

REMIATOR™

Installation, Operation & Troubleshooting Guide

TABLE OF CONTENTS

	Page
Introduction	1
Site/Specification Checklist	4
Remediator™ Sizing Procedure.....	5
Installation & Startup.....	6
<i>Placement</i>	6
Operation & Maintenance	8
Remediator™ Operation Inspection Checklist	10
Water Sampling Procedure	11
<i>Sampling Ports</i>	11
<i>Sampling Procedure</i>	11
Accumulation Removal Procedure	12
System Performance Check List	13

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2781 Gunter Park Drive East
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Voice 1-334-277-8520, Fax 1-334-272-7396*

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INTRODUCTION

SITE/SPECIFICATION CHECKLIST

Sizing and proper installation of the Remediator™ are crucial to its optimal functioning. Certain careful observations during the initial review of a proposed application of the Remediator™ can save numerous hours of correction later.

First, the Remediator™ system is designed to capture and disassemble FOG (Fat, Oil & Grease) molecules. Not, to substitute as a recycle bin for oil or, a disposal for solids.

Second, the Remediator™ is a system designed to function in concert with its components and the fixtures in the kitchen and as such, must be sized using the provided sizing method. Do the calculations for your records to be certain the Remediator™ is properly matched to the load.

Third, the Remediator™ can not be installed downstream of a grinder or pulper.

Fourth, placement of the components in the order prescribed with easy access to the solids interceptor is required. Deviations from these tested installation requirements will only compromise and decrease user satisfaction. In instances where system modification or component alteration seems to be required, analyze the layout again and if the application is absolutely incompatible without modification of the Remediator™ System, contact the factory.

The SITE/SPECIFICATION CHECKLIST will assist you in making a sound installation decision.

SIZING PROCEDURE

Proper sizing (utilizing each step of the guide) is essential to handling expected loading. However, some judgement must be exercised in the process. For example, if the sizing produces a gpm rating very close to one of the design sizes, going up to the next size would be advisable to avoid problems if fixtures are added or, if kitchen pollution management practices are not of the highest quality.

The seven steps outlined in the SIZING PROCEDURE are self explanatory and when followed conscientiously, will result in proper sizing for the application.

INSTALLATION & STARTUP

If the guidelines provided in SITE/SPECIFICATION CHECKLIST and SIZING PROCEDURES have been followed completely, the judgements called for during installation will be minimized and made with confidence.

Field circumstances (change orders, etc.) may tempt modification of the unit, rearrangement or different placement of the components. DO NOT. If changes are substantial, they require re-evaluation under SITE/SPECIFICATION CHECKLIST and SIZING PROCEDURE and a different unit or different installation may be required.

Observe all steps on the INSTALLATION & STARTUP guide as well as any others which may be apparent within the context of all guide sheets.

For questions regarding the metering pump, refer to the instructions provided. The pump is calibrated at the factory and has battery powered memory to retain the setting for extended periods. However, should recalibration become necessary, the procedure is described in the instructions.

OPERATION & MAINTENANCE

The Remediator™ system is designed, engineered, tested and certified to operate in conjunction with normal kitchen practices and equipment (except grinders & pulpers) and discharge superior quality effluent; removing over 90% of the suspended solids over 2mm and over 99% FOG.

By thoroughly acquainting operators with the items in the OPERATION & MAINTENANCE guide, and periodically inspecting the installation following the OPERATION INSPECTION checklist, successful installations and satisfied owners can be assured.

WATER SAMPLING PROCEDURE

Sampling of the effluent of the Remediator™ is encouraged to assure water quality requirements are being met and the Remediator™ System is functioning correctly. *Standard Methods for Water Sampling and Analysis* and 40 CFR 136 (required procedures) are sometimes difficult to apply in the field by technicians unfamiliar with the Remediator™.

To ensure consistent, representative and objective samples are obtained, sample ports for all application configurations have been provided along with a WATER SAMPLING PROCEDURE which must be followed precisely.

Water sampling is a procedure which must be conducted accurately in order for the results to have any validity. Failure to follow the protocols precisely will result in misleading, potentially even damaging conclusions. FOLLOW THE “WATER SAMPLING PROCEDURE” WHEN ANALYZING WATER QUALITY.

ACCUMULATION REMOVAL

In instances of accumulation of solids or excessive oil discharge, it may be necessary to clean the Remediator™ to give the biofilm a chance to recover and metabolize normal loads.

When this overloading occurs, it is due to failure to use the solids interceptor strainer as prescribed (Page 8, Maintenance), absence of good kitchen practices, excessive oil discharge or improper installation. This results in excessive velocity at the Remediator™ inlet. These conditions must be corrected.

The Remediator™ is designed to handle normal loading (avg. 400 mg/l with maximum peaks of 2900 mg/l). Continuous loadings outside these parameters are not normal and may cause the Remediator™ to malfunction or perform poorly.

POLLUTION PREVENTION

Pollution (grease) prevention starts by not allowing excessive quantities to enter the drain system.

There are “GOOD KITCHEN PRACTICES” which go a long way to reducing pollution. Some of those ideas are listed in the REMEDIATOR™ SYSTEM PERFORMANCE CHECK LIST (Page 13).

Discuss the contents of this guide with the operators and emphasize the importance to them. They will appreciate the help and so will the Remediator™.

SITE/SPECIFICATION CHECKLIST

1. Is the proposed installation free of grinders or pulpers?
2. Can the flow control be installed not to exceed 18" below the highest contributing drain? (Floor sinks break height calculations)
3. Can the solids interceptor be installed close to the last contributing fixture with easy access for dumping? (If "no", see INSTALLATION & STARTUP NO. 4)
4. Will the vertical distance between the highest contributing drain and solids interceptor be less than 48"? (If "no" or if in a room other than the kitchen, see: INSTALLATION & STARTUP NO. 4)
5. Can the Remediator™ be installed close to the solids interceptor with easy access?
6. Will proposed location provide for venting and trapping at inlet & outlet of Remediator™?
7. Have all contributing fixtures been counted and calculated for flow? (See SIZING PROCEDURE)
8. Is the proposed location within operating temperature ranges (50°-120° F)?
9. Does the installation require extensions for either the Remediator™ or the Solids Interceptor?

REMIEDIATOR™ SIZING PROCEDURE

1. COUNT ALL contributing fixtures, measure and calculate capacities as follows:

Rinse Sinks:

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

Pot tubs:

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

Svc. Sinks

() _____ W x _____ L x _____ D = _____ cu. in. ÷ 231 = _____ gals.

1-A. TOTAL= _____ gals.

2. _____ Total Gallons from 1-A x .75 (fill factors) ÷ 2 minute drain down period= _____ GPM

3. _____ Number of Floor Sink (Except Indirect Wastes from above) x 4.0= _____ GPM

4. _____ Number of Miscellaneous Kettle Lines, etc. at capacity or at
Manufacturer rated discharge= _____ GPM

5. _____ Dishwasher: Manufacturer's Peak Rate of Drain Flow _____ GPM, (Initial rate with
full tank-Request from manufacturer)= _____ GPM

5-A. Alternative method for figuring dishwasher flow rate if actual peak rate of drain flow is unknown:

Dishwasher: Manufacturer's Rated Consumption per cycle:

_____ gallons x _____ cycles per hour = _____ gallons/hour ÷ 60 = _____ GPM

6. Specialized Equipment: _____ with discharge at: _____ GPM

6-A. TOTAL (add 2, 3, 4, 5 & 6)= _____ GPM

7. LOADING INFLUENCES:

MENU: ITALIAN AND ORIENTAL- _____ total GPM (from 6-A) x .25 (25%) = _____ GPM

HOURS: 24 HOUR OPERATION- _____ total GPM (from 6-A) x .25 (25%) = _____ GPM

ADJUSTED TOTAL GPM (Add 6-A & 7) = _____ GPM

Note: Steps 1 & 2 are standard PDI sizing criteria.

Note: Select the Remediator System with the appropriate GPM flow rate as follows: 20, 35, 50, or 75 GPM.

Designate the figure number with the flow rate indicated as a suffix: 8970-20.

Project Name: _____

PM 1040-B

Name: _____ Date: _____

INSTALLATION & STARTUP

1. The Remediator™ may be placed on, in, or below the kitchen floor but not outside the building.
2. The Remediator™ must be installed at the closest available location downstream of the last contributing fixture. (See Step 6.B.)
3. The solids interceptor must be installed with easy access for regular dumping of the strainer.
4. Should the only available location for the solids interceptor exceed 48” below the highest contributing fixture, the pressure plug option for the Solids Interceptor must be incorporated.
5. Upon arrival of unit, check to ensure all components are included (See packing list) and have not been damaged in shipment.
6. Install Remediator™ in accordance with installation diagrams when applicable and installation procedures of submittal drawing including venting & traps.

Installation Procedure:

- A. **PLACEMENT:** The Remediator™ may be installed with either a left or right input/inlet by simply reversing the orientation of the unit. In determining the location of the unit relative to the piping layout at the site, observe the following:
 1. The Remediator™ should be installed at the closest available location downstream of the last contributing fixture before intersection with any blackwater piping. (See Step 6.B.)
 2. That location in the piping layout which satisfies item (1), should provide reasonable access for inspection and service as well as access to the solids interceptor for ease of solids removal.
 3. Provision for routing air to the air-injecting 8000 Series flow control is mandatory and shall be accomplished per the requirements of the applicable local Plumbing Code. The Jay R. Smith Mfg. Co. 8000 Series Flow Control Fitting with the appropriate orifice size is included in the Remediator™ package). Normal venting in compliance with the Local Plumbing Code is sufficient for average installations.
 4. The bridge trap furnished with the system must be installed to ensure proper functioning of the system.

- B. PLUMBING: THE ORDER OF FLOW IS: (LAST CONTRIBUTING FIXTURE) →(FLOW CONTROL)→(SOLIDS INTERCEPTOR)→(TRAP) →(VENT)→(REMEDIATOR™) ~~~~~ NO DEVIATION FROM THIS ORDER IS PERMISSIBLE.

Standard PVC piping is suitable to connect the unit, utilizing conventional fittings or “no-hub” adapters at the inlet and outlet of the unit itself.

1. Place the unit on a hard level surface. Check with *Certified installer or Health Authorities* regarding raising or sealing at the base of the unit. In the event raising is required, the unit is structurally designed to allow supports to be placed at both ends of the unit. (Such supports should be of suitable strength and material)
2. Place the air injecting flow control as close to the last contributing fixture as possible. For purposes of convenience, the solids interceptor may be placed a reasonable distance from the flow control.

7. Install metering pump/Culture shelf as close as possible to the Remediator™. (Insert the inoculation tube through a recessed conduit for below floor applications to protect the routing of the inoculation tube from crimping or disturbance).
8. Calibrate the metering pump according to the instructions provided and check for leaks and function by pressing prime button.
9. Check function of “Culture required” by raising container - light should flash.
10. Check installation for ease of access: function of Solids Interceptor, flow, etc.
11. It is preferred to add water and Culture to the Remediator™ approximately one (1) week in advance of actual loading to give the biofilm a chance to develop prior to digesting grease. This may not be possible in operating kitchens (retrofits).
12. Post MSDS sheet (provided) near the Remediator™ Culture.
13. Post “SYSTEM PERFORMANCE CHECK LIST” in conspicuous location (check with operators); review the contents of the notice.
14. Review “REMEDIATOR™ INSTALLATION, OPERATION & TROUBLE- SHOOTING GUIDE” (provided) with operators until they are conversant and comfortable with procedure.
15. During first thirty (30) days of operation, visit installation & evaluate performance according to “INSPECTION PROCEDURE”.

OPERATION & MAINTENANCE

OPERATION

1. The Remediator™ may be operated in conjunction with normal kitchen practices and equipment.
2. Good kitchen pollution control practices (see POLLUTION CONTROL GUIDELINE) will ensure long and dependable functioning of the Remediator™.
3. The Remediator™ must not be operated in conjunction with a grinder or pulper.
4. Avoid use of caustic (acid) drain cleaners.
5. Ensure proper settings on all sanitizing appliances such as dishwashers.
6. Ensure cap is in place on Remediator™ Culture container.
7. Avoid using drains to dispose of anything but soap and water. Do not dispose of solids, oil or grease in drains.
8. Run warm water (2–3 minutes) at end of shift to ensure dilution of dumped cleaning agents.

MAINTENANCE

9. SOLIDS INTERCEPTOR STRAINER BASKET MUST BE EMPTIED INTO THE DISPOSABLE REFUSE EVERY SHIFT or more often if needed.
10. Thorough periodic cleaning (brush) of strainer screen and safety screen (permanently affixed inside solids interceptor body) will prevent difficult to remove accumulations. Proper basket dumping frequency will reduce accumulations on safety screen and in the bottom of the Solids Interceptor.
11. The Remediator™ Culture container requires replacement approximately every four months (warning light will flash).
12. The microprocessor controlled metering pump is pre-calibrated at the factory (with battery maintained memory) to deliver one (1) ounce of Remediator™ Culture per day. DO NOT CHANGE THIS SETTING. However, should setting be lost or battery expire, follow the procedure described in the instructions. If this fails, consult the Remediator™ representative for re-calibration.

13. At least once per year, the Remediator™ should be inspected for silt and solids accumulation. Should accumulations be present, removal can be achieved by following the ACCUMULATION REMOVAL PROCEDURE (provided).
 - A. Accumulations on safety screen and in Solids Interceptor strainer body can be easily removed with a wet vac and flushing a full sink of hot water through the Solids Interceptor with the strainer basket removed.
14. During cover removal for routine inspection or liquid sampling, care should be exercised to ensure no damage to gasket occurs and screw holes must align when cover is replaced.

JAY R. SMITH MFG. CO.
REMEDIATOR™ OPERATION INSPECTION CHECKLIST

LOCATION _____ DATE: _____

<u>ITEM</u>	<u>NORMAL</u>	<u>ABNORMAL</u>	<u>INSPECTION PERFORMED BY:</u>
Odor	____ Wet wheat - yeast	____ Rotten egg - spoiled ____ Cabbage (1)	_____
Strainer	____ No overflow with normal flows (2)	____ Accumulation on screens	_____
Timer/Pump	____ Correct time one Setting for Culture inoculation @ 4:00 A.M., prime button activates, light function.		_____
Culture	____ No leaks, no foul odor labels affixed, MSDS sheet posted, cap tightened securely & tube routed uninterrupted.		_____
	____ Check usage rate. One gallon should last approximately 4 months. If culture is being exhausted too quickly, check the setting and clear all events and reset for one event/per day per pump instructions PM 0472.		
Covers	____ Lids, gaskets & securing screws in place.		_____
Instructions	____ Posted in conspicuous location.		_____
Operator Reports	____ Basket being emptied: after each food prep period/ shift change/daily, frequency of solids interceptor strainer basket being emptied.	____ Problems, odors	_____

OTHER NOTES: _____

INSPECTOR: _____

- (1) Rotten egg—cabbage indicates decaying vegetable matter—check solids strainer.
- (2) Strainer may splash slightly at full flow but should not overflow—check basket content—
Basket plugging—safety screen plugging.

WATER SAMPLING PROCEDURE

SAMPLING PORTS

Water sampling ports are installed in the Remediator™ unit. In surface or below floor applications where there is easy access to the exterior of the Remediator™, sampling can be conducted via the 1/2" NPT sample test port. Installation of stainless steel pipe and petcock will facilitate sample extraction.

In recessed or flush installations where the exterior of the Remediator™ is inaccessible, sampling can be conducted via the internal sample port located inside the outlet upriser. An extension of the sample tube is provided for units with extensions along with a right angle tube bibb (see packing list).

Both sample ports are positioned to give true cross sectional flow sampling.

Sampling should be conducted according to the following protocols in conjunction with an accredited laboratory with current EPA standing.

SAMPLING PROCEDURE

Surface or Below Floor:

1. Turn hot and cold taps on full.
2. Open sample petcock (external sample procedure) and allow accumulation to purge (5 seconds) and discard. (DO NOT USE SAMPLE JAR)
3. Take samples of at least one (1) liter each in the sterile (containing preservative) sample jars provided by the laboratory commissioned to do the analysis.
4. Seal, label and refrigerate the samples in accordance with instructions provided by the laboratory.

Recessed Applications:

1. Remove Remediator™ cover and attach sample pump pick-up tube bibb, running water as in No. 1 above.
2. Run sample pump 5-10 seconds to purge tube accumulation and discard. (DO NOT USE SAMPLE JAR)
3. Pump two (2) samples of at least one (1) liter each in sterile (containing preservative) glass sample jars provided by the laboratory commissioned to do the analysis.
4. Seal, label and refrigerate the samples in accordance with instructions provided by the laboratory.
5. All samples are to be analyzed in accordance with EPA method 413.1 et seq.

ACCUMULATION REMOVAL PROCEDURE

SMALL accumulations of oil and grease in the clarifier can simply be dipped and deposited in the grit chamber to be captured and metabolized in the media. However, flow restricting accumulations require removal.

YOU WILL NEED:

- 1 - 6" X 6" medium mesh screen or large coarse scrubber
- 1 - Large plastic bucket lined with heavy duty plastic garbage bag
- 4 - 1" 'S' hooks (commonly available at hardware store)
- 1 - Perforated or screen dipper, access to hot water tap with hose (no nozzle, just open hose)
- (You may want to use wet vac to remove silt from grit chamber bottom)

1. Thoroughly examine the installation, pump settings or kitchen practices creating the accumulation (solids or oil) and correct them.
2. Remove Remediator™ lid and tabs in media chamber (inspect gasket integrity).
3. Place screen or coarse scrubber over outlet to prevent loosened accumulation from escaping unit but, allowing free water exit.
4. Using lift hooks, raise media approximately 4" to 5" and suspend with 'S' hooks under media cylinders and over media chamber walls.
5. Using hot water, at sufficient velocity to dislodge material but not to splash, **THOROUGHLY** wash material from grit chamber (1st) into media chamber (2nd).
6. Wash media, taking care to uniformly wash each segment of media.
7. Discharge approximately 1/2 sink (approximately 15 gallons) to wash dislodged material from media chamber to clarifier chamber (3rd).
8. With wet vac or dipper, remove material from clarifier chamber and deposit in bucket; continue until only water remains.
9. Lift media, remove 'S' hooks, lower media assuring it is flat on chamber bottom; remove screen or scrubber at outlet and replace lid.
10. Discard bucket contents. If primarily solids, dumpster; If primarily oil, to proper oil repository (DO NOT DEPOSIT IN EDIBLE OIL RECYCLE RECEPTACLE).
11. Inspect within 30 days to determine if problem persists. 3/8" 1/2" patches of oil and grease accumulation in clarifier are normal and will vary from time to time.

✓System Performance Check List✓

POLLUTION PREVENTION STARTS WITH YOU!

1. **DO NOT** use the drain or sink to dispose of oil & grease.
2. **DO** use a grease/oil recycle receptacle for discard grease & oil.
3. **DO** scrape all pots & ware in solid waste receptacle prior to pre-rinsing.
4. **DO** use non-stick utensils wherever possible.
5. **DO** use squeeze bottles whenever possible to apply oil to frying utensils rather than direct pour or ladle.
6. **DO** use dry product or wipes for spill clean up.
7. **DO** use proper settings on all automatic soapers, washers and sanitizers.
8. **DO NOT** over use strong or caustic cleaning agents.
9. **DO NOT** dispose of food or other solids in drains.
10. **DO** dispose of wet & dry solid waste in the same bin to reduce seepage.
11. **DO NOT** discard remanent cleaning solvents, pesticides, etc. in drains or conventional waste bins.
12. **DO NOT** mix solvents and various cleaning agents (use only as directed).