

Chapter 8. OPERATING INSTRUCTIONS

8.1 GENERAL ADVICE

The following advice is a general guideline for the operator of the unit. If any questions arise, please do not hesitate to contact Mechline gpservice@mechline.com or your dealer.

- 8.1.1 Be sure the dosing module is left on once it has been put into operation. There is no on/off switch to operate.
- 8.1.2 To help the effectiveness of the system, and significantly help to maintain free flowing water both within the drains of the premises and in the sewerage system, **remember the following basic DOs and DON'Ts:**
- DO wipe and scrape plates, pans and utensils before washing.
 - DO collect waste oil in a suitable secure container.
 - DO arrange for oil to be collected by a licensed waste contractor.
 - DO use strainers in sink plug holes.
 - DO maintain Grease Traps and Enzyme Dosing equipment regularly.
 - DO NOT put cooking oil, fat or grease down the sink or into floor drains.
 - DO NOT put food scrapings into the sink.
 - DO NOT sweep food waste into the floor drains.
 - DO NOT pour boiling hot water down the sink to try to dissolve fat and grease. It does not work!
 - DO NOT pour bleach or harsh chemicals down the sink or into the drainage system.

8.2 FREQUENTLY ASKED QUESTIONS

8.2.1 Is the bio-fluid safe for my kitchen?

Yes. The bio-fluid (GP-MSGD5) contains a blend of aerobic and facultatively anaerobic bacteria which have been specially selected to break down the organic material that is found in commercial kitchen waste. Armed with a powerful battery of grease-degrading enzymes, they are all classified by the Advisory Committee on Dangerous Pathogens (ACDP) as category 1, i.e. they are of extremely low or no hazard. Mechline's biological drain maintenance system is the only bioremediation system to receive BBA approval, meaning the system has been independently tested and found to be compliant with building and legislative requirements.

8.2.2 How does the bio-fluid work?

For commercial kitchens to meet current legislation, they are obliged to have a system in place to manage their grease disposal. UK Building Regulations 2002 Edition incorporating 2010/13 amendments, state that:

H1 FOUL WATER DRAINAGE: 2.21 Drainage serving kitchens in hot food premises should be fitted with a grease separator complying with BS EN 1825-1:2004 and designed in accordance with BS EN 1825-2:2002 or other effective means of grease removal.

Mechline's bio-fluid is an 'effective means of grease removal' as required by the Building Regulations. It uses a blend of specially selected microorganisms that have been chosen for their ability to degrade fats, oils and grease (FOGs) in low oxygen conditions and varying pHs.

These bacteria produce a series of extra-cellular enzymes that break down organic matter, including lipase, which can very quickly transform fats (triglycerides) into glycerol and free fatty acids. Glycerol is very soluble in water and being a small molecule, can pass easily into the bacterial cells, where it is used either to build new cellular structures, or as a fuel to produce energy for growth.

The free fatty acids present more of a problem, as they are large insoluble molecules. The action of the lipase has only converted one type of large insoluble molecule (the triglycerides) into other large insoluble molecules (free fatty acids). Visually, in a drainage situation, the scale of the problem may have diminished or the characteristics of the fatty material may have changed at this point, but the problem will not yet have been fully resolved.

The specially selected bacteria in the bio-fluid are able to degrade these free fatty acids by a process known as β -oxidation, in which chunks are broken off the end of the fatty acid molecule. These chunks can again be used as a building block to produce new structures, or more usually, energy. The breakdown of fatty acids is not an instantaneous process, as the physical form of the fatty acids, being large and insoluble, means that it takes some time (commonly called "residence time") for the bacteria to "get to grips" with them. This is why the bio-fluid is dosed at 1:00am, when there is little or no water flow, allowing the bacteria time to do their work.

Once the fats are broken up by the lipase they cannot chemically reform back into triglycerides. The subsequent breakdown of the fatty acids through β -oxidation ensures the "grease," which may actually consist of a variety of insoluble materials, can pass through drainage systems without causing any problems traditionally associated with fats, oils and grease (FOGs).

Mechline's biological drain maintenance system effects the "removal of grease" from drainage systems—keeping drains clear and odour-free and meeting the requirements of the Building Regulations, using an environmentally friendly and non-hazardous fluid.

8.2.3 Where can I install the dosing unit in my kitchen?

Please refer to Chapter 4 Location Advice.

8.2.4 Can I use this system instead of a grease trap?

Mechline's biological drain maintenance system can be used either as a standalone drain maintenance system or in conjunction with a grease trap. Always check with your local authority, before installation, on the suitability of the system for your site's requirements. When used to dose into a grease trap, the trap will require emptying far less often.

8.2.5 How should I clean my dosing unit?

Mechline's biological drain maintenance system is designed to be easy to clean, simply wipe over with a clean disposable cloth and fresh water. Do not use bleach, harsh cleaning chemicals or abrasives. Also see Section 10.1.

8.2.6 I have lost the keys for my dosing module, can I get replacements?

Yes. The keys for all dosing units are interchangeable. Please contact Mechline or your dealer for a replacement set.

8.2.7 Are there special storage or handling requirements for the bio-fluid? Does it have a shelf life?

Mechline's bio-fluid is a perfectly safe class 1 fluid, and there are no special handling requirements. It should be stored in a cool, dry place away from direct sunlight and ideally at a temperature between 10°C and 30°C so the effective performance of the product is not compromised. The bio-fluid's shelf life is a minimum of 18-months, as long as it is stored as above.

8.2.8 How will I know when the bio-fluid needs replacing? And where can I get replacement bio-fluid boxes?

The dosing module will sound a alarm buzzer once every 15 minutes when the fluid box inside your dosing module needs replacing. It will only sound during daylight hours in order to preserve battery power.

For more bio-fluid please contact Mechline or your dealer. Sold in master boxes of 3x 5-Litre (part number GP-MSDS5). Please have the serial number of your dosing unit ready when you call. Always keep a spare box of bio-fluid in stock to avoid running out.

8.2.9 How long should a 5L (1.3 US gallons) bio-fluid box last?

On the factory setting (number 2), a 5L (1.3 US gallons) box of bio-fluid should last approximately 30 days. If the dosing unit is adjusted to deliver a higher dose (number 3 or 4), the fluid will not last as long. See Chapter 7 for dosing levels.

8.2.10 I notice residual fluid in my bio-fluid box. Is it using up all the fluid? Have I changed the fluid too early?

Only change the bio-fluid box when the buzzer sounds. This ensures the most efficient use of the full 5 litres per box. The design of the bag and valve is engineered to provide good flow, using gravity, to match the dosing level set by the module. It is very difficult to completely drain any bag of all its fluid, therefore, we slightly overfill each bag to compensate and make sure that every customer gets the full 5 litres from each bag. Drainage wedges are also fitted to the inside of each box to ensure that a 'V' shape is formed under the bag whilst the bag empties to assist draining.

8.2.11 What procedures should be taken if the product leaks and/or comes into contact with skin, eyes, etc?

Mechline's bio-fluid is a perfectly safe class 1 non-hazardous fluid. No harm will come from touching it or coming into contact with the fabric of the building - merely wash off the fluid with cool, clean water.

Avoid ingestion of liquid and avoid contact with eyes. In case of contact with skin or eyes, rinse thoroughly with clean cool water. Should eye irritation continue, seek medical advice.

In case of ingestion, DO NOT induce vomiting. Seek medical advice.

8.2.12 Can I change the time when the dosing module doses the bio-fluid into the drain?

The dosing module is factory set to dose at 1:00am, when there is little or no water flow, allowing the bacteria time to do their work. However this can be changed by removing the front cover under the unit door and following the instructions on the label inside. Unscrew and pull the front cover downwards to remove. See Section 7.3.

8.2.13 Can I change the fluid dosing level on my dosing module?

Yes. Refer to Chapter 7 for more information.

8.2.14 How long does the battery last?

In our battery operated models (GP-DMI-STD-2) the battery should last around 2 years. When the battery needs replacing the 'Low Battery' warning light will begin to flash. It will only flash between the hours of 07:00 - 20:00 when someone is likely to be around to see it, in order to preserve power. Contact Mechline or your dealer for a replacement battery pack (part number GP-BP) as soon as you see the 'Low Battery' light flashing.

If your dosing module has the words 'Power On' on the front cover, then it is the optional mains-powered model and will not require the battery changing.

8.2.15 My building drains are not connected to mains sewage. Can I use the dosing unit with a remote aerobic or anaerobic (Septic) sewage system?

Generally, Mechline's bio-fluid is helpful to these systems, and some information is provided below. For more advice, contact Mechline

AEROBIC SYSTEMS:

These tend to have three sections, a primary tank, an aerobic zone and a tertiary tank. The primary tank is where larger solids settle out, whereas the aerobic zone is where aerobic bacteria break down any organic solids. Aerobic conditions are maintained by the introduction of forced air or by the rotation of disks within the effluent. The tertiary tank allows for any final settlement before water is discharged.

If grease enters this system untreated it will quickly cause major overload to the primary tank, as it tends to float rather than settle out. Left unchecked this grease can then foul the aerobic zone either by coating the filter disks or blocking air gaps in the filter medium. This can result in severe system failure and all that implies.

The introduction of Mechline's bio-fluid into the effluent stream quickly breaks up the complex grease molecules into much smaller molecules and soluble compounds. This greatly reduces the problems described above and the chances of system failure.

ANAEROBIC (SEPTIC) SYSTEMS:

These systems rely upon the action of bacteria that do not require oxygen to break down organic solids, and are less complicated as they do not require the maintenance associated with the aeration of aerobic systems. However, the down-side is that they are slower in action and are not suited to larger sites.

The introduction of grease into a septic system would cause many problems, not least the fact that the crust on the top of a tank must be permeable to allow the passage of the gases created by the action of the bacteria. The presence of large quantities of grease would reduce crust mobility and therefore the effectiveness of the tank.

As with the aerobic system, the bacteria contained in bio-fluid break down the fats and grease found in commercial waste, thus greatly reducing the chances of grease-related compounds. In addition, the facultatively anaerobic bio-fluid bacteria added to the mix reduce sludge build-up and therefore tank emptying frequency.