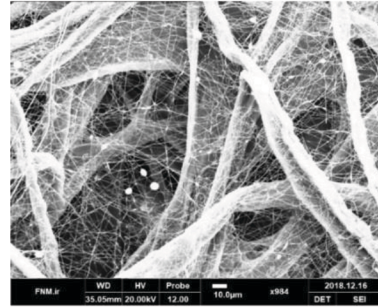


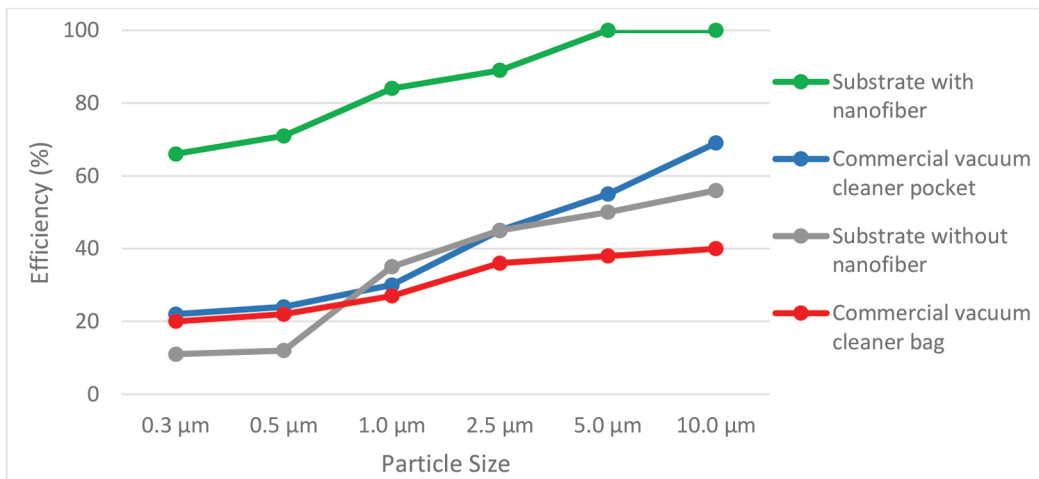
Vacuum Cleaner Bag

Conventional vacuum cleaner bags are usually made of a nonwoven layer that cannot prevent dust particles passing through the bag into the air. The released dust particles in the air can penetrate bronchi and lungs and pose a severe health threat. Therefore, new classes of vacuum cleaner bags which have electrospun nanofibers laminated between their layers are very useful for filtering the pollutants released from vacuum cleaner bags. Nanofiber layer in vacuum cleaner bag must be laminated by two nonwoven layers as protective layers which is shown in the image below.



Performance of nanofiber-based vacuum cleaner bag media and commercial vacuum cleaner bag (According to ASTM F1977)							
Sample Name	Efficiency (%)						Pressure Drop (Pa) @ 32 l/min
	0.3 μm	0.5 μm	1.0 μm	2.5 μm	5.0 μm	10.0 μm	
FNM's nanofiber-based vacuum cleaner bag media	> 66	>71	>84	>89	100	100	35
PP Substrate without nanofiber	11	12	35	45	50	56	13
Commercial vacuum cleaner bag	20	22	27	36	38	40	31
Commercial vacuum cleaner pocket	22	24	30	45	55	69	53

The following graph shows the efficiency of vacuum cleaner bags produced by FNM Co. (nanofiber coated) and the other commercial vacuum cleaner bags (without nanofibers). Nanofiber coated bag has much higher efficiency comparing with conventional bags for all particle sizes.



Efficiency of FNM's nanofiber-based vacuum cleaner bag comparing with efficiency of the used substrate without nanofiber and commercial vacuum cleaner bag and pocket.