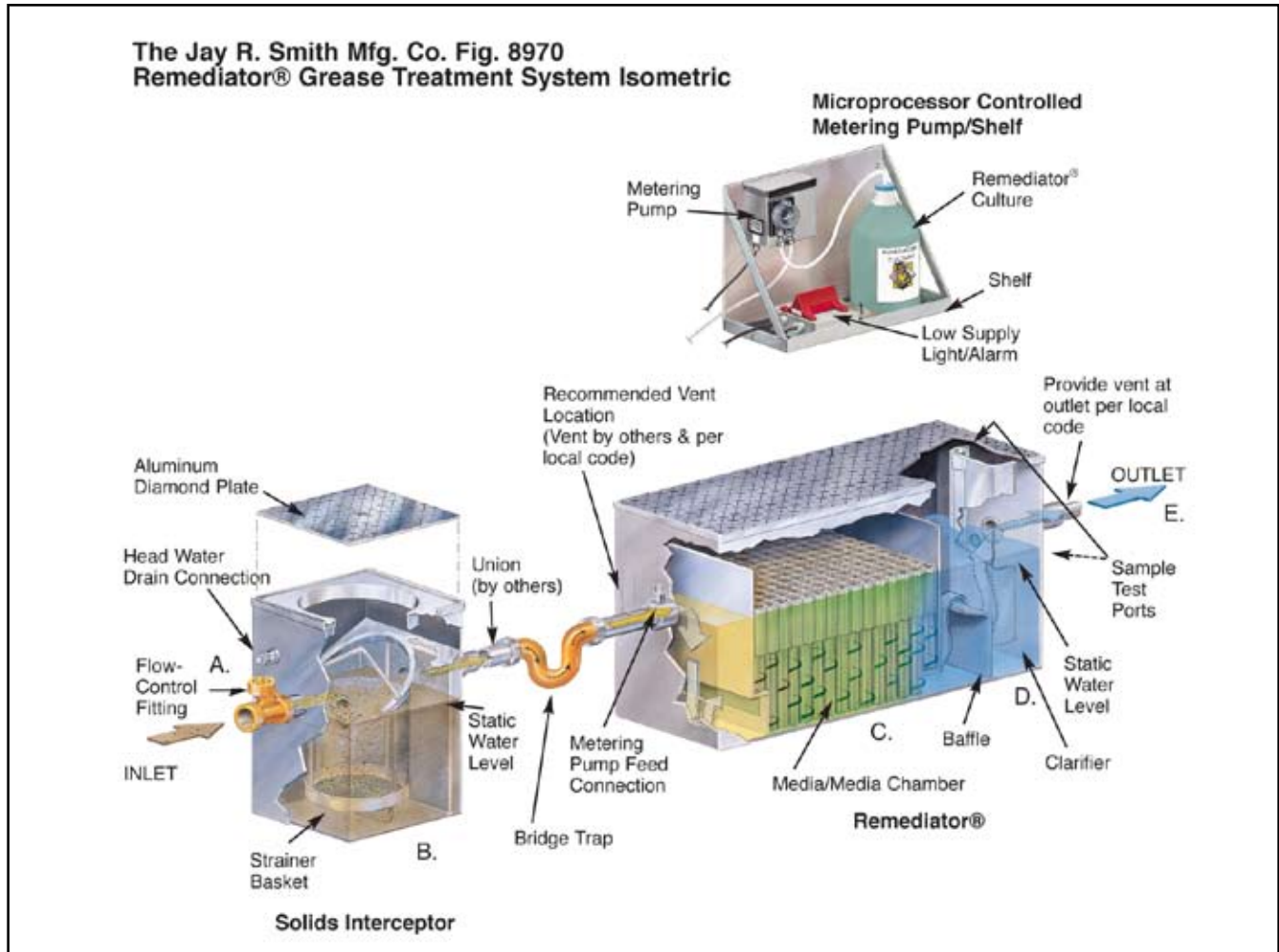




JAY R. SMITH MFG. CO.®

case study

Jay R. Smith Mfg. Co.® Remediator Product Focus/Application Pretreating Fat, Oil and Grease (FOG)



Historically, jurisdictions encouraged or allowed storage devices such as grease traps or interceptors (passive and automatic, internal and external) to separate and retain fats, oils and grease (FOG) from wastewater only to find out that they were not being maintained. The results ranged from clogged sewer pipes and drainfields to sewage spills and overflows on city streets and roadways and increased loading to Publicly Owned Treatment Works (POTW).

To address this problem, proactive municipalities across the country are implementing grease control ordinances as part of Sewerage System

Management, Operation and Maintenance (MOM) Programs. The goal of these programs is to prevent FOG from entering the sewerage system.

The Remediator® Grease Treatment System from Jay R. Smith Mfg. Co. was designed and developed to address this need. It works as a bioreactor engineered to separate and retain FOG from a live discharge stream. The Remediator is installed as an appliance at the source to prevent onsite drain blockage and reduce downstream accumulation.

The advantages of onsite bioremediation of water containing grease are:

- It virtually eliminates the need for frequent cleaning and disposal of grease
- The pollutant is reduced to its basic elements (carbon, hydrogen & oxygen) usually in the forms of carbon dioxide and water
- A considerable quantity of food scraps is removed from facility effluent and can become a useful byproduct.

The Remediator® is unique in its design in that it works like a treatment facility, eradicating the FOG at the source before it can be discharged. The difference is actual pretreatment versus storage and disposal. Pretreatment has been formally defined by the Code of Federal Regulations as “the reduction of the amount of pollutants or the alteration of the nature of pollutants’ properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW.

Grease, the major component of the FOG stream, is generated by facilities engaged in food preparation and service. Significant quantities of grease can accumulate in building piping, municipal collection systems and wastewater treatment plants. If left unmanaged, grease can cause interference in wastewater collection, transmission, and treatment systems. Blockages due to grease build-up are a common cause of sanitary sewer overflows, and grease accumulation at treatment facilities can lead to pass-through of contaminants. Escaping grease in outflow and sludge can serve as transport and growth support for pathogenic organisms resulting in contamination of lakes, rivers, beaches and groundwater.

Proper grease interceptor design, management, operation and maintenance are critical factors to any grease control program. Grease is a, if not the, principal element of collection system accumulation failure whether through pipe-wall capacity reduction, misalignment point restrictions, fitting impact cementation, root penetration points, moving agglomerations, concentrated corrosion or all of the above. A logical and somewhat historical parallel appears to be developing, of necessity, between the treatment of sewage and industrial discharges containing grease: bioremediation systems. This

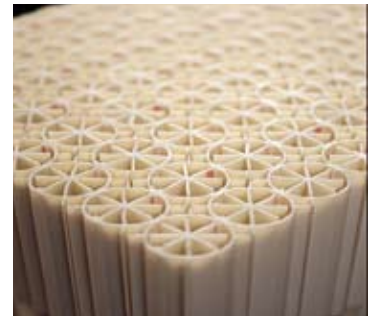
is not the application of bacteria, enzymes or chemicals additives to conventional grease waste systems utilizing grease traps or grease interceptors. This practice is “removal” not disposal.

The GOAL is the complete eradication of suspended FOG at the source. The Remediator® is the most advanced, certified and effective method of eliminating FOG from live grease-laden discharge streams at the source. The system provides food service users the opportunity to upgrade the quality of

their wastewater discharge and meet pretreatment regulatory requirements while reducing operating and maintenance costs.

The Remediator’s unique design combines onsite

pretreatment with the biochemical disassembly of the FOG molecules, leaving no material requiring storage or disposal. Bacteria first break the bond between the glycerol and fatty acids and then break the bonds in the fatty acids chains by a process called beta-oxidation. This process continues until carbon, oxygen and hydrogen atoms are released in the forms of carbon dioxide and water. The unit consists of no moving parts and is designed to require removal of non-grease material only once or twice a year.



Vertical Vortex Media

The Remediator® Grease Treatment is a fixed film system. “Fixed film” refers to a biofilm consisting of microbes attached to a structure (media) designed to maximize pollutant / microbe contact - a common application in wastewater treatment plants.



The Remediator® Grease Treatment System Fig. No. 8970

The influent enters the solids interceptor through a flow control that assures a proper rate of flow as well as oxygen introduction. The flow passes through the media where separation is effected by conventional gravitation and vortex induced coalescence. The media is engineered to create vortices which cause less dense materials (FOG) to rise along the vertical surfaces of the media where they come in contact with the micro-organisms inhabiting the biofilm and allows for the digestion process to take place giving off residuals of carbon dioxide and water. The drainage continues to the clarifier chamber and is channeled to the outlet where it can be piped to the sanitary sewer system.

The Remediator® System has been tested for separation and retention in accordance with PDI G-101. It has also been tested for construction and effluent quality and is listed with

IAPMO - File 3782 and NES - PCR GI 101.012. Additionally, several local code authorities across the country have approved the Remediator for point of source use. It routinely produces effluent FOG quantities in the 20 to 30 mg/l range at 20 to 75 gpm rates without requiring periodic cleaning or pumping.

Onsite pretreatment of effluent containing FOG makes logistical, financial and environmental sense if it is conducted reliably to incorporate all three elements of pretreatment separation, retention and disposal - without extensive operator attention and maintenance or additional expense.

For more information on this product, or to contact your local Jay R. Smith Mfg. Co. representative, visit www.jrsmith.com.