TECH BULLETIN 4 PURAFIL'S PICTORIAL OF MEDIA MANUFACTURING AND ANALYSIS

PURAFIL, INC. is a publicly held environmental company owned by the Kaydon Corporation (NYSE:KDN) and headquartered in Doraville, Georgia, United States of America. Purafil revolutionized the gas-phase air filtration industry in the early 1960's with the development of the world's first active oxidant-impregnated, air cleaning pellet — "Purafil." Almost fifty years later, Purafil remains a world leader in the development of innovative gas-phase air filtration technologies designed to eliminate, control and provide real-time monitoring of toxic, corrosive, odorous and hazardous gases.

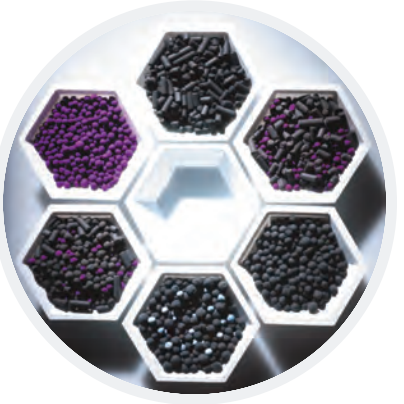

FIGURE 1

FIGURE 2

The first process in making Purafil's gas-phase media is media pellet formation via an agglomeration disc. This process conveys base materials as powders onto a rotating disc while spraying a liquid impregnant onto the powder materials. As the powder material becomes wet, it forms small seed particles. The seed particles grow into pellets by rotational contact with more liquid and powder. As the pellets grow in size, they move toward the top to eventually flow off of the disc for further curing and processing. Figure 1 shows an operator monitoring the disc for proper powder flow, fluid flow, rotation speed, and pellet formation. Figure 2 depicts the pellets flowing off of the disc as they reach the desired size.

FIGURE 1 - OPERATOR MONITORING THE AGGLOMERATION DISC

FIGURE 2 - CLOSE-UP OF MEDIA PELLETS FLOWING OFF OF THE DISC AS THEY REACH THE DESIRED SIZE

The second process is media curing. All chemisorptive media pass through a curing process to impart the desired physical and chemical properties. The curing process maintains the environment at a specific relative humidity and temperature to properly cure each of Purafil's media. This aids in formation of the media pore area, physical strength, moisture content, and available chemical content. As the media flows off the disc, guides direct the media into curing pans for transport to the curing oven. Figures 3 and 4 are photos of media flowing into these curing pans.

FIGURE 3 - MEDIA FLOWING INTO THE CURING PANS FOR TRANSPORT INTO THE CURING OVEN.

FIGURE 4 - CLOSEUP OF MEDIA FLOWING INTO THE CURING PANS

FIGURE 3

FIGURE 4

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FIGURE 5

The third process is particle size separation. A bucket elevator transports the media pellets to a round vibratory separator. It separates the media from largest to smallest particle diameter using screens with various size openings. The oversized media enters a reprocessing stream, correctly sized media enters the packaging hoppers, and undersized media enter an alternate stream for further processing, rework or recycling. Figure 5 provides an overview of the process. The round vibratory separator at the top dispenses media of specified size ranges into the slingbags at the bottom. Figures 6 and 7 are close-ups of the screens used inside the vibratory separator. Figure 7 is a close-up displaying the different size openings of the screens.

FIGURE 5 – MEDIA SCREENING SYSTEM - SEPARATING MEDIA BY PARTICLE SIZE INTO SLINGBAGS

FIGURE 6 - MEDIA SCREENS OF SCREENING SYSTEM – SEPARATE MEDIA BY PARTICLE SIZE

FIGURE 7 - CLOSEUP – MEDIA SCREENS HAVE DIFFERENT OPENING SIZES TO SEPARATE MEDIA BY PARTICLE SIZE

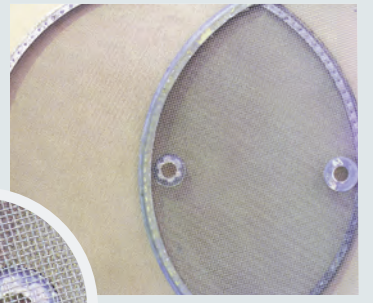

FIGURE 6

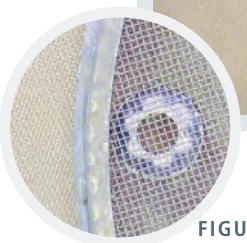

FIGURE 7

FIGURE 8

FIGURE 9

The final process is packaging. Media packaging takes place at various media storage hoppers throughout the plant. The hoppers are equipped with automatic slide gates and weighing systems to release media into slingbags, boxes, or pails. In Figures 8 and 9, media storage hoppers are filling slingbags and boxes with media. Figures 10 and 11 are a close-up of one scale system that measures the weight of media boxes during filling operations.

FIGURE 8 – PACKAGING – MEDIA STORAGE HOPPER FILLS SLINGBAGS WITH CORRECTLY SIZED MEDIA

FIGURE 9 - PACKAGING – AUTOMATED BOX AND PAIL FILLING STATION

FIGURE 10

FIGURE 11

FIGURE 10 – PACKAGING – SCALE SYSTEM MEASURES THE WEIGHT OF MEDIA BOXES DURING THE FILLING OPERATIONS

FIGURE 11 - CLOSEUP OF SCALE SYSTEM READOUT

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Purafil continuously performs quality analysis measurements on media before it leaves the facility. These include analyzing appearance and color, media abrasion, media crush strength, moisture content, and chemical activity or chemical content. This ensures that customers receive the high quality Purafil products they expect.

The media abrasion and crush tests measure physical properties of the media. Both tests use the mechanical sieve shaker, Figure 12. It separates media pellets by particle size using a rotation and tap motion, similar to the round vibratory separator mentioned in the manufacturing section. Here sieves with certain size openings (similar to screens) perform the media separation. The media analysis technician loads a sample into the top sieve and sets the apparatus to shake for a predetermined length of time. Then he measures the amount of media remaining on each sieve and reports the results in Purafil's quality database.

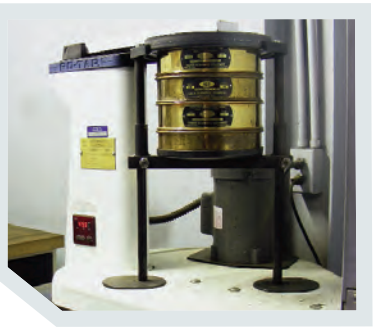

FIGURE 12

FIGURE 12 – MECHANICAL SIEVE SHAKER FOR PARTICLE SIZE ANALYSIS

FIGURE 13

Moisture content analysis measures the amount of evaporative water in the media. Moisture is important for Purafil chemisorptive media to keep impregnants available for reaction. Figure 13 shows a media analysis technician loading the laboratory oven during the moisture content analysis procedure. The oven exposes the media to a specified temperature for a specified period of time. The media weight loss corresponds to the moisture content. These results are also entered into the Purafil quality database.

FIGURE 13 – MOISTURE ANALYSIS OF MEDIA IN THE LABORATORY OVEN

Chemical content measurements evaluate the concentration of a chemical in Purafil media. Purafil manufactures several media using the permanganate family of chemicals. The media technician is performing a permanganate titration in Figure 13. This measures the media's permanganate content. The technician leaches permanganate out of the media pellet and adds other chemicals to change the solution color. The required amount of chemical to make the color change relates to the amount of permanganate in the media pellet. After the test, the technician enters the results into Purafil's quality database.

FIGURE 14 - PERMANGANATE TITRATION

FIGURE 14

Genuine Purafil CERTIFIED Factory Product

PURAFIL® Single Source Manufacturer of Gas-Phase Air Filtration Media, Filters, Systems and Air Monitoring Instrumentation

The key to the success of Purafil has been our innovative air filtration media. **Purafil's media actually traps AND converts contaminants into a harmless compounds. Other media products ONLY trap contaminants and most actually release the contaminants back into the air.** When combined with Purafil's made to order air filtration equipment, the result is safe, efficient and economical air cleansing.

Ask for only genuine Purafil factory products! Do not be confused by companies that strictly buy and resell other products that sacrifice quality and performance. Contact your local Purafil Representative today for more information on Genuine Purafil Products!

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