saving benefits :

- ◇ Safe, aqueous-based solution maintains effectiveness through repeated uses - and does not have to be replaced.
- ◇ Since no hazardous by-products are created, expensive disposal contracts and regulatory reporting are not required. Remember, the companies are required to dispose of the filters in a responsible manner, *in accordance with state and local regulations*.
- ◇ Monthly service costs are held to a minimum.