



2820 S. English Station Road - Louisville, KY 40299

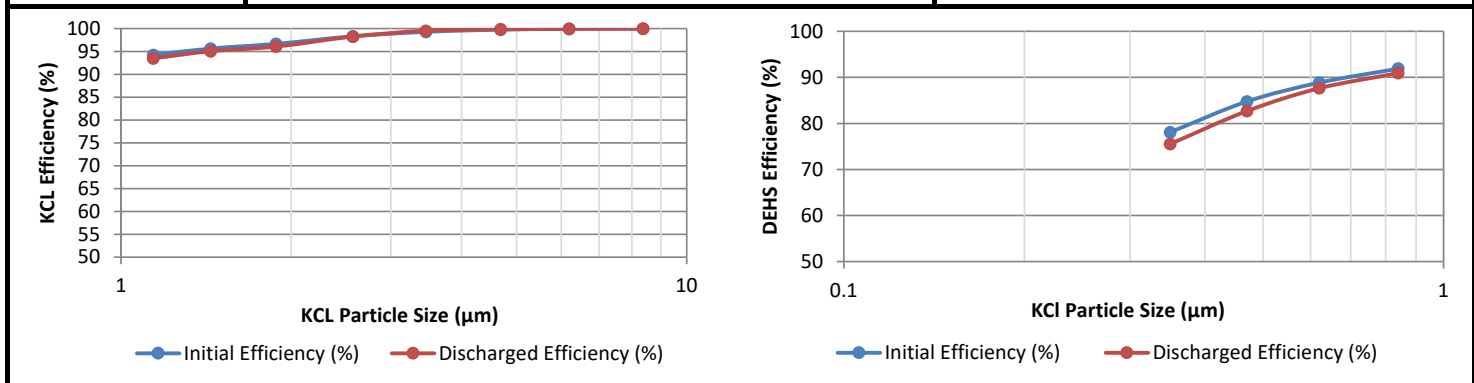
TEST NO. 20-055-3

ISO 16890-2 /-4:2016 Air Filter Test Result Summary

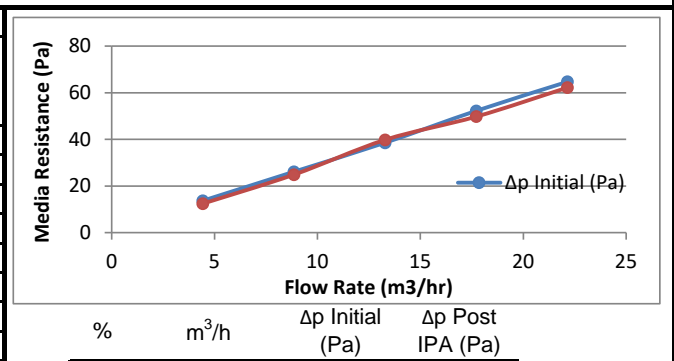
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Counter Information	Manufacturer	TSI, Inc.	Test Conditions	Test Flow Rate	10.5 CFM / 17.84 m3/h
	Model No.	3330		Test Aerosol	Aerosolized KCl
	Serial No.	115003		Temperature	70.2 Deg F / 21.2 Deg C
	IPA Discharge Method	<input checked="" type="checkbox"/> Vapor Treated <input type="checkbox"/> IPA Dip Method		Relative Humidity	40.2 %
				Barometer	29.36 in Hg / 99.42 kPa

Manufacturer	UFT CAN. Ltd.
Model	CS-20-9
Dimensions	15" X 15"
Type of Media	Nano Fiber Flat Sheet Media
Media Area	1.0 ft2
Construction	NA
Filter/Media Electrostatic Charge	NA
Media Color	White
Media Adhesive	NA
Sample Procurement	UFT CAN. Ltd.



KCl					
Range (µm)	Geo. Mean	Initial Efficiency (%)	Discharged Efficiency (%)	Upstream Number of Particles per Test	
				Pre	Post
1.0-1.3	1.14	94	93	14328	28158
1.3-1.6	1.44	96	95	8307	18892
1.6-2.0	1.88	97	96	19036	37494
2.0-3.0	2.57	98	98	13431	25477
3.0-4.0	3.46	99	100	7825	12456
4.0-5.5	4.69	100	100	5679	7926
5.5-7.0	6.20	100	100	2261	2434
7.0-10.0	8.37	100	100	2667	1179



KCl					
Range (µm)	Geo. Mean	Initial Efficiency (%)	Discharged Efficiency (%)	Upstream Number of Particles per Test	
				Pre	Post
0.3-0.4	0.35	78	76	110433	232009
0.4-0.55	0.47	85	83	63112	150405
0.55-0.7	0.62	89	88	28037	67218
0.7-1.0	0.84	92	91	43086	96796

Reporting Data			
	ePM ₁	ePM _{2,5}	ePM ₁₀
Minimum	83%	87%	96%
Average	84%	88%	96%
Reported	80%	85%	95%

Requestor Information	Test Requestor	Christine Sun	Phone:	865-384-0154
	Company Name	Waterloo Filtration Institute	Email:	csun@wfinstitute.com
	Company Address	150 Bridgeland Ave; Toronto, ON, CA	Requested Date:	1/28/2020
Test Operator Information	Test Performed By:	GDT	Approved by:	[Signature]
			Completion Date:	2/3/2020

ISO 16890-1										
Data Entry Table							Reporting Data			
DEHS								ePM ₁	ePM _{2.5}	ePM ₁₀
d _i	d _{i+1}	d _m	Δln d _i	E _i	E _{D,i}	E _{A,i}	Minimum	83%	87%	--
0.30	0.40	0.35	0.29	78.1%	75.5%	76.8%	Average	84%	88%	96%
0.40	0.55	0.47	0.32	84.8%	82.7%	83.7%	Reported	80%	85%	95%
0.55	0.70	0.62	0.24	88.8%	87.6%	88.2%				
0.70	1.00	0.84	0.36	91.9%	90.9%	91.4%				
KCL										
1.00	1.30	1.14	0.26	94.2%	93.5%	93.8%				
1.30	1.60	1.44	0.21	95.6%	95.0%	95.3%				
1.60	2.20	1.88	0.32	96.7%	96.1%	96.4%				
2.20	3.00	2.57	0.31	98.3%	98.3%	98.3%				
3.00	4.00	3.46	0.29	99.3%	99.5%	99.4%				
4.00	5.50	4.69	0.32	99.8%	99.9%	99.8%				
5.50	7.00	6.20	0.24	99.9%	100.0%	99.9%				
7.00	10.00	8.37	0.36	100.0%	100.0%	100.0%				
ePM ₁ Calculations										
d _i	d _{i+1}	d _m	Δln d _i	E _{A,i}	q _{3σ}	q _{3σ} *Δln d _i	E _{D,i} *q _{3σ} *Δln d _i	E _{A,i} *q _{3σ} *Δln d _i	E _{min} (PM ₁)	E(PM ₁)
0.30	0.40	0.35	0.29	76.8%	22.627%	0.065095	0.049164	0.049998	83%	84%
0.40	0.55	0.47	0.32	83.7%	19.891%	0.063343	0.052372	0.053029		
0.55	0.70	0.62	0.24	88.2%	15.837%	0.038193	0.033467	0.033699		
0.70	1.00	0.84	0.36	91.4%	11.522%	0.041097	0.037369	0.037567		
Sums:					0.207728	0.172373	0.174292			
ePM _{2.5} Calculations										
d _i	d _{i+1}	d _m	Δln d _i	E _{A,i}	q _{3σ}	q _{3σ} *Δln d _i	E _{D,i} *q _{3σ} *Δln d _i	E _{A,i} *q _{3σ} *Δln d _i	E _{min} (PM _{2.5})	E(PM _{2.5})
0.30	0.40	0.35	0.29	76.8%	22.627%	0.065095	0.049164	0.049998	87%	88%
0.40	0.55	0.47	0.32	83.7%	19.891%	0.063343	0.052372	0.053029		
0.55	0.70	0.62	0.24	88.2%	15.837%	0.038193	0.033467	0.033699		
0.70	1.00	0.84	0.36	91.4%	11.522%	0.041097	0.037369	0.037567		
1.00	1.30	1.14	0.26	93.8%	8.503%	0.022309	0.020852	0.020937		
1.30	1.60	1.44	0.21	95.3%	7.618%	0.015817	0.015034	0.015080		
1.60	2.20	1.88	0.32	96.4%	8.022%	0.025546	0.024539	0.024615		
2.20	3.00	2.57	0.31	98.3%	9.984%	0.030966	0.030425	0.030433		
Sums:					0.302366	0.263223	0.265358			
ePM ₁₀ Calculations										
d _i	d _{i+1}	d _m	Δln d _i	E _{A,i}	q _{3σ}	q _{3σ} *Δln d _i	E _{D,i} *q _{3σ} *Δln d _i	E _{A,i} *q _{3σ} *Δln d _i	E _{min} (PM ₁₀)	E(PM ₁₀)
0.30	0.40	0.35	0.29	76.8%	9.412%	0.027077	0.020450	0.020797	96%	96%
0.40	0.55	0.47	0.32	83.7%	8.395%	0.026733	0.022103	0.022380		
0.55	0.70	0.62	0.24	88.2%	7.432%	0.017924	0.015706	0.015815		
0.70	1.00	0.84	0.36	91.4%	7.014%	0.025016	0.022747	0.022867		
1.00	1.30	1.14	0.26	93.8%	7.628%	0.020013	0.018706	0.018782		
1.30	1.60	1.44	0.21	95.3%	8.833%	0.018340	0.017432	0.017485		
1.60	2.20	1.88	0.32	96.4%	10.804%	0.034406	0.033051	0.033153		
2.20	3.00	2.57	0.31	98.3%	13.726%	0.042573	0.041829	0.041841		
3.00	4.00	3.46	0.29	99.4%	16.708%	0.048067	0.047844	0.047785		
4.00	5.50	4.69	0.32	99.8%	19.542%	0.062233	0.062146	0.062118		
5.50	7.00	6.20	0.24	99.9%	21.671%	0.052261	0.052243	0.052233		
7.00	10.00	8.37	0.36	100.0%	23.143%	0.082545	0.082545	0.082533		
Sums:					0.457189	0.436801	0.437790			

