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FOOD SERVICE INDUSTRY FATS OILS AND GREASE

CODE OF PRACTICE

FOG FORUM

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INTRODUCTION

Objectives of this document

This code of practice explains what FOG is, its sources and impacts on business and sets out how FOG should be taken account of in the design, installation, operation and maintenance of food service kitchens. It includes the various methods of FOG treatment available as well as the ways in which FOG should be factored into design planning, maintenance schedules and staff training.

FOG is the acronym for Fats, Oils and Grease. FOG has been shown to accumulate in pipework leading to a reduction in flow and ultimately complete blockage. This document seeks to provide advice and guidance on site evaluation, equipment solutions, installation, and maintenance for the foodservice facility designer, equipment contractor, foodservice operator and the fat, oil and grease (FOG) management supply chain.

This code of practice has been produced by the FOG Forum , an alliance of organisations from the food service and equipment sectors working with representatives from the environmental health and water sectors.

This document has been developed to help designers and installers of catering equipment understand and compare the different options to reduce the discharge of fats, oils and grease (FOG) from food service kitchens. It also provides guidance to food service operators on how they should effectively manage fats, oils and grease in their kitchens

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FOG MANAGEMENT

ITS SOURCE AND FINANCIAL IMPACT ON BUSINESS

PROBLEMS ASSOCIATED WITH FOG

blocked drains and sewers, internal and external property and sewer flooding, smells and infestation by vermin and insects

Every foodservice business produces waste FOG as part of its operation. These have to be properly collected, treated and disposed of safely and efficiently. Waste FOG is generated by preparation and cooking processes including the oil used to cook food, the melted animal fat produced as food is cooked, leftover food from the kitchen and from customers' plates. Therefore it is also associated with the ware washing and pot washing activities in a foodservice operation.

The reasons for this are straightforward. Both animal fats and vegetable oils are hydrophobic (they do not dissolve in water). In a busy kitchen, FOG in liquid form can deliberately or inadvertently enter the sink very easily, but this simply moves the problem on rather than solving it. Even liquid oils can quickly coagulate and solidify once in the waste water system, causing blockages to the kitchen drainage and downstream sewers.

FOG is not restricted to particular types of menu or cooking styles. Fats and oil are derived from oils, meat, fish and dairy products, and almost all types of preparation and cooking generate waste FOG. Recently, the way foodservice operators dispose of FOG has come under increased scrutiny because of the potential volume of FOG

that can be produced as a result of the activity and the concentrations of foodservice operations in the same area sharing the same sewer network.

It is also increasingly important that disposal of FOG, particularly when produced in large quantities in commercial kitchens, is done responsibly and sustainably. Without its removal it will put a further burden on the UK's sewer network and treatment system. As well as blocked drains and sewers, problems directly associated with FOG include internal and external property and sewer flooding, smells and infestation by vermin and insects. More locally, blocked or inefficient drains inside or close to a foodservice site severely limit the operation and cause many problems including hygiene, smells and food safety issues as well as costing money to resolve.

Water UK, the organisation which represents the UK's water and wastewater utilities, reports that there are approximately 366,000 sewer blockages throughout the UK every year, with up to 70% caused by FOG and other material not intended for disposal via the sewer. Clearing those blockages and cleaning up properties flooded and after pollution incidents because of blocked sewers costs the UK in excess of £80M each year. Furthermore, there is also the cost of pumping station failures and decreased efficiency of treatment works resulting from FOG. All of these costs are ultimately reflected in our water bills. Businesses also risk blocking their own drainage systems, resulting in extra direct costs to the operator in clean-up efforts.

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

Every effort should be made to minimise the amount of food waste/FOG allowed to enter sinks and associated appliances and discharge points.
Water UK published *Disposal of Fats, Oils, Grease and Food Waste Best Management Practice for Catering Outlets* to promote best management practice in kitchens and reduce FOG discharge[1].

366,000 sewer blockages per year

70% caused by FOG

[1] *Https://dl.dropboxusercontent.com/u/299993612/Publications/Guidance/Wastewater/Disposal%20of%20Fats%2C%20Oils%2C%20Grease%20and%20Food%20Waste.pdf*

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LEGISLATION AND REGULATION

FOG

PREVENTION OR PRE-TREATMENT IS SPECIFIED AS BEING A PREREQUISITE OF THE PLANNING PROCESS, AND THE LAW. THERE ARE A NUMBER OF STATUTES AND LEGISLATION WHICH REQUIRE COMPLIANCE.

THE UK WATER INDUSTRY ACT 1991 STATES:

"No person shall throw, empty or turn, or suffer or permit to be thrown or emptied or to pass, into any public sewer, or into any drain or sewer communicating with a public sewer, any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment and disposal of its contents."

This is legally interpreted to include contamination by FOG

APPROVED DOCUMENT H TO 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.

DIFFERENT BUILDING STANDARDS AND REGULATIONS APPLY IN SCOTLAND AND NORTHERN IRELAND.

The Scottish Building Standards: Technical Handbook: non-domestic covers discharges into a drainage system M2.6, M2.7 and states that *where a discharge into a drainage system contains oil, grease or volatile substances, for example from a vehicle repair garage, there should be facilities for the separation and removal of such substances*.

The use of emulsifiers to break up any oil or grease in the drain is not recommended as they can cause problems further down the system.

In Northern Ireland, Building Regulations 2012 (as amended) include:

Regulation 23 – fitness of materials and workmanship
Regulation 79 – drainage systems
Regulation 81 – underground foul drainage

THE ENVIRONMENTAL PROTECTION ACT 1990

The EPA 1990 covers England, Scotland and Wales and states: "*It is illegal to treat, keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health. It is an obligation to safely manage, store and legally dispose of any waste product that is produced*." The Act imposes a duty of care on businesses with respect to their commercial waste in terms of making sure a licensed contractor removes their waste oil and they obtain waste transfer notes.

The Environmental Protection Act 1990 also gives local authority Environmental Health departments powers to impose restrictions or to shut down a business in response to 'statutory nuisance', such as smells, effluents and the accumulation of refuse.

FOOD HYGIENE REGULATIONS

In England the Food Safety and Hygiene (England) Regulations 2013 and European Regulation (EC) no.852/2004 set out general hygiene rules that apply to all registered and approved food businesses including structural requirements and the implementation of procedures based on hazard analysis and critical control point (HACCP) principles. The regulation sets out objectives for "good hygiene practices" to protect food safety and consumers. This includes ensuring that grease is not allowed to build up and that premises and equipment are cleaned regularly to remove grease and dirt

In Wales, the The Food Hygiene (Wales) Regulations 2006 apply.

In Scotland, The Food Hygiene (Scotland) Amendment Regulations 2014 apply.

IN Northern Ireland, Food Hygiene Regulations (NI) 2006 apply.

In addition to these requirements, there are compelling business reasons why foodservice operators should take their responsibilities for management of FOG seriously. Kitchen waste has a direct impact on costs, which comes off operational profits. Furthermore, commercial disposal of both packaging and food waste to landfill, as well as specialist collection of waste cooking oil, carry removal and recycling costs, which continue to escalate. Implementing proper waste management procedures will reduce these costs.

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. Proper procedures for food waste management are an essential part of meeting these responsibilities. The negative publicity generated by an incident of injury or contamination caused by poor practices will affect trade and may be enough to close a business. In addition, dirt, smells and kitchen waste give a poor perception and while the gradual loss of trade as customers take their business elsewhere can be harder to assess, the effect is often the same in the long term.

There is no ‘silver bullet’ solution for dealing with FOG. Kitchen design, working procedures, staff training and investment in equipment and other solutions for effective disposal of FOG all play a part.

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SITE EVALUATION

While the challenge of FOG disposal is important to every business, the practical requirements differ site by site. Before choosing a method of disposal, operators, along with consultants, designers, contractors and equipment suppliers will need to consider:

- Kitchen use, including the style of menu and cooking methods;
- Layout, assessing what is possible within the space available, including whether FOG disposal equipment will need to be placed inside or outside the kitchen;
- The drainage system, including its route through the kitchen and beyond the premises and in particular where the FOG load is heaviest and the potential for bottlenecks greatest;
- The drainage will need to be considered in conjunction with details of the equipment which discharges into individual drain runs, as well as the floor gully positions, especially for systems which rely on gravity to drain.
- Where relevant, the type of FOG removal specified by the landlord, parent company or franchisor;
- Installation requirements including access;
- Any requirements for the siting of FOG disposal systems specified by the local authority;
- Staff training procedures and working practices, particularly the cleaning regime. Staff turnover rates should be considered as untrained staff are least likely to follow procedures;
- Service and maintenance arrangements;
- Implementation of robust audit systems to assess drain health and successful FOG removal and management.

Failure to consider any one of these criteria properly is likely to lead to poor FOG removal practices, which will not only mean the initial investment cost is devalued or entirely wasted, but the ongoing costs to the business will be greater.

There is extensive guidance for kitchen designers in the BS EN1825-2 standard. This includes methodologies for assess¬ing wastewater flow, and likely FOG related issues. While each site should be considered on an individual basis when planning a solution, there are some fundamental principles which can be used as a starting point. At the most basic level, the longer the operation's trading hours and the greater the number of meals served, the more FOG is generated.

Consideration should be made for the potential for FOG to be created in the food preparation, cooking and warewashing phases in order that it can be managed effectively.

Any item of equipment in a foodservice operation, including those that do not have a direct water connection, has the potential to contribute to FOG entering the drainage system, and so must be taken into consideration.

This may include:

- Combination ovens
- Steamers
- Rotisserie ovens
- Fryers
- Kettles and bratt pans
- Wok stations
- Dishwasher and potwasher machines
- Potwash sinks
- Pre-wash sinks in dishwash systems
- Preparation sinks
- Macerators / food waste disposal units
- Floor gullies receiving residue from bratt pans, boiling pans / kettles, and floor cleaning routines
- Beverage equipment, where significant volumes of dairy product or coffee residue are sent to drain
- Ventilation systems with water wash down incorporated within system.

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Those responsible for reviewing, designing, specifying and recommending systems and/or actually supplying and installing the FOG system in place should visit the site to make an assessment, or review a plan of the site if it is a new build. All kitchen areas from where FOG can be discharged must be identified and details of the drainage arrangement understood, in relation to the level and type of catering activity undertaken.

The overall aim of this assessment is to understand the volume of FOG that can potentially enter the drainage system and to specify / recommend a solution that can appropriately treat or collect it.

It is important to look at the entire range of catering equipment used and assess its capability to generate FOG. This includes all food preparation and cooking equipment, as well as warewashing. Not all appliances drain directly into the water system, but if they produce FOG which could be disposed of in sinks or drains, there is the possibility that this will happen if correct procedures are not in place, or are in place but ignored by busy or untrained staff.

Cleaning arrangements for dirty plates, pots and pans, whether by manual cleaning or warewashing equipment, must also be factored into the assessment of FOG produced. The volume of water generated by defrosting frozen foods, resulting in FOG-laden water for disposal, also needs to be considered.

Inevitably problems will follow if FOG is allowed to escape into the drains

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.

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EQUIPMENT SOLUTIONS

To minimize the risk of blockage of drains the Building Regulations advise that kitchens in commercial hot food premises should be fitted with a BS EN1825 compliant grease separator or other effective means of grease removal. Along with gravity grease removal, solutions available include mechanical grease removal units and biological / bacterial dosing systems.

Best practice will involve a combination of products to maximise the removal and treatment of FOG that would otherwise enter the drains and subsequently the sewer. This should be the objective of any effective FOG management system. It has been explained that the composition of FOG is complex and therefore requires careful consideration, especially in relation to the processes that lead to its production.

Here are the equipment types that will assist in reducing FOG entering the sewer:

- **GREASE SEPARATORS**

- **GREASE REMOVAL UNITS (GRU)**

- **BIOLOGICAL / BACTERIA BASED DOSING SYSTEMS**

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EQUIPMENT SOLUTIONS

Grease separators

A grease separator, often called a grease entrapment system or grease trap, takes advantage of the fact that FOG is less dense than water, and so naturally floats on the surface of the water within the separator unit. At the same time, food solids are generally more dense than water and so sink to the bottom.

While models differ, all separators 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 is 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 on the bottom.

The grease separator needs access for cleaning out, servicing and maintenance, which should be undertaken by licensed contractors, to deal with the waste product.

The Environment Agency licenses waste oil collectors and they can provide a list of those operating in your area. You must ensure your waste contractor is an Environment Agency licensed waste carrier and that they give you a copy of the waste transfer note.

The siting of grease separators will depend on the space available as well as any local authority requirements. As previously stated there exists a design standard that grease separators should adhere to. In addition, they must comply with Food Safety and Health and Safety legislation. A grease separator system can be fitted inside or outside the kitchen and foodservice operation. Effectiveness of any grease separator system is dependent on the correct sizing/volume capacity and location of the grease separator system, temperature of discharge and detergent levels. Separators may now include sophisticated maintenance facilities that remove the need for opening the separator and that entirely automate the disposal, cleaning and refill cycle.

Design guides exist, but specialist advice should be sought to advise on the correct sizing and location to suit wastewater discharge volumes and types.

The following figure is a basic illustration of how a grease separator works. Actual units can have options for 1) dosing connections, 2) mechanised cleaning and 3) solids collection.

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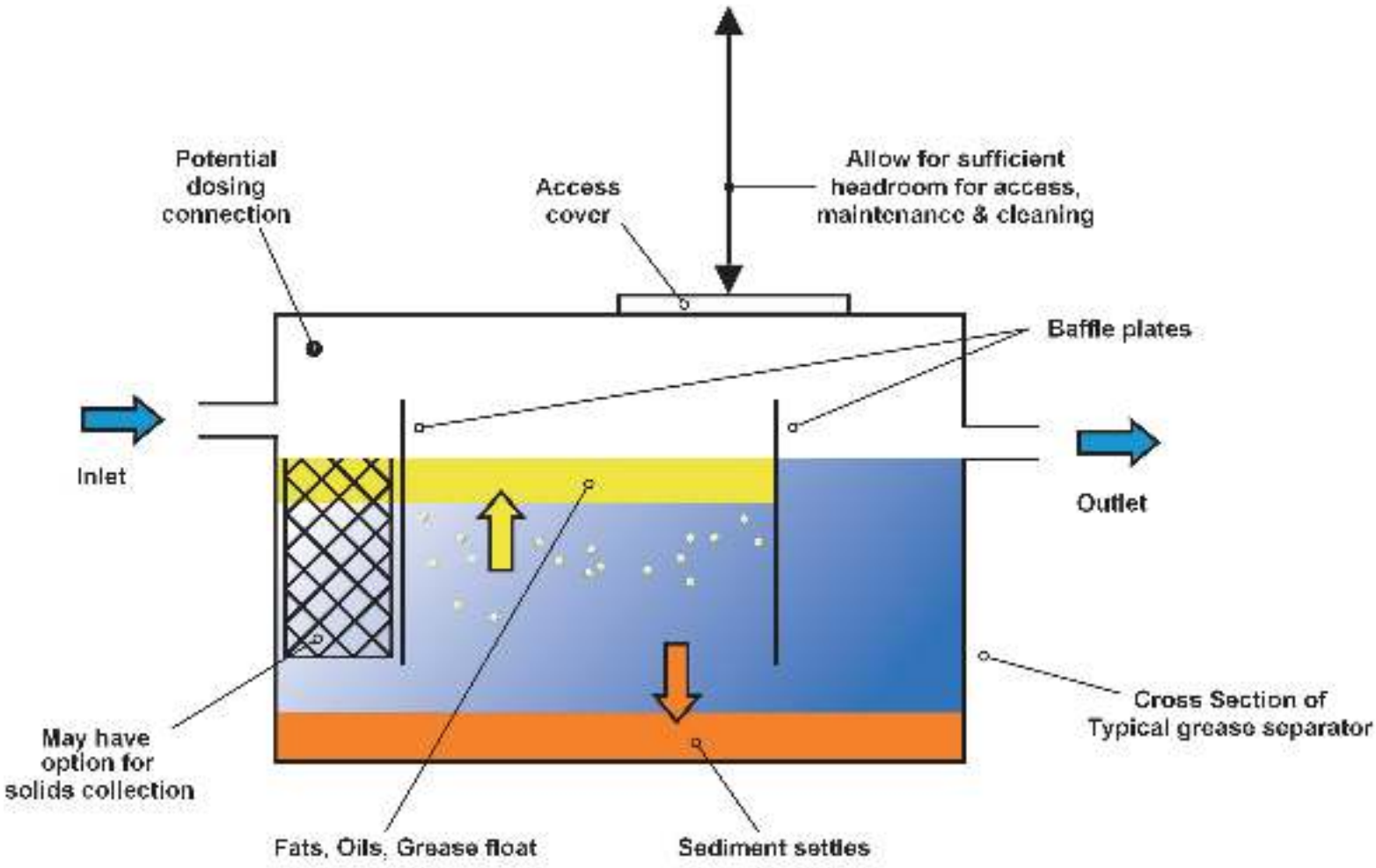
PASSIVE GREASE SEPARATORS – EN 1825

All aspects of separator design, performance, installation and maintenance are covered by the harmonised Standard EN 1825. Construction Products Regulations (CPR) came into force on 1st July 2013 and has significantly changed the landscape of the construction industry. This makes it a legal requirement for construction products manufactured under the Scope of harmonised European standards (hEN's) to be CE marked. It will be a criminal offence to sell such products without the CE mark.

PASSIVE GREASE SEPARATORS – NON-EN 1825

There are a number of passive separators available which are not designed or tested in accordance with EN1825. These are often smaller in volume, but, to a lesser extent remove FOG and sediment by the same gravitational mechanism. As with any separator system, the sediment or sinkable components of FOG have to be safely removed from such systems as part of the maintenance regime. As these products do not conform to the recognised Standard the manufacturer should be consulted with regard to performance, selection, operation and maintenance requirements.



Grease Separator

Grease Separator - basic principles

EQUIPMENT SOLUTIONS

Grease Removal Units (GRU)

A GRU or Grease Removal Unit is a self-emptying 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.

These stand-alone units are usually sited in the kitchen or close to it and are connected to the kitchen's waste water pipework.

Whilst the use of mechanical skimming or similar GRUs compensates for the smaller size of the unit, the lack of available space to store FOG means GRUs need to be emptied more frequently, often daily. If internal GRUs are fitted under kitchen floors, a solution sometimes adopted, then easy and clear access is essential.

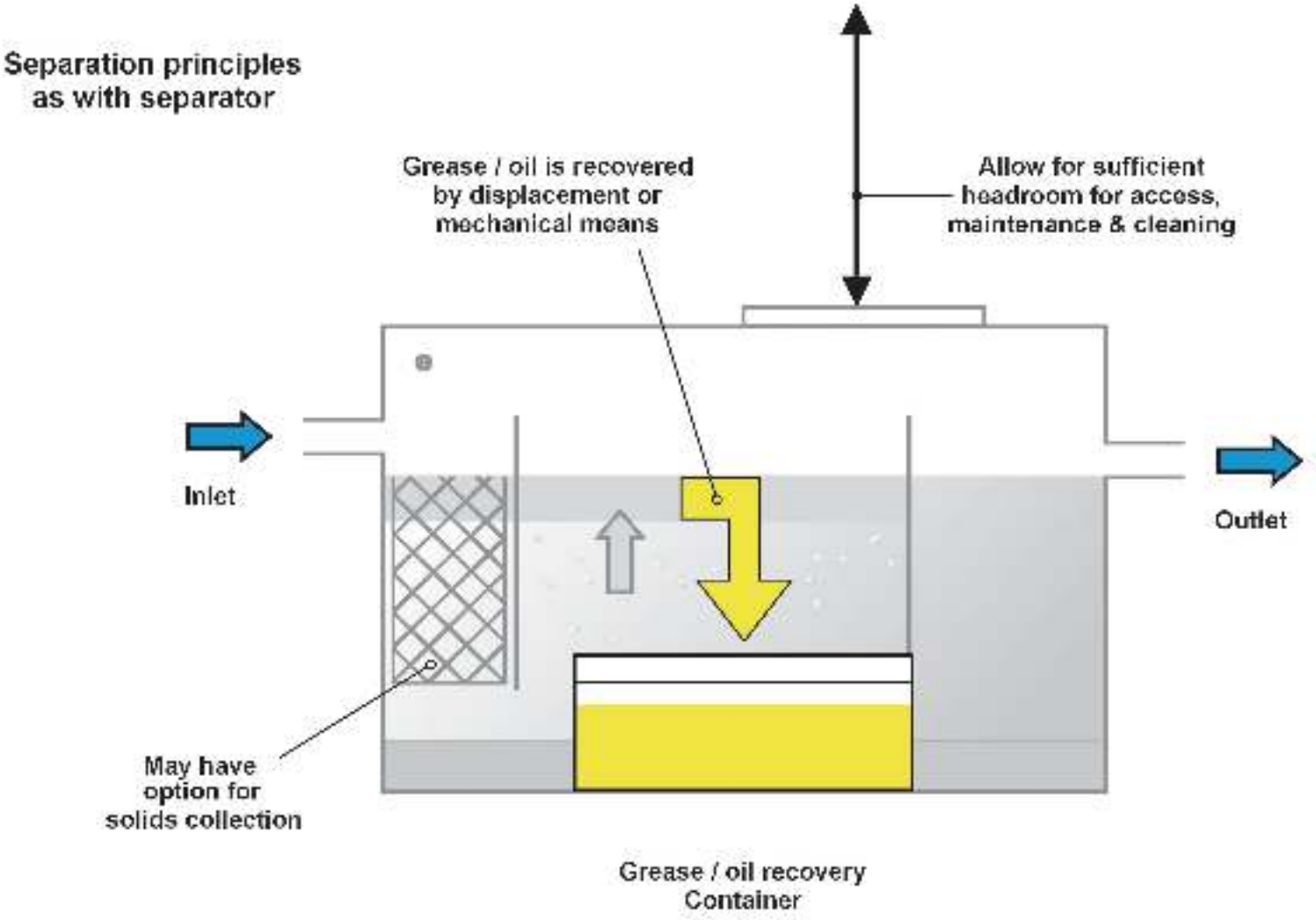
Locating an internal GRU, or standard grease separator system close to the high temperature waste discharge from catering equipment or sinks, and to water discharge laden with detergents will affect the separation of the FOG from the water and so reduce the ability of the system to trap and remove the FOG from the waste discharge. Dishwashers, warewashers, combinations ovens, and steamers are among equipment that may affect the operation of an internal GRU. In addition to location, the correct sizing of a GRU is very important to ensure its effective operation in dealing with waste water volumes. Specialist advice should be sought from the manufacturer or specialist contractor.

Where GRUs are installed, 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 infestation.

There are no current design / performance standards recognised for GRUs in the UK. In the absence of appropriate standards, the sizing of these units is sometimes based on the Drainage Institute's Guideline document.

Consideration will also need to be given to the electrical and mechanical requirements of some GRUs for installation purposes and also for the subsequent maintenance requirements. The manufacturer or installer will be able to advise.

GRU's can be 'active' or 'passive' in operation in that the separated FOG is collected by some electro mechanical mechanism requiring power supply, or functioning solely on physical mechanisms deployed in the units design



Grease Recovery Unit (GRU)

Biological / bacteria based dosing systems

Bioremediation is the use of micro-organism metabolism to remove the pollutants. Biological or bacteria-based dosing systems use cultures designed to biologically break down the FOG in the drainage system. Naturally occurring bacteria are part of the make-up of the dosing materials, which can be supplied as fluid or powder, depending on the system used.

There are a number of factors that are known to effect the rate at which micro-organisms act on FOG. These include temperature, pH, the amount of oxygen in wastewater, the natural level of micro-organisms in the wastewater, and detergent levels. Perhaps the most important factor is time, the longer the solution has to act on FOG, the better the result. Additionally the efficacy of any dosing system is directly proportional to the make-up and bacteria types and population levels of the product.

There is also a choice between live and dormant bio-cultures. Live cultures are effective but their shelf life can be short so be sure to follow manufacturer guidance on storage and use. Powerful, multi-strain dormant cultures may prove more practical. When they encounter FOG they are as effective as live cultures but have a longer shelf life and can last longer in the drains.

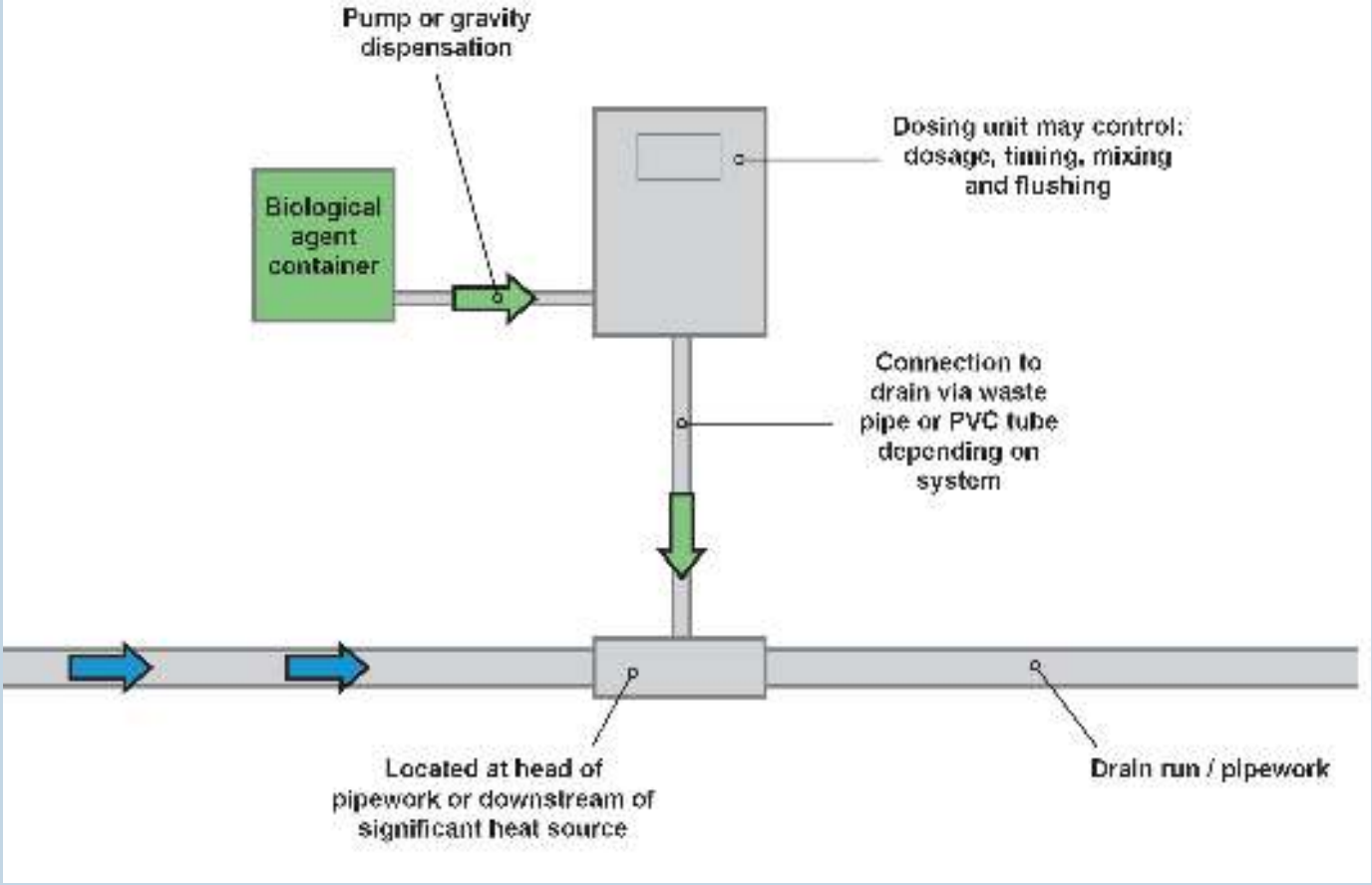
Dosing systems work by delivering bacteria to augment the natural community of micro-organisms that naturally exist in kitchen wastewater to biodegrade FOG over time. This speeds up the process of the FOG biodegradation. As a result, FOG is broken down irreversibly into simpler compounds and is then able to pass through drainage systems.

Dosing is carried out via a direct connection to the kitchen's waste water pipe work. This should be as close as possible to the outlet of the an appliance, sink or passive grease separator, taking into consideration any heat from the waste discharge which can destroy the bacteria For best location advice, seek manufacturer's guidance.

Many specialists advise that the most effective approach is a combined assault on FOG, which uses both dosing systems and grease separators. For best effect, dosing products should be introduced 'downstream' of the source appliance and 'upstream' of a passive grease separator which may also help reduce the temperature. The differing systems available are wall-mounted, pumped and pre-activated dosing.

The internal drains connecting to the system may be fitted with biological dosing systems to improve the functionality and reduce maintenance of the grease separator system. Dosing also reduces smells in the kitchen and maintains the efficiency and free running of the internal and external drains that feed the separator system. While dosing with right constituent bacteria and additives can help to remove the liquid element of FOG, it can also play a part in assisting the breakdown of organic matter. This can reduce the solids or sediment that sinks in the water. However there will be the need for continued monitoring to remove both FOG and sediments. This will reduce the frequency of emptying cycles.

Systems and products should be able to demonstrate that they meet appropriate safety, quality and efficacy tests.



Bioremediation

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USING MULTIPLE EQUIPMENT CONFIGURATIONS

Using more than one equipment system or utilising multiple units of the same equipment will increase the potential to prevent FOG entering the kitchen drains and sewer through separation and treatment. Suggested multiple configurations that may be applied, are set out in the sequence shown below:

FIRST COMPONENT	SECOND COMPONENT	THIRD COMPONENT
BIOLOGICAL / BACTERIA BASED DOSING SYSTEM	*GREASE SEPARATOR/S (INTERNAL AND / OR EXTERNAL TO KITCHEN).	
GREASE REMOVAL UNIT	BIOLOGICAL/BACTERIA BASED DOSING SYSTEM	*GREASE SEPARATOR(EXTERNAL TO KITCHEN)
GREASE REMOVAL UNIT	BIOLOGICAL/BACTERIA BASED DOSING SYSTEM	
*GREASE SEPARATOR (INTERNAL)	*GREASE SEPARATOR (EXTERNAL TO KITCHEN)	

* Larger grease separators will provide a greater residency time for the waste water and therefore have the potential to collect more FOG than smaller units and they will provide increased contact time for biological activity.

The potential to remove FOG increases using multiple units

It will be important to design and specify the configuration that best meets the needs of the site, through the evaluation process outlined in the Code of Practice [Site evaluation section], as well as consulting with the local Water and Sewerage Company and ensuring compliance with food safety legislation as advised by the appropriate Environmental Health offices.

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SUMMARY

Any one of these systems may be used individually or in conjunction with other solutions. After a full evaluation of a site's expected output and volume of FOG, expert advice should be sought and it will be important to ensure that the local Water and Sewerage Company and Environmental Health Department agree with the proposed solution. Water and Sewerage Companies may have their own specific requirements in the management of FOG from commercial kitchens. The local Environmental Health Department will be able to advise on the suitability of FOG management equipment in relation to the hygiene and food safety requirements for commercial kitchens.

Best practice will involve a combination of products to maximise the removal and treatment of FOG that would otherwise enter the drains and subsequently the sewer. This should be the objective of any effective FOG management system. The composition of FOG is complex and therefore requires careful consideration, especially in relation to the processes that lead to its production.

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INSTALLATION, MAINTENANCE AND SERVICING

INSTALLATION

As already established, every kitchen is different and needs to be assessed on its own merits for the purposes of FOG management, just as it does for all elements of kitchen planning, installation, workflow and maintenance. However, it is also important to establish common elements that need to be considered before any FOG solution is installed and implemented.

Whichever system or combination of FOG management systems is to be used, based on the site evaluation criteria, the starting point for any installation is an up-to-date drainage plan, or the proposed drainage plan for a new build.

The BS EN12056-1:2000 standard for drainage systems inside building requires that “drainage systems shall be designed and installed so that health and safety of the users and occupiers of the building is not affected, by amongst other things, the penetration of toxic or noxious odours into the building. Drainage pipework systems installed inside buildings shall not release vapours and foul air into the building.”

Grease separators should be installed in a location that provides easy access for inspection, cleaning, and maintenance, including pumping. Grease separators should be located as an integral part of the kitchen drainage system and before the sewer.

Installation of GRUs and smaller passive units which require frequent emptying and cleaning should allow easy access and external storage facilities for collected FOG.

Most biological dosing systems are wall-mounted, and require sufficient space to locate the dosing pump and, depending on the system, the container of biological agent close to the point of injection. Other dosing systems are self-contained, and incorporate the biological agent within the system. Units should be located so that the injection point is downstream of and as close to the FOG producing equipment / work areas / stations as is possible.

SERVICE AND MAINTENANCE

An investment in equipment should never be seen as a substitute for staff training and correct working practices. Any FOG control system is only as effective as the service it receives. All these elements need to be in place to ensure that FOG is managed, treated, collected and disposed of correctly.

An unmaintained grease separator or GRU system is a health hazard, especially in a catering and food preparation area. Grease separators need emptying, GRU systems require regular interventions and biological dosing systems require regular top-ups and servicing. Grease trap contents are regarded as a hazardous waste and must only be handled by a licensed contractor. They will all only work if they are correctly serviced and maintained. In practice, the maintenance of FOG systems is one of the worst tasks in the kitchen and therefore often postponed or avoided altogether.

The hazardous waste generated, combined with the technical nature of modern systems and the implications, both legal and environmental, for operators who manage FOG badly, makes it a requirement to out-source servicing and maintenance to specialist third parties to ensure that it takes place. However, there are also procedures that can be incorporated into internal kitchen systems which play an important part in minimising the introduction of FOG into drainage systems.

SERVICING REGIME

For specialist servicing and maintenance, the factors which need to be considered include:

Grease Separators: These require access in order for the collected FOG to be emptied and removed from the site by licensed contractors. Passive grease separators should be emptied when they are 25% full of solids, and while biological dosing can improve the quality of wastewater and reduce regularity of emptying, sediment removal is still necessary. Some more sophisticated internal separators have automated cleaning facilities that remove the need for users to open or access the internal parts of the separator.

Grease Removal Units: Access is required for frequent maintenance, which will include emptying the collection container, cleaning the wiper blades or valve, and empting the filter basket / strainer baskets. Depending on the quantity of FOG generated by the operation, GRUs may need to be emptied and cleaned daily. This should be taken into account when planning the type of FOG system used and the ongoing cost of maintenance. If kitchen staff rather than external contractors are responsible for emptying and cleaning a GRU, this will need to be included in kitchen manuals and working procedures, and appropriate training provided.

Dosing Systems: Some dosing systems require regular manual top-up, while others can be calibrated to automatically top-up, either at regular intervals or by monitoring the volume of discharge from the kitchen. Systems will also require regular refill and testing by the supplier or their authorised service provider, which depending on the system used will typically be done monthly, quarterly or six monthly.

KITCHEN PRACTICE

Staff training should include instruction on the importance of keeping FOG and food waste out of drains and sewers in the first instance. Operational staff should be fully aware of the company policy on FOG and how to dispose of waste in general. *Disposal of Fats, Oils, Grease and Food Waste Best Management Practice* provides a clear and comprehensive guideline for kitchen staff.

Oils and Fats should never be tipped into or introduced directly into the drains via sinks, or floor drains. Oils and Fats should be collected and stored securely (see note 1 page 5).

Working systems should specify that plates, pots, trays and utensils are scraped and dry wiped with a disposable kitchen towel prior to putting them in the sink or dishwasher, and the scrapings placed in the food waste bin.

All sinks should have a strainer for placing in the plug hole to prevent food waste from going down the drain. Waste collected in the strainer should be placed in the food waste bin ready for collection.

Kitchen procedures should clearly set out the process for dealing with food waste and cooking oil, which should, ideally, be safely stored away from the kitchen in sealed containers, for specialist collection.

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APPENDIX

LEGISLATION IN ENGLAND AND WALES, SCOTTLAND, AND NORTHERN IRELAND

RELEVANT LEGISLATION

Relevant UK legislation and standards referred to in this report includes:

- BS EN 1825-1:2004 Grease separators — Part 1: Principles of design, performance and testing, marking and quality control
- BS EN 1825-2:2002Part 2: Grease separators Selection of nominal size, installation, operation and maintenance
- Either Part H of schedule 1 to the Building regulations 2010 or Approved Document H to the Building Regulations, amended April 2002

Please note that different regulatory regimes apply in Scotland and Northern Ireland.

- Environmental Protection Act 1990 Section 111 (disposal of waste)
- Environmental Protection Act (Duty of Care) Regulations 1991 (disposal of waste)
- Environmental Protection Act 1990 Section 79 (statutory nuisance)
- Food Hygiene (England) Regulations 2006 and European Regulation (EC) No.852/20045 (responsibility to keep food premises clean)
- Water Industry Act 1991 section 111 (discharge into public sewers)
- BS EN 12056-1:2000 - Gravity drainage systems inside buildings

SCOTLAND

- The Scottish Building Standards: Technical Handbook: Non -Domestic.
- Sewerage (Scotland) Act 1968 S46

NORTHERN IRELAND

- Water & Sewerage Services (NI) Order 2006
    - Article 168 – discharge to a sewer
    - Article 236 – power to recover clearance costs
- Draft Food Waste Regulations (Northern Ireland) 2014

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APPENDIX

ABOUT THE FOG FORUM

The FOG Forum was established to bring together the community of organisations and companies with an interest in the cause, effect and control of fats, oils and grease from the hospitality industry in the uk.

THE OBJECTIVES OF THE FORUM ARE:

1. Ongoing reduction of FOG compounds in sewers and internal drains;

2. Educating consumers and operators on their role in FOG reduction;

3. Promotion of FOG compounds for recycling;

4. Promotion of best practice and the influencing of standards;

5. Influencing effective legislation and regulation.

THE STEERING GROUP (SG) MEMBERS AND OPERATION

The FOGSG consists of trade associations, government representatives, and an academic liaison with an independent chairman being elected from within this group. Other organisations interested in joining the Steering group may apply through the Secretariat – British Water.

The FOG Forum operates through Working Groups established by the Steering Group, which Forum Members may join. The four Working Groups are:

WORKING GROUP	TITLE
WG1	CONTROL OF FOG AT SOURCE, COMMUNICATION AND EDUCATION
WG2	EQUIPMENT SELECTION, INSTALLATION AND MAINTENANCE
WG3	PRODUCT PERFORMANCE ASSESSMENT PROCEDURES
WG4	DISPOSAL AND REUSE OF FOG AND FOG COMPOUND

The FOG Forum is an open group with membership by a small subscription to cover operating costs[1]. The organisation is administered by British Water, Southbank House, Black Prince Rd, London. SE1 7SJ.
Telephone number: 0044 (0)20 3567 0950. Fax number: 0044 (0)20 3567 0961. email: info@britishwater.co.uk. web: www.britishwater.co.uk

[1] Free to members of British Water

USEFUL CONTACTS

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Catering Equipment Suppliers Association
Ground Floor, Westminster Tower, 3 Albert Embankment, London. SE1 7SL
Tel. 0207 793 3030
email: enquiries@cesa.org.uk
www.cesa.org.uk

Catering Equipment Distributors Association
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