

# At Source Removal of Commercial Kitchen Waste - Considerations For Design and Operation

The problems associated with the operating of waste management policies in commercial kitchens is growing. Legislation on landfill and drainage disposal is such that design and management with due diligence must consider the options for storage and disposal of commercial kitchen waste from premises.

The change in our lifestyles has resulted in a shift from fats to oil in cooking and food preparation. This has impacted on drainage systems as oil is a destructive force in drains. By coating bacteria and food it can ruin any eco system or biofilm in pipework. **Oil mixes with organic matter, coating the sides of pipes causing blockages and reducing water flow.** This is compounded by our use of designer chemicals in cleaning processes - These are chemicals that either kill bacteria or reduce the oxygen source required to enhance bacterial action. Oil can also form a layer between water and organics in pumping stations thus encouraging the formation of floating rafts of organic matter which can eventually stick and result in burnt out pumps and severe flooding).

## Storage facility

ie. Bins, enclosures, garbage store, compactors etc should be considered carefully. Waste oil storage & bunds must ensure no oil can contaminate water run off. Adequate thought must be given to the possibility of rodent/pest/insect infestations to ensure proper waste facility is provided.

## Kitchen waste

Bins, bag holders, storage containers in kitchen these should be of a type to allow easy removal of waste to main storage facility. Waste oil/including oil from ramakin/tuna/fish etc, should be returned to containers used to supply oil and stored in bunded area until collection by acorn member or other registered waste removal contractor.

## “Food Waste Disposal” Machines

These were designed originally for food scraps from plates before pre rinsing stage cleaning. FWD are now used as ‘food disposals’. The quantity of organic solids, oils and fats disposed of into drains (**depending on kitchen management regime**) could be immense. Excess oil and food may cause serious clogging of drainage systems and the use of sanitizing chemicals can aggravate this problem. *Note: It must be safer to remove and bag waste for disposal at source than from pipes and tanks where it could be contaminated with soil waste which would then reclassify it as dangerous waste.*

## Food

Certain foods contain oils, fats or starch eg. Sauces, creams, milk, mayonnaise, meat, vegetables, cereals, potatoes. In fact almost all our organics contain a percentage of Fat, Oil or Grease (F.O.G.). Food also contains bacteria which will degrade it naturally. If you leave a banana until it starts to decompose, you will find that water collects under it. This is nature's own way of reducing waste, and the bacteria are producing CO<sub>2</sub> & H<sub>2</sub>O in the process.

## Filters

These are designed to remove solids from the pipe system either in sink or under sink and should be installed in all instances to prevent solids entering waste system, many types are available eg. Flat sink strainer, Colander, Upstand Sink Filter & Overflow, Insink Pre Filter, Wet Waste Interceptor, SGTP pre filter

## Grease traps/interceptors

Designed to remove oil and fats from system. Traps can be at source, close to sinks, above or below ground, or external interceptors. It is recommended that at source waste control is installed, as this enables pipe systems to work at optimum by reducing contaminants.

Grease trap waste this is classed as catering waste (when thickened with product ie. Aluzorb) may be deposited in waste bin in sealed plastic bags.

## Treatment plants/septic tanks

These are fitted to premises where no mains connections are available. These are tanks that work by a biological action. **Proper sizing, education and limited use of chemicals and sanitizers are important if plants are to operate successfully.** Kitchen sanitizers and oil can, if allowed into the system, destroy aerobic bacteria. This can prevent plants from operating and cause costly reactive maintenance and cleaning. Some water authorities collect waste cooking oil at entrance to their plants and may have little objection to oils disposed of in drains. However the damage to pipe system leading to plants must be considered and oil should be prevented from entering waste stream.

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## Main drain system

Sewage collection providers are blaming kitchen operators for most of the problems associated with F.O.G build up in systems. In some areas boards are prosecuting serial offenders (this can be a criminal action and jail sentences can be imposed). Ignorance of drain regulation is not an admissible defence, and when taken to court fines and punishment can be severe.

## Sanitizer Chemicals

The workings of pipe systems rely on bacteria to be constantly working and breaking down organics helping the flow through pipe systems and reducing likelihood of stoppages. The bacteria liquify and coat organics during the digestion process assisting flow. Bio-cidal sanitizers and anti-bac preparations are designed to kill bacteria. If this occurs in pipe system oil & food devoid of bacterial action coat pipe surfaces. This build up continues until bore of pipe is reduced thus when a small part breaks off it can block the narrow outlet thus causing water stoppage or blocked drain. Water dilutes detergents, supplies oxygen to bacteria and pressure required to push debris along pipe. Without active bacteria our pipe systems may not operate on water pressure alone.

## Bacteria

Bacteria is the building block our Public Health system is based on, bacteria breaks down organic waste produced by humans and animals and turns it into useful products. Waste from healthy humans and animals will degrade naturally adding water will give bacteria oxygen source to encourage breakdown actions. Additions of chemicals or biocides will retard or halt degradation of organics making disposal more difficult. The addition of bacteria to tanks and pipe systems helps replace bacteria killed by our actions – providing management of chemicals & types of chemicals is controlled by operators. Regenerating drain systems by use of bacteria and dosing equipment is not a 'Magic Fix'. Management, understanding, diligence are required to ensure a problem free environment. Consider a small town/ship drains work 24 hours per day taking all drains to one point ie. tank or tanks. What happens to solid waste/liquid inc. chemicals etc? What happens to it considering volume produced? Do we dig it out and dump it in land fill or in sea. What? Our workers the bacteria reduce the volumes by digesting it from time it leaves our premises to the arrival in treatment facility where bacteria are encouraged to multiply and carry out their natural function cleaning up behind us. Bacterial actions can be reduced by our lifestyles ie. diet use of sauces/oils in cooking. Designer chemicals, shampoos/soaps, detergents/sanitizers/biocides, cleaning products.

Hygiene in food preparation and toilets is imperative. It is good practice to disinfect all touch surfaces in kitchens and toilets. This however, should be done by using spray type applications with an adequate disinfecting solution and should not, within reason, be allowed into the drainage system. Chemicals should, in the main, sufficiently clean the required surface to ensure there is no food stuffs left for the survival of bacteria. However, when disposed of, such chemicals should be able to biodegrade at a reasonable rate.

**NB: There is a difference between soluble and biodegradable.**

## Conclusions

The main ingredient in keeping drains working or treatment plants operating is management awareness of problems that can occur. Safety and hygiene audits/risk assessments are carried out. It may be that at this stage an assessment of what effect the practices carried out will have on the drainage system should be included. We would recommend that all management professionals involved in maintenance, operations, catering and cleaning should meet to discuss each department's input into the safe working of the treatment plant. A deterrent (or carrot for those who are efficient) for poor practice could be that fines or charges imposed by environmental agencies could be levied on the department that fails to take notice of, or effectively manage the problems. Otherwise, these costs may have to be shared by all if the problem is ignored.

Removal to refuse bins of kitchen waste would appear to be a common sense approach. The practice of contaminating pipes via food waste disposal units and then dealing with the resulting problems would appear to be flawed and costly.

The myth of problems with pest infestations can be simply expelled by using metal or lockable refuse bins and through management.

**Waste is a serious factor in all commercial and industrial kitchens. The ultimate cost in not having a waste management strategy could be immense.**

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