

## **FOG Management for food service operations.**

### **Introduction**

All food service operations discharge fat, oil and grease (FOG) starch and other organic matter into the drainage network whether the sources are preparation sinks, ware washing, cooking equipment, pot sinks or floor gulleys.

Through the use of FOG Management technology and guidance and training in place at the premises for staff, the FOG and organic discharge entering the kitchen drainage system should be minimised.

The volume of FOG discharge produced by a food service operation depends on a variety of factors including menu design, scale of operation, equipment used, building design and accessibility.

### **Legislation and Regulation – Obligations**

There are a variety of regulations and legislation concerning FOG discharge to be aware of when planning, designing and operating a foodservice establishment, these apply regardless of the size of operation.

**For reference : British Water FOG Code of Practice.**  
**<http://www.britishwater.co.uk/article/fog-20.aspx>**

**Approved Document H of the building regulations 2000 amended in April 2002, advises that the requirement for an adequate drainage system should minimize the risk of blockage or leakage.**

*It states that one way of meeting this level of performance is for "Drainage serving kitchens in commercial hot food premises should be fitted with a grease separator complying with BS EN1825-1 and designed in accordance with BS EN1825-2 or other effective means of grease removal." BS EN1825 is the European standard for commercial gravity grease separators. "Other effective means" include mechanical grease removal equipment and biological or bacterial dosing systems which break down grease.*

Uncontrolled discharge of FOG from a food service establishment could contravene Section 111 of the Water Industry Act 1991 and result in the water and sewerage company bringing a prosecution against that establishment with recovery of their costs and a potential fine if proven.

CIBSE TM50: 2009 – Best practice is to prevent FOGs from entering the drainage system in the first place.

### **Site Evaluation**

Best practice always encourages those responsible for reviewing, designing, specifying and installing a FOG management system to visit the site to make an assessment, or review a plan of the site if it is a new build.

In assessing a site, therefore all factors including design, equipment, staff training, and working procedures need to be considered in order to develop a system that minimises this risk. It is important to look at the entire range of catering equipment used and assess its capability to generate FOG.

## **Food and general hygiene**

Whichever FOG management system is chosen, it must not compromise hygiene & safety in the foodservice operation and must follow food safety regulations and guidelines. Operators also have responsibilities to employees to provide safe, clean working conditions and to customers to serve food that is stored and prepared safely and hygienically. These are compelling reasons why foodservice operators should take their responsibilities for the management and control of FOG seriously.

## **FOG management equipment solutions**

There are a variety of solutions available to foodservice operations, assuming that a site evaluation has been carried out, one or more applications may be required to manage FOG discharge from the kitchen. Best practice suggests a combination of products will maximise the removal and treatment of FOG that would otherwise enter the drains and subsequently the sewer.

### **Grease Traps - Above ground level (Internal)**

While models differ, all grease traps basically work by slowing down the flow of water coming out of a foodservice operation or discharged from an appliance. The volume of the grease separator and the flow rates determine efficiency. Over time, generally the FOG separates and floats to the top of the separator, while food solids sink. The water continues to flow from the unit to the drain and then into the sewer. The FOG should be kept in the unit by baffles, covering the inlet and outlet of the tank, preventing it from flowing out of the grease separator, while food solids remain in the bottom.

The effectiveness of any grease trap is dependent on the correct sizing/volume capacity and location of the grease trap system, temperature of discharge and detergent levels. Large grease traps can be bulky and expensive to install. They can take up valuable space and can be very difficult to clean around, creating further hazards. Grease trap contents are regarded as a hazardous waste and must only be handled by a licensed contractor. Records of maintenance must be kept to demonstrate to visiting EHOs that correct procedure is being followed for the cleaning and the disposal of FOG.

### **Grease Traps – Below ground (External)**

Grease Traps (interception systems) below ground in an external location are ideal for a waste water reservoir. The external location means the ongoing cleaning, emptying and maintenance work can be carried without causing any foodservice operational down time and reduce the cross contamination that might be caused with such work being carried internally within an operating commercial kitchen. The costs of such grease interception systems are high relative to purchase and install. In the majority of cases such systems cannot be practically installed due to the size needed to install and possible planning permission for installation work to be carried out. If external interception systems are to be the preferred system, internal drains from the foodservice operation should be treated with biological dosing, in order to maintain free flowing drains, reduce maintenance and reduce mal odours.

### **Grease Removal Units (GRU)**

A Grease Removal Unit is a self-emptying / mechanical skimming grease separator. Installed at source directly on the pot-wash or dish wash pipework these systems work by mechanically skimming the FOG from the tank that contains the waste water and by automatically discharging the oil content of the separator into an external container for

manual disposal. GRU's need ample floor space to be installed and ongoing available accessible space to store collected FOG. GRUs need to be emptied, cleaned and maintained frequently, often daily, and there also needs to be provision for safe, secure and hygienic storage of collected FOG and food solids away from the kitchen area. Consideration should be given to the storage location to minimise potential for any pest infestation. Location of units also requires Electrics and in some cases hot water supplies.

An unmaintained grease separator or GRU system can be a hygiene hazard, especially in a catering and food preparation area.

### **Accredited Biological Dosing systems**

Biological dosing technologies use bacteria designed to biologically break down the FOG in the drainage system. Dosing systems work by delivering bacteria to augment the natural community of micro-organisms that naturally exist in kitchen wastewater to biodegrade FOG over time. This speeds up the process of the FOG biodegradation. As a result, FOG is broken down irreversibly into simpler compounds and is then able to pass through drainage systems. Accreditation is a significant method of reassurance and proof of efficacy for any biological dosing system, as referenced by Andy Drinkwater, Senior Consultant at WRc *"Some systems are very good, others are of questionable value."*

### **Floor Mounted Biological Dosing Systems**

Floor mounted dosing systems rely on large bulky drums of fluid positioned on the kitchen floor with a mechanical pump. Although potentially more economical to run with less frequency of replacing fluid the large drums, these can take up valuable kitchen floor space, are difficult to clean around and can weigh up to 25kg each, creating potential HACCP issues. Spillages can be extremely difficult to clean up and attract vermin or insects. Large drums are not easy to accommodate in all the designated areas and adjacent to the equipment necessary to treat FOG.

### **Wall Mounted Self Contained Dosing System**

Wall mounted dosing systems are located on a wall above the appropriate internal drainage pipework. This location means they are in constant sight, provide ease of access and are easy to re-charge and maintain. Units should be self-contained meaning the fluid is contained within the unit.

### **Preferred and Recommended System**

Systems which offer the utmost hygiene, safety, access and ease of operation, that are accredited and the most practical and proven efficient solutions are the recommendation.

- Self contained biological dosing system
- Accredited/compliant – proof of efficacy
- Wall fixed – No floor space take up
- Hygiene, safety, access, ease of operation
- Avoids waste water reservoirs in kitchens
- Avoids maintenance service requirements in kitchen
- Environmentally friendly
- Accredited for quality assurance

## **Product Recommendation**

### **GREASEPAK: BIOLOGICAL DRAIN MAINTENANCE SYSTEM**

GreasePaK is an effective, very low maintenance and environmentally friendly alternative to stand alone grease traps. The GreasePaK unit is considered the most powerful Multi-Strain Grease Degradator on the market with a formula of many different naturally occurring, non-pathogenic bacteria containing in excess of 500 million 'bacteria' per milligram. The unique formula permanently breaks down Fats, Oils, Grease [FOGs] and starches in the drain. This means the FOGS cannot reform or solidify, keeping drains clear and free flowing.

#### **GreasePaK meets all U.K Regulations and BBA approved**

GreasePaK is the only BBA Approved dosing unit available in the marketplace. The British Board of Agrément (BBA) is a UK body issuing certificates for construction products and systems and providing inspection services in support of their designers and installers. The BBA states 'Companies and individuals using products with Agrément Certificates can do so in the knowledge that they will perform, if installed in accordance with the guidance in the Certificate. BBA Certified products are subject to a QA assessment, full product and process control testing with data to prove the product meets the standards required.'

#### **How GreasePaK works**

A compact, wall-mounted dispenser automatically doses the multi-strain solution directly into the drain system without the need for an operator to remember. GreasePaK has a built-in alarm, which beeps when it's time to change the bio-fluid cartridge.

GreasePaK operates after hours, automatically dosing drains with a biological bacteria solution that coats the inside of pipework and travels through the pipe network attacking any pre-existing FOG. The bio-fluid breaks down FOG permanently meaning that it cannot reform further down drainage and sewage network, allowing for a free flowing water network and no impact on the running of the kitchen.

Choice of battery operated (battery on average will last for over 2 years) or mains powered, the auto-dosing unit is small enough to be installed almost anywhere.

The unit is fed from 5L cartridges which are located within the dispense housing. There are no 25l drums of fluid to store, the kitchen floor area is kept clear and clean, no smells, no dirt traps or hazards and isn't an attraction for vermin or insects.