



ENGINEERING DATA SHEETS

DEXWET DE 5000 PURE AIR MULTIFUNCTION FILTER

Version: 1.0

Date: September 2021

01. IDENTIFICATION OF PRODUCT AND COMPANY

- Product Trade Name: Dexwet Pure Air
- Size: Variable
- Product Code: DE 5000
- Generic Filter Type: Plastic Rod Design
- Adhesive Type: Absorber Fluid : Silicone Oil
- Media Type: Plastic Rod With Absorber Fluid
- Name of the Company: Dexwet Holdings Corporation
- Headquarters: 1177 Avenue of the Americas, 5th Floor, New York, NY 10036
- Phone: +1 702 744 7478
- R&D: Dexwet International AG, Zieglergasse 67/3/1, -1070 Vienna, Austria
- Phone: +43 1 38 200 13
- COO: Clemens Sparowitz; email: c.sparowitz@dexwet.com
- CFO: Gregory Scott Newsome ; email: gs.newsome@dexwet.com

02. COMPONENTS USED

02.1. POLYMER

- Product Name: Y- 130
- Manufacturer Name: LOTTE Chemical Corporation,
- Manufacturer Address: Lotte World Tower, 300, Olympic-ro, Songpagu, Seoul, 05551, Rep. of KOREA
- Component Data Sheets attached

02.2. ABSORBER FLUID 1

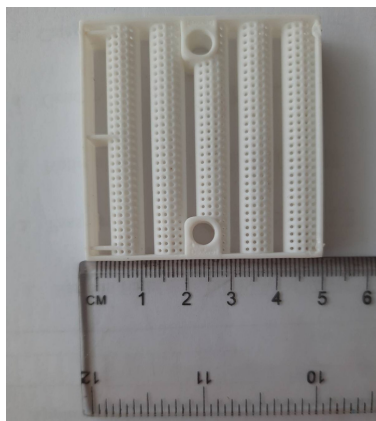
- Product Name: XIAMETER PMX-200 Silicone Fluid, 5,000-60,000 cSt
- INCI Name: Dimethicone (Silicone fluid for foam control and additive applications)
- Manufacturer Name: Dow Chemical
- Component Data Sheets attached

02.3. ABSORBER FLUID 2

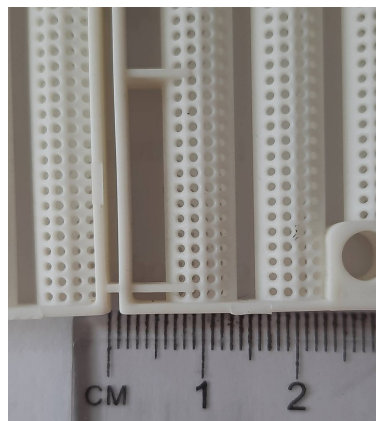
- Product Name: XIAMETER PMX-200 Silicone Fluid, 50-1,000 CS
- INCI Name: Dimethicone (Colorless, clear polydimethylsiloxane fluid)
- Manufacturer Name: Dow Chemical
- Component Data Sheets attached

03. DIMENSIONS

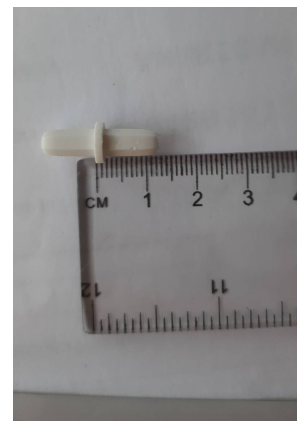
- Standard Filter Dimension: 4.8 Cm x 4.8 Cm
- Number of Filters Used for Test: 12 Nos
- Gap Between Filters: 1mm x 11
- Area of the Filter Used for Test: 58.7 Square Cm
- Width of Double Layer Filter: 1.6 Cm
- Magnetic Connector: 3mm



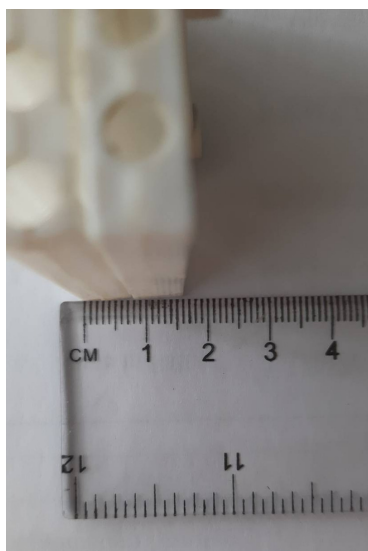
4.8 Cm x 4.8 Cm



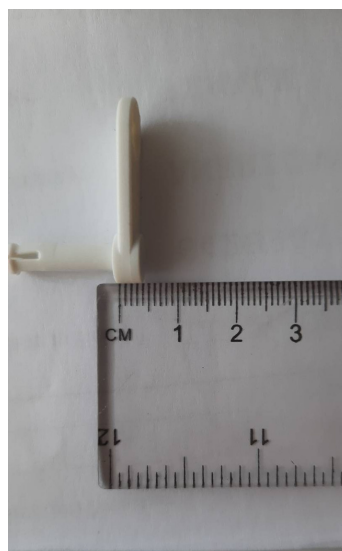
12 x 1mm



1mm



1.6mm

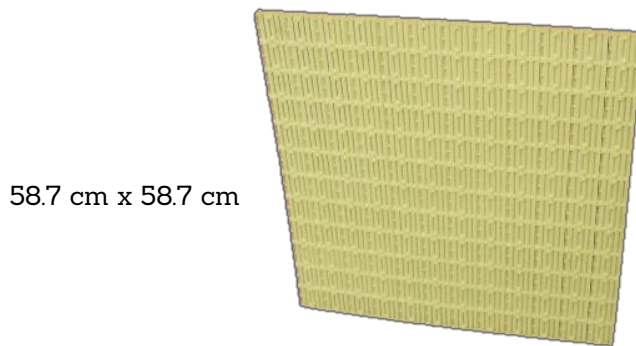


3mm

04. ASHARE STANDARD 52.2.2017

04.01. TEST CONDITIONS

- Loading Dust Type: N/A
- Barometric Pressure (In. Hg.): 29.42
- Test Air Temp (degrees F.): 87
- Relative Humidity (%): 46



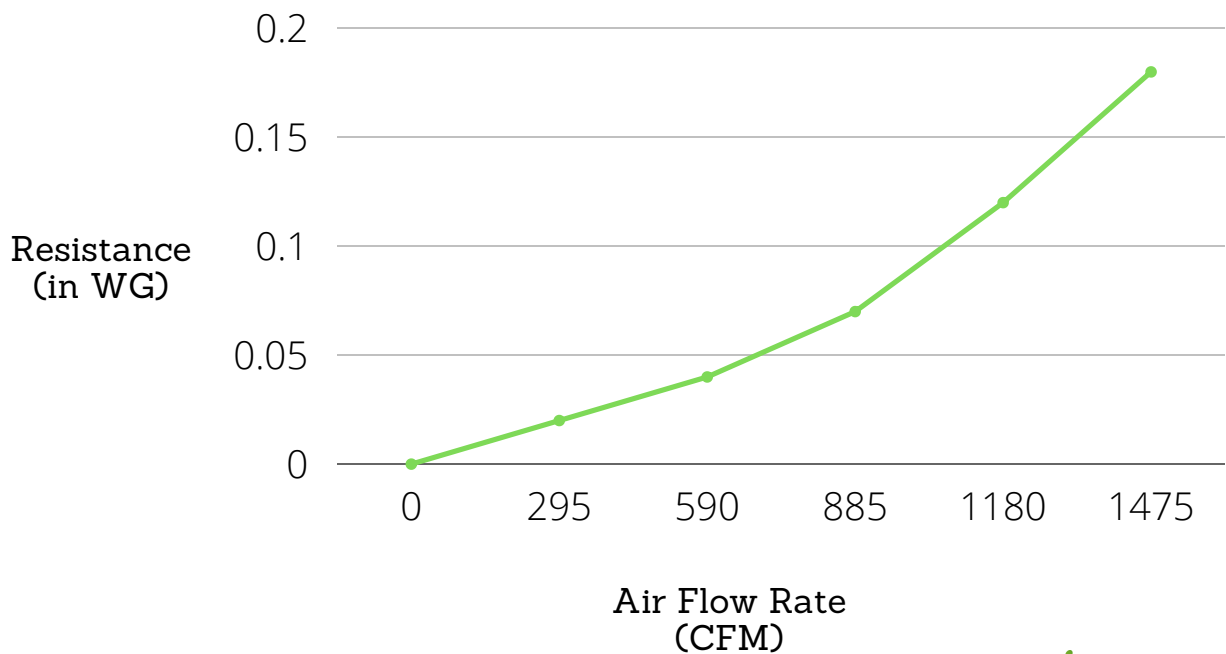
04.02 TEST RESULTS

- Airflow Rate (CFM): 1180
- Nominal Face Velocity (fpm): 295
- Initial Resistance (in WG): 0.12
- E3 (%) Initial Efficiency 3.0 - 10.0 um: 31
- Estimated*Minimum Efficiency Reporting Value (MERV):

MERV 5 @ 1180 CFM

*if Initial data is minimum

Air Flow Vs. Resistance (Clean Device)



DEXWET AIR FILTER ADVANTAGES



Design of Staggered Filter Rods with Sticky Absorber Fluid

01. **Very Low Air Resistance:**

Allowing us to work in very low airflows of less than 1Mph, where other air filters cannot function

02. **High Particle Loading Capacity:**

Allowing a longer useful life of 4x to 12x, as our particle capacity is over 100x greater

03. **No Shredding:**

Captured particles stay captured in the Absorber Fluid and are not released back into the airstream

04. **Increasing Effectiveness:**

As our absorber fluid envelops larger particles which increases the total filter surface area, allowing more particles to be captured as our filters become dirtier

05. **Effectiveness in High Humidity:**

as our filters are hydrophobic, which does not allow air moisture to impact our filtration effectiveness. Also, the Absorber Fluid does not allow mold spores to develop

06. **Sustainable Product:**

Filters can be cleaned and reused again and again for many years of service

07. **Reduced Costs:**

- a. as our filters are applied to existing vents or airstreams and do not require additional airflow energy, no additional energy costs
- b. by reducing the time intervals between maintenance, reduces maintenance costs
- c. by reducing the strain on any forced air compressor, resulting in longer machine life and fewer replacement parts, reduces replacement costs
- d. as our filters are longer life, reduces operational costs
- e. as our filters are reusable, reduces long-term replacement costs

08. **Filtration Effectiveness:**

the entire purpose of an air filter is to remove particles from the air-stream, our filters are highly effective in recirculating systems and as attachments to exhaust vents

Dexwet Air Filter Advantages Continued;



In addition to our standard solutions listed above, our designs, filter materials, absorber additives, and essential oils can be combined to provide a customized solution for almost limitless air filtration solutions.

Adjusting the design by changing the spacing or geometric configuration of the filter material can:

- Customize the Airflow Resistance
- Customize the Filtration Effectiveness
- Customize the Useful Life

Adjusting the filter material can:

- Customize the Useful Life
- Customize the Reusability
- Customize the Operational Environment
- Customize the Operational Temperatures
- Customize the Level of Recyclability

Adjusting the additives in the absorber fluid can:

- Customize the Operational Temperatures

Adding essential oils:

- Customize the Scents Emitting from the Airstream

Dexwet Filters have Added a 6th Air Filtration Principle “Turbulence & Absorption”

The five air filtration principles that are commonly known are:

1. **Sieve:** a device with meshes or perforations through which finer particles of a mixture of various sizes may be passed to separate them from coarser ones.
2. **Inertia:** a property of matter by which it remains in uniform motion in the same straight line unless acted upon by some external force.
3. **Diffusion:** the process whereby particles of liquids, gases, or solids intermingle as the result of their spontaneous movement caused by thermal agitation and in dissolved substances move from a region of higher to one of lower concentration.
4. **Electrostatics:** physics that deals with phenomena due to attractions or repulsions of [electric](#) charges but not dependent upon their motion.
5. **Blocking:** to hinder the passage or progress of by or as if by interposing an obstruction.

Dexwet Filters has discovered and patented a sixth air filtration principle:

6. **Turbulence & Absorption:** irregular atmospheric motion especially when characterized by up-and-down currents. & to take in or consume.

Dexwet staggered rod filter design creates turbulence in the airstream and our sticky absorber fluid coats our filters to permanently bond any particle that collides with our filter. The gravitational properties of particles as described in Van de Waals principle combined with the turbulence created by our staggered filter rod design, increase the probability of particles colliding with our absorber fluid.

To minimize the probability of particles passing through our filters without colliding with our filter or to increase our filter effectiveness, we can add additional layers with minimal negative effect on the airflow. Dexwet’s standard filter design has two filter layers which provide up to 99% effectiveness.

Dexwet’s patented staggered and parallel design allows a minimum airflow resistance at less than 6% allowing the filters to work in airspeed ranges as low as Convection Speed (less than 1 MPH) to as high as Sonic Speed (761 MPH). To compare high-performance air filters using any of the five common air filtration principles, they can restrict airflow by more than 60% and will also increase resistance as they absorb more and more particles. The low air resistance will allow for decreased energy consumption as required to force the air through the filter medium. In addition, the low air resistance will provide opportunities to filter airflows that were not thought possible with any of the five common air filtrations principles.

Air filters using any of the five common air filtration principles see their effectiveness diminish as they capture more particles. Dexwet Filters do not. Their absorber fluid envelops particles which increase the surface area and thereby increasing its effectiveness. This benefit combined with the space between the staggered filter rods allow Dexwet’s filters to remain effective between 4 to 12 times longer than other air filters using any of the five common air filtrations principles.

Another property of Dexwet Filters are that as the filter is constructed of more durable materials like plastic or metal. This allows the absorber fluid to be removed without degrading the structure of the filters. The filters can then be reused after reapplying the absorber fluid.