

PURAFIL

FIRST
IN CLEAN
AIR

SERVICE GUIDE **4** MODULE FILLING

INSTALLATION, OPERATION & MAINTENANCE
INSTRUCTIONS

TABLE OF CONTENTS

1.0 PRE-INSTALLATION INSTRUCTIONS

- 1.1 SAFETY CONSIDERATIONS
- 1.2 RECEIVING INSTRUCTIONS
- 1.3 INSPECTION
- 1.4 STORAGE

2.0 MEDIA

- 2.1 PURAFIL® MEDIA
- 2.2 PURAFIL® SP MEDIA
- 2.3 PURAKOL® MEDIA
- 2.4 PURACARB® MEDIA

3.0 MODULE FILLING INSTRUCTIONS

4.0 MEDIA REPLACEMENT

5.0 SPECIAL PRECAUTIONS

- 5.1 PURAFIL® STAIN REMOVAL

6.0 WARRANTY INFORMATION

LIST OF FIGURES

FIGURE	TITLE
1	MODULE FILLING (IN SERIES)
2	MODULE DIRECTION FOR HORIZONTAL UNIT
3	MODULE DIRECTIONFOR VERTICAL UNIT
4	MODULE LABEL

1.0 PRE-INSTALLATION INSTRUCTIONS

1.1 SAFETY CONSIDERATIONS

- Read this Service Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- This manual should be retained with the unit because it contains the information necessary for proper maintenance. There is a pocket envelope provided for this purpose. Attach it permanently to the unit.

1.2 RECEIVING INSTRUCTIONS

Upon receiving systems from Purafil, Inc., note any shipping damage, obvious or hidden, to your carrier and on your Bill of Lading. All problems should be handled between the customer and carrier except for U.P.S. shipments, which require the customer to contact Purafil, Inc. for action.

1.3 INSPECTION

The condition of the unit upon its arrival is critical to its proper operation. Prior to start-up, inspect the unit carefully, according to the checklist below. Correct any inadequacies before start-up to prevent possible damage or inefficiency. Note, should there be any questions concerning the unit, refer to the numbers found on the unit identification plate, when contacting the PURAFIL® representative.

1.4 STORAGE

The unit should be protected from the elements during storage, especially when storage time is extensive. While indoor storage is considered best, outdoor storage can be adequate when precautions are taken:

- Store Purafil® media in a dry place with less than 95% relative humidity.

2.0 MEDIA

2.1 PURAFIL® MEDIA

PURAFIL® chemisorbant media is a mixture of several activated aluminas, potassium permanganate and water. The aluminas are selected for these specific properties: pore size, pore volume, and bonding capacity. The alumina acts as a substrate for potassium permanganate and an adsorbent, trapping contaminant

molecules in its pores. The potassium permanganate is the primary chemical reagent involved in the oxidation process. The water in the pellet acts as an absorbent and a solvent for the oxidation process.

The capacity of PURAFIL® chemisorbant media for any specific contaminant is essentially a function of the alumina, the amount of water and potassium permanganate in the pellet. PURAFIL® chemisorbant media is expendable and should be replaced on the projected shelf life analysis date to insure proper performance. PURAFIL® chemisorbant media is non-toxic, non-flammable and will not support bacterial or fungal growth.

2.2 PURAFIL® SP MEDIA

PURAFIL® SP media is a mixture of several activated aluminas, sodium permanganate and water. The aluminas are selected for these specific properties: pore size, pore volume, and bonding capacity. The alumina acts as a substrate for sodium permanganate and an adsorbent, trapping contaminant molecules in its pores. The sodium permanganate is the primary chemical reagent involved in the oxidation process. The water in the pellet acts as an absorbent and a solvent for the oxidation process.

The capacity of PURAFIL® SP media for any specific contaminant is essentially a function of the alumina, the amount of water and sodium permanganate in the pellet. PURAFIL® SP media is expendable and should be replaced on the projected shelf life analysis date to insure proper performance. PURAFIL® SP media is non-toxic, non-flammable and will not support bacterial or fungal growth.

2.3 PURAKOL® MEDIA

PURAKOL® activated carbon has porous surfaces and can preferentially adsorb the larger molecules releasing the smaller ones back into the air stream. Capacity and efficiency vary with temperature and concentration. As temperature increases the total capacity decreases and desorption is possible. At low concentrations, the capacity is at its lowest point. PURAKOL® media in our systems, acts as a shock absorber for high concentrations of contaminants.

2.4 PURACARB® MEDIA

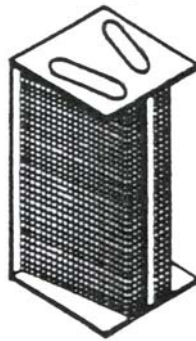
PURACARB® is a unique dry scrubbing media developed for the removal of sulfur and chlorine compounds. Composed of carbon, alumina and other binders, PURACARB® pellets are impregnated as they are formed. At a breakthrough efficiency of 85%, PURACARB® provides up to 102% more removal capacity by weight for H₂S than other leading impregnated carbon. PURACARB® is compatible with all leading air filtration systems.

3.0 Module Filling Instructions (For Initial Start-Up)

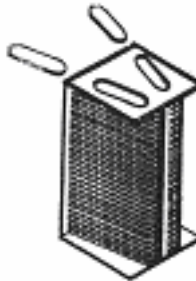
Filling the module is a relatively easy task, not requiring tools or specially skilled labor. Follow Steps 1-9 on the following pages and repeat the process for each module in the unit.

Figure 1: Module Filling

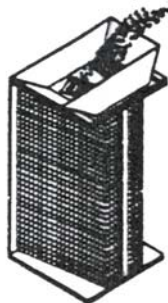
Step 1: Set the module on its end so that the removable end plate is up.



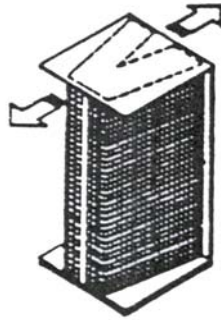
Step 2 : Remove the end plate.



Step 3: Position the funnel over the fill slots and pour the new Purafil® media into the module via the funnel (available from the local Purafil® representative.)



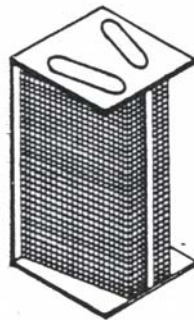
Step 4: Gently rock the module from the base of the "V" to the top of the "V" 5 to 7 times.



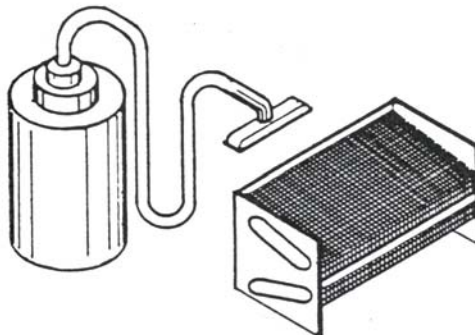
Step 5: Pour in more media, gently rocking from the base of the "V" to the top of the "V" 4 times. Caution: Do not over-fill, as the module sides will be caused to budge. Any minor voids will be accounted for with horizontal positioning of the module.

Step 6: Repeat the gentle rocking and filling process about four times, until the module is completely full.

Step 7: Replace the end plate, making sure it is secure.



Step 8: Clean the module before proceeding further by blowing with compressed air or by vacuuming. This step is mandatory to prevent handling the dust that has accumulated on the module exterior from being blown through the unit.



Step 9: Insert the module into the unit according to the airflow direction shown on the airflow label and as illustrated in Figures 2, 3, 4. Caution: When inserting the module, take care not to disturb the gasketing guards against air by-pass around the modules.

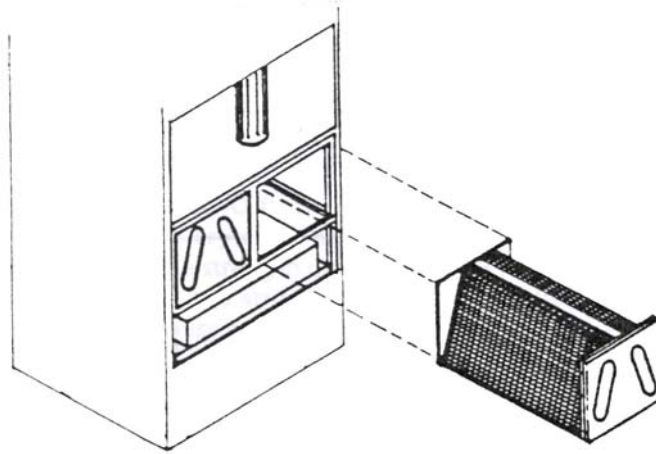


Figure 2: Module Position for Installation Into Horizontal Unit.
Airflow Direction



Figure 3: Module Position for Installation Into Vertical Unit
Direction of Installation

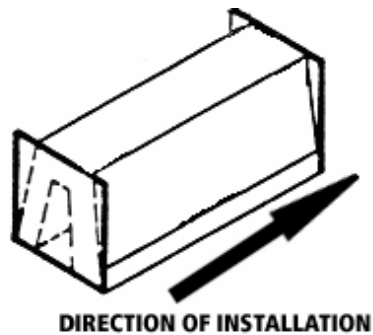


Figure 4: Module Label

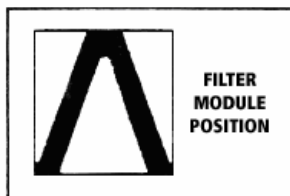


Figure 5: Data Sheet

Due to bulk density differences in media the weights shown are approximate.

6.0 SPECIAL PRECAUTIONS

DISPOSAL

PURAFIL® media is a non-toxic, non-flammable substance. Filtration of contaminants through PURAFIL® media causes molecular changes to occur, and the resulting product is usually not harmful to the environment. Although special precautions are generally not required when disposing of spent media, government regulations may require specific disposal procedures if the resulting product could be harmful to the environment. Large quantities of PURAFIL® media should not be disposed of in dumpster-like equipment because the weight of the media could cause difficulties in handling the dumpster.

Independent laboratory analysis for Environmental Protection Agency toxicity characteristics may be required if the contaminants eliminated from your environment include heavy metals and pesticides.

INHALATION

A well-ventilated work area is suggested for changing the PURAFIL® media, as dusting occurs in fresh media due to handling abrasion.

Workers should avoid direct inhalation of considerable PURAFIL® dust, as it induces sneezing. In closed, unventilated spaces, dust masks such as the 3-M No. 8500 are suggested.

WATER

Avoid exposing the PURAFIL® media to water or precipitation, as this dissolves permanganate content. Storage of media should be in a dry place with less than 95% relative humidity. Exposure of permanganated solution to the skin causes

brown staining which is temporary and not harmful. This staining can be removed by washing in a diluted solution of water and sodium bisulfite.

EYE CONTACT

If dust is exposed to the eyes or delicate membrane, flush thoroughly with water and seek treatment by a physician. Follow normal procedures for exposure to abrasive dust.

6.0 PURAFIL® STAIN REMOVAL PROCEDURE

The following stain removal procedure is stated here as information only, and neither Purafil, Inc., any of its subsidiaries, nor any agent or employee of Purafil, Inc. make any warranty or other representation regarding the efficacy or safety of this procedure. The stain removal could cause further damage to the garment or to the item from which one may attempt to remove the stain.

If the dust from PURAFIL® Chemisorbant, PURAFIL® Select, or PURAFIL® SP media comes in contact with organic material, there are two possible stain problems:

1. Manganese dioxide (MnO_2) which is insoluble, characterized by a medium brown color, and is found in expended PURAFIL® media, can usually be removed by normal washing.
2. New (unused) PURAFIL® media contains potassium or sodium permanganate ($KMnO_4$ or $NaMnO_4$) which is a strong oxidant and will react with and discolor any organic material with which it comes in contact. These stains, which will be brownish black in color, may be removed using a solution of sodium bisulfite in water, after the garment has been removed from the person.

However, if the fiber has been damaged by the permanganate, removal of the stain may make the damage more apparent.

CAUTION: This procedure should start with a very weak solution, gradually increasing the strength until the stain is removed. Use of too strong a solution could conceivably cause additional fabric damage.

NOTE: Sodium bisulfite gives off sulfur dioxide (SO_2) gas; therefore, it must be used in a well-ventilated area.

7.0 WARRANTY INFORMATION

PURAFIL® warrants hardware equipment manufactured by PURAFIL® to be free from defects in material and workmanship under normal use and service for twelve (12) months from startup date or eighteen (18) months from shipment date. PURAFIL'S obligation under this warranty shall be limited to replacing any parts thereof which shall be demonstrated to have been defective. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

PURAFIL MAKES NO WARRANTIES AS TO MERCHANTABILITY OR AS TO THE FITNESS OF THE MERCHANDISE FOR ANY PARTICULAR USE AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF SUCH MERCHANDISE OR FOR CONSEQUENTIAL DAMAGES. No person, firm or corporation is authorized to assume for PURAFIL® any other liability in connection with the sale of these goods. Equipment, parts and material manufactured by others and incorporated in PURAFIL® equipment are warranted by PURAFIL® ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURERS LIABILITY TO PURAFIL.

8.0 SAMPLE RECORD

Sampling Record / Schedule					

Represented By:

Important Notice

The information contained in this Bulletin reflects the results of various testing and analytical procedures believed by PURAFIL, INC. (a U.S.A. corporation) to be useful indicators of the relative performance of air filtration systems and media. It is intended for use by persons having appropriate scientific and technical knowledge and experience at their own risk. This bulletin does not in any way constitute a representation, warranty, promise, or guarantee by PURAFIL, INC. of the installed performance of PURAFIL® media.