



Intertek Testing Services  
3933 US Route 11  
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Order No. J20014699-412

Date: September 4, 2000

**REPORT NO. J20014699-018****TEST OF ONE  
TRI-DEK PANEL 2-PLY 24X24  
FLAT PANEL AIR FILTER****RENDERED TO**

**TRI DIM FILTER CORPORATION  
93 INDUSTRIAL DRIVE  
BOX 466  
LOUISA, VA 23093**

**General**

This report covers a test of one Tri-Dek Panel 2-ply 24x24 flat panel air filter, performed according to ASHRAE Standard 52.2-1999 entitled "Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size".

Testing was authorized by purchase order no. 43117.

**Identification of Test Specimen**

The filter tested was designated as one Tri-Dek Panel 2-ply 24x24 flat panel air filter. A description is included in the data section on page four of this report.

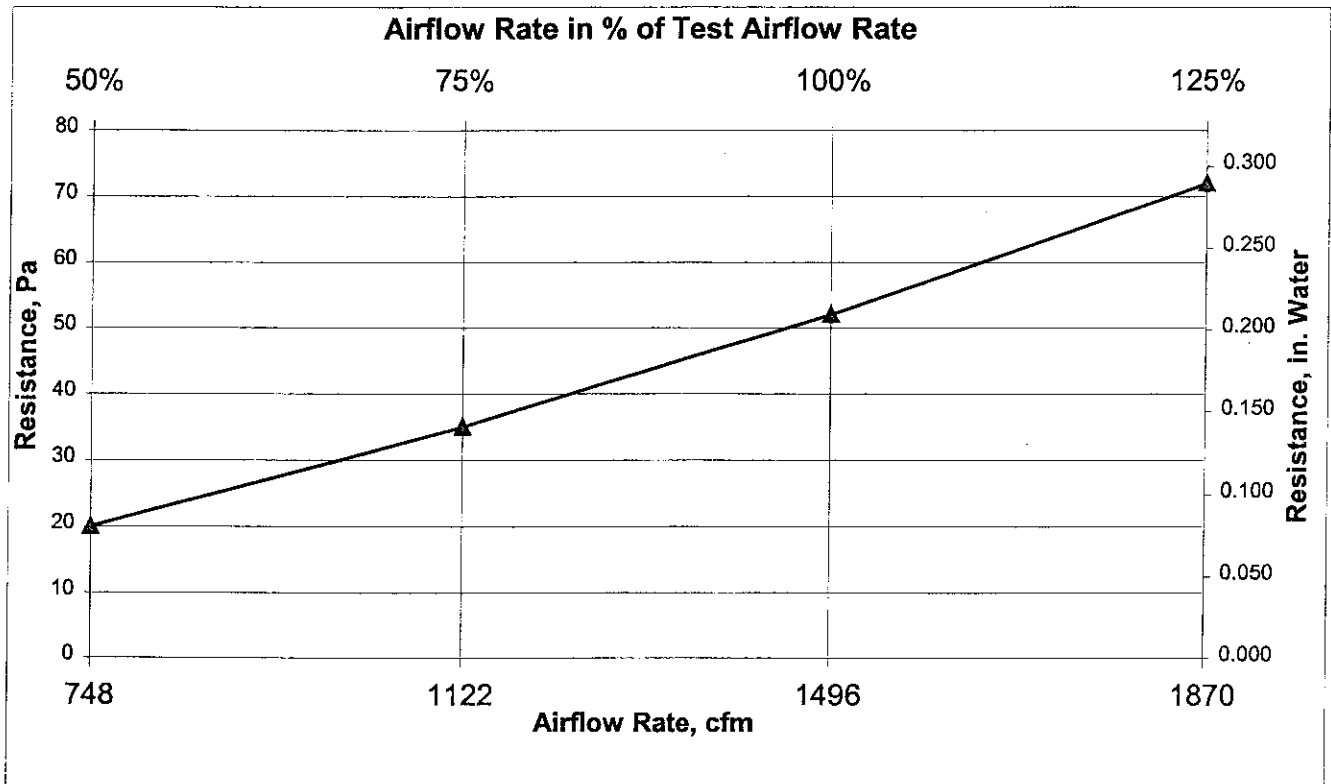
**Method of Test**

Tests were conducted as specified in ASHRAE Standard 52.2-1999. The test program consisted of measurement of initial resistance versus airflow rate (Section 9), and the test program for determination of particle size efficiency (Section 10). The test apparatus used was that specified in the above referenced standard. ASHRAE Synthetic Test Dust, as specified in Section 6.2, was used for dust loading.

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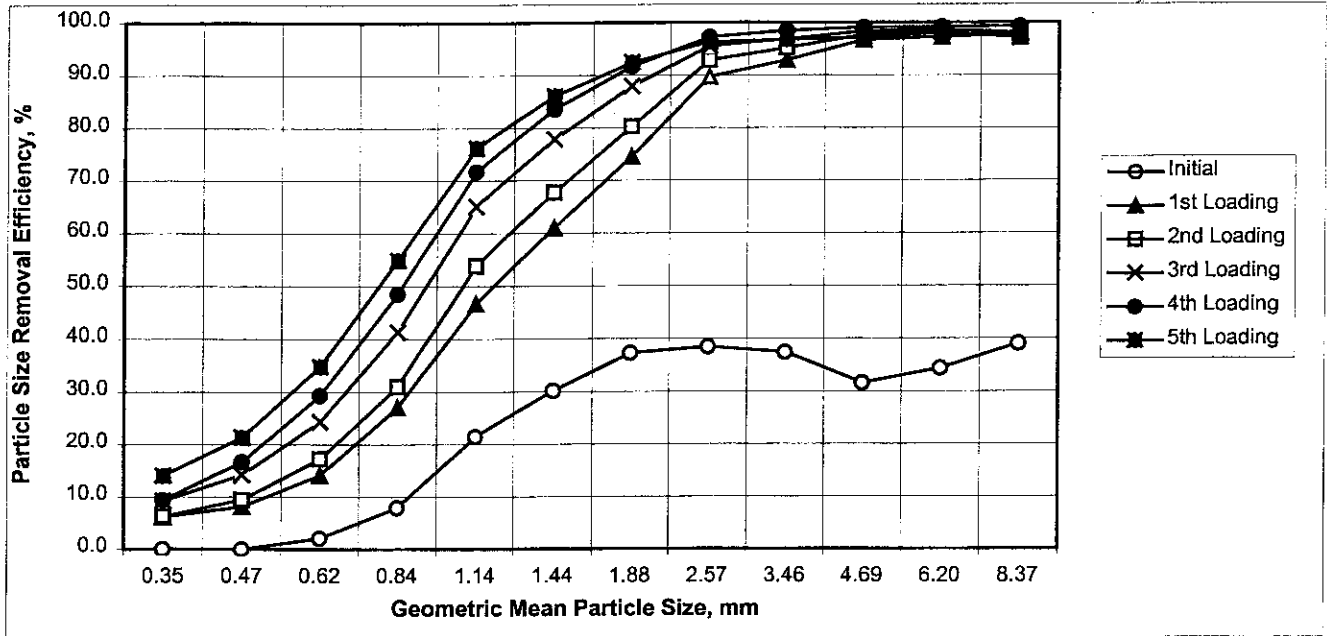
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Graph 1: Resistance of Clean Device vs. Airflow

Airflow Rate in % of Test Airflow Rate	Air Velocity		Airflow Rate		Resistance	
	m/s	fpm	m <sup>3</sup> /s	cfm	Pa	in H <sub>2</sub> O
50%	0.95	187.0	0.35	748	20	0.080
75%	1.42	280.5	0.53	1122	35	0.141
100%	1.90	374.0	0.71	1496	52	0.209
125%	2.37	467.5	0.88	1870	72	0.289

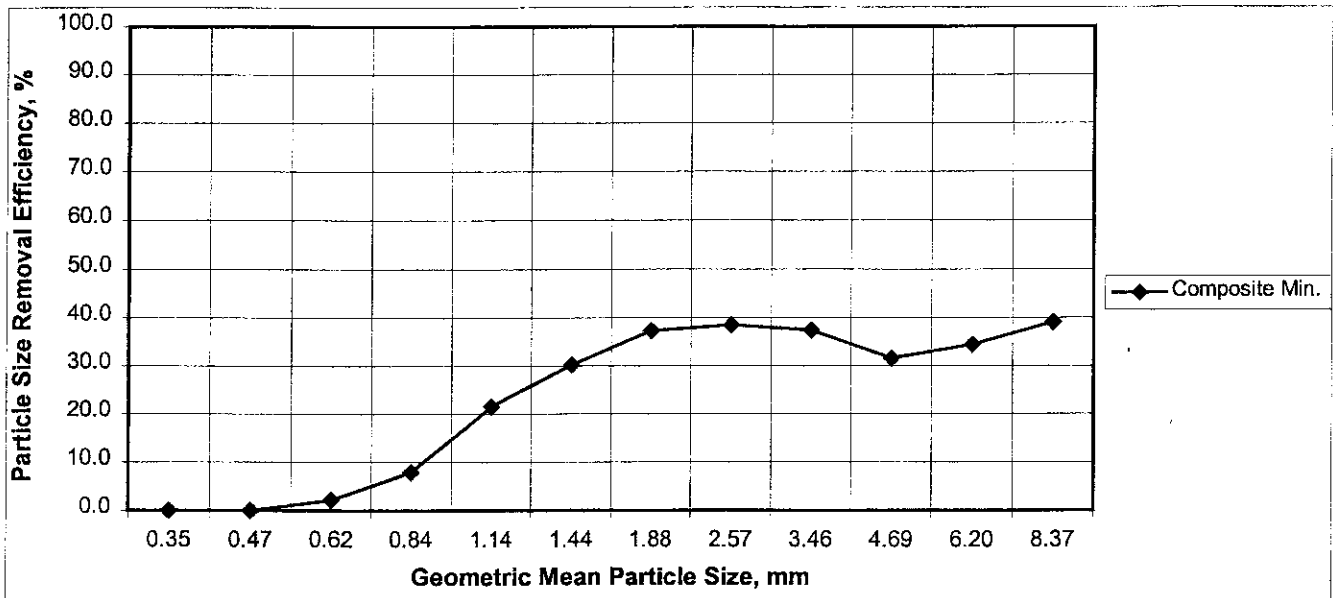
Table 1: Resistance of Clean Device vs. Airflow



Graph 2: PSE After Incremental Dust Loading

Range Number	1	2	3	4	5	6	7	8	9	10	11	12
Size Range, $\mu\text{m}$	0.30-0.40	0.40-0.55	0.55-0.70	0.70-1.00	1.00-1.30	1.30-1.60	1.60-2.20	2.20-3.00	3.00-4.00	4.00-5.50	5.50-7.00	7.00-10.00
Geometric Mean Particle Size, $\mu\text{m}$	0.35	0.47	0.62	0.84	1.14	1.44	1.88	2.57	3.46	4.69	6.20	8.37
Initial	0.0	0.0	2.1	7.9	21.5	30.2	37.3	38.4	37.4	31.5	34.4	39.0
1st Loading	6.1	8.1	14.1	27.0	46.6	60.9	74.5	89.7	92.9	96.7	97.3	97.8
2nd Loading	6.2	9.5	17.2	30.9	53.9	67.7	80.2	92.9	95.2	97.7	98.6	98.1
3rd Loading	9.2	14.2	24.3	41.3	65.0	77.9	88.0	95.5	96.9	98.3	98.6	98.0
4th Loading	9.4	16.7	29.3	48.6	71.7	83.6	91.7	97.3	98.5	99.1	99.2	99.3
5th Loading	14.0	21.4	34.8	54.8	76.2	86.1	92.4	96.3	96.8	97.2	98.0	97.1
Composite Minimum	0.0	0.0	2.1	7.9	21.5	30.2	37.3	38.4	37.4	31.5	34.4	39.0

Table 2: Particle Size Efficiency



Graph 3: Composite Minimum Efficiency Curve



### ASHRAE 52.2-1999 Air Cleaner Performance Report Summary

Operator: *D. Rood*  
Supervisor: *T. Dimorier*

Date: *September 4, 2000*  
Report Number: *J20014699-018*  
Order Number: *J20014699-412*

#### Device Manufacturer's Data

Manufacturer: *Tri Dim Filter Corporation*  
Device Model Designation: *Tri-Dek Panel 2-ply 24x24*  
Test Requested By: *Tri Dim Filter Corporation*  
Sample Obtained From: *Purchased on the open market*

#### Catalog Ratings

Airflow Rate: *Not specified*  
Initial Pressure Drop: *Not specified*

#### Specified Test Conditions

Airflow Rate: *374 fpm (1496 cfm)*  
Final Pressure Drop: *249 Pa (1.00" w.g.)*

#### Device Description

Height:	<i>24 inches</i>	Width:	<i>23 3/4 inches</i>	Depth:	<i>1 1/4 inches</i>
Generic Name:	<i>Flat Panel</i>				
Media Type:	<i>Polyester</i>	Approx. Media Area:	<i>4 sq. ft.</i>		
Media Color:	<i>white/white</i>	Adhesive Present?:	<i>no</i>		
Other Attributes:	<i>2-ply media over wire frame</i>				

#### Test Conditions

Airflow Velocity: *374 fpm (1496 cfm)*  
Temperature Range: *62-80 deg.F*  
Test Aerosol Type: *KCl*  
Final Pressure Drop: *249 Pa (1.00" w.g.)*  
RH% Range: *36-61 %*  
Remarks: *-*

#### Resistance Test Results

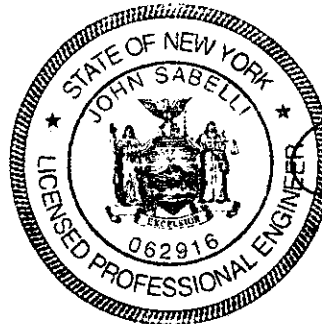
Initial Resistance: *52 Pa (0.21" w.g.)*      Final Resistance: *249 Pa (1.00" w.g.)*

#### Minimum Efficiency Reporting Data

Composite Average Efficiencies: *E1=2.5%, E2=31.8%, E3=35.6%*  
MERV 1-4 Air Cleaner Average Arrestance per Std. 52.1: *Not tested*  
Minimum Efficiency Reporting Value (MERV): *MERV 6@374 fpm*

Report Prepared By:

*T. Dimorier*  
for  
*D. Rood*  
Technician



Report Approved By:

*John Sabelli*  
*J. Sabelli*  
Staff Engineer