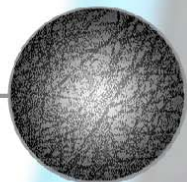


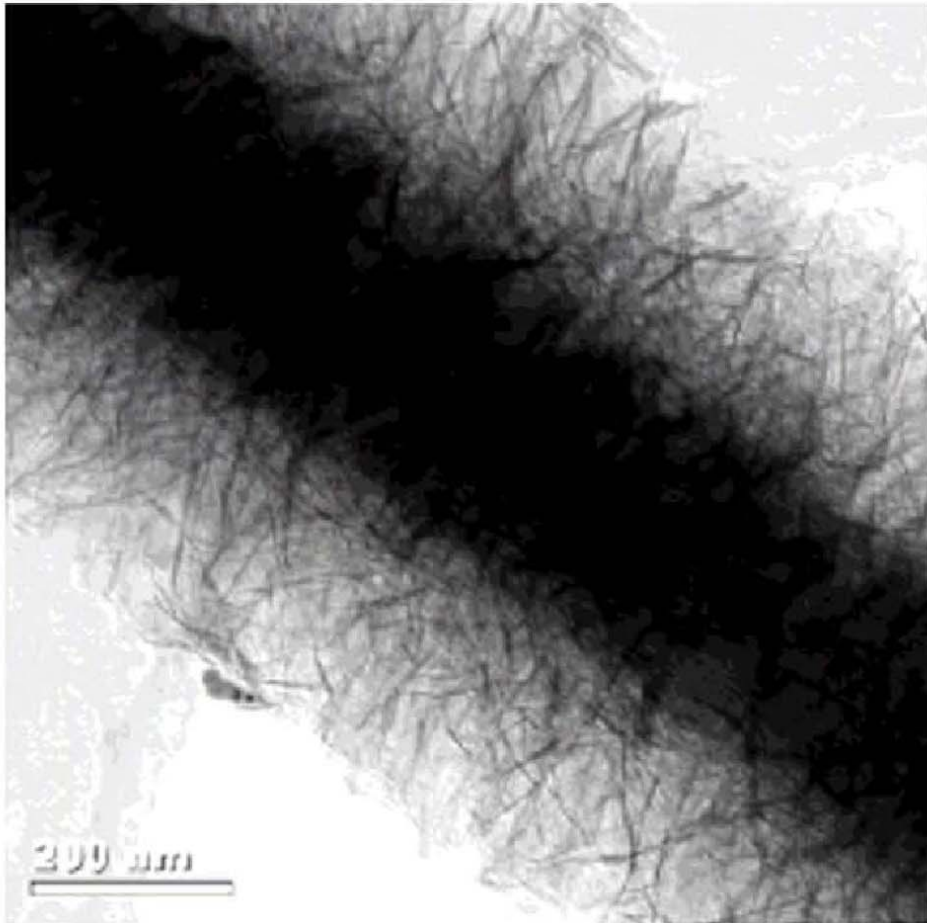


# Introduction to Hyundai Air and Water Technologies Bottle Filter Media

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# Bottle filter media



- Patented Technology
- Smallest nanofibers available
- Absorbs through electrokinetic potential
- High flow, low pressure drop
- Removes virus, bacteria, cysts, some dissolved metals

# Bottle Filter technology

- Filtration Mechanisms = Absorption and Mechanical Entrapment
  - fibers are 2 nm X 250 nm with surface area of up to 500 m<sup>2</sup> per gram are grafted onto structural microglass
  - fibers have positive electro kinetic potential
  - Exhibits zeta potential at 7.2 pH of >50 mV
  - Performs well in a wide range of aqueous based solutions, low and high contaminant loads, wide saline conditions, between 5–9 pH  
Nonwoven Bottle Filter media has 3 micron average pore size but can efficiently remove nanometer sized particles.

# Filtration capability

- One layer of media is capable of capturing:
  - 27 nanometer virus (MS2) at >3 LRV
  - 1-3 micron bacteria (E coli) > 6 LRV
  - 3 micron beads (cysts) at >4 LRV
- Better filtration efficiency and greater loading capacity at low pressure drop compared to filter pads, microglass, resin bonded media, meltblown or polymeric membranes.
- Absorbs some colloids and dissolved metals: Silica, Iron, Copper, Aluminium, Silver, Lead and TOCs
- Very effective polishing filter.

**Conclusion: One layer of Bottle filter media is effective in removing a wide range of submicron particles and contaminants from water at flow rates typical in a point of use filter.**

## Retention of virus by filter media

Media	Thickness mm	Basis Wt g/m <sup>2</sup>	Challenge Water			MS2 Removal, %		
			pH	TDS g/L	MS2, PFU/ml	0-10 ml	60-70 ml	130-140 ml
Bottle Filter	0.8	200	7.2	0	3·10 <sup>5</sup>	99	98	94
			9.2	0	6·10 <sup>5</sup>	90	90	
			7.2	30	5·10 <sup>5</sup>	97	97	
			9.2	30	4·10 <sup>5</sup>	96	88	
Virus Media "Brand X"	0.8	210	7.2	0	6·10 <sup>5</sup>	99	92	62
			9.2	0	3·10 <sup>5</sup>	60	13	
			7.2	30	5·10 <sup>5</sup>	4	6	
			9.2	30	4·10 <sup>5</sup>	0	0	

MS2 is a 25 nm bacteriophage. A single layer of Filter Media will retain high levels of virus in the presence of salt or alkaline water. Note the substantial loss of retention of the other media as volume, high salt or pH are increased. TDS is Na and Ca solution to simulate sea salt.

**Conclusion: Outperforms charge modified media across broader pH range and in higher dissolved solids environments.**

# Testing and Certification Standards

**THIS BOTTLE FILTER TECHNOLOGY IS DESIGNED TO MEET OR EXCEED THE FOLLOWING NSF COMPONENT STANDARDS:**

## **NSF/ANSI Standard 42:**

### **Drinking Water Treatment Units - Aesthetic Effects**

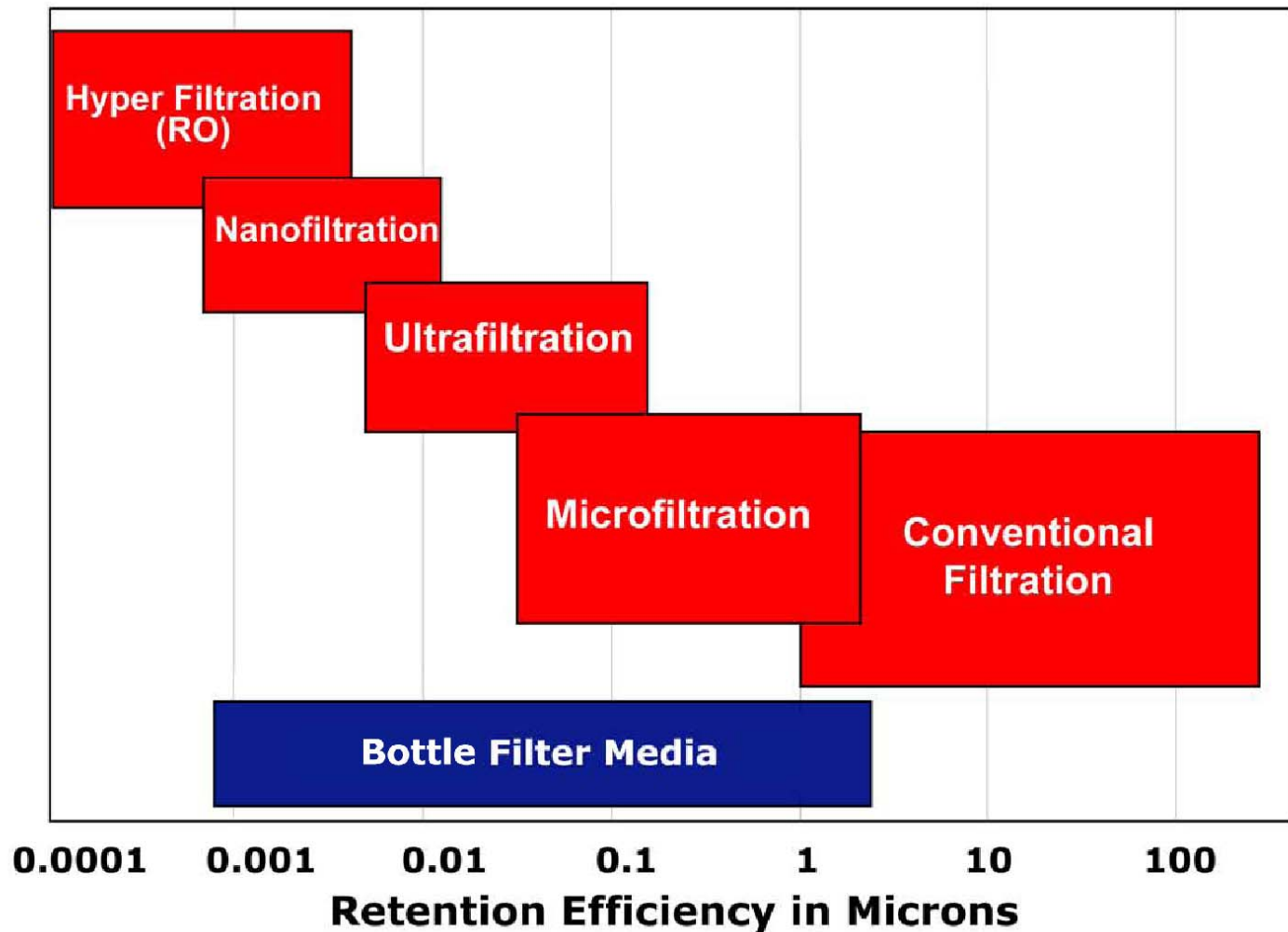
- **designed to reduce specific aesthetic or non-health-related contaminants (chlorine, taste and odor, and particulates) that may be present in public or private drinking water**

## **NSF/ANSI Standard 53:**

### **Drinking Water Treatment Units - Health Effects**

- **designed to reduce specific health-related contaminants, such as Cryptosporidium, Giardia, that may be present in public or private drinking water.**

# Extends the filtration range of nonwovens



# FEATURE BENEFITS THAT ADD VALUE

- 1 LITER
- GREAT FOR UP TO 2000 REFILLS
- LOTS OF APPLICATIONS:
  - OUTDOORS
  - DISASTER RELIEF
  - EMERGENCY USE
  - MILITARY USE
  - SPORTS USE
- PRINT YOUR COMPANY'S LOGO ON THE BOTTLE
- DIFFERENT COLORS AVAILABLE

