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**EVALUATION CENTER**  
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**RENDERED TO**

**ISIL Muhendislik Makina Ve Insaat Sanayii TIC. A.S.**  
**Yayalar mah. Akin sok. No:18/1 34909**  
**Pendik 6245HZ**  
**Istanbul 34909, Turkey**

PRODUCT EVALUATED: Flexiva Aluminium Sky Ventilation Duct  
EVALUATION PROPERTY: Flame Resistance

**Report of Testing Flexiva Aluminium Sky ventilation duct for compliance with the applicable requirements of the following criteria: UL 181 Section 11 – Burning Test, Standard for Factory-Made Air Ducts and Air Connectors.**

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# 1 Table of Contents

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	PAGE
1 Table of Contents .....	2
2 Introduction .....	3
3 Test Samples .....	3
3.1. SAMPLE SELECTION .....	3
3.2. SAMPLE AND ASSEMBLY DESCRIPTION .....	3
3.2.1. Material Specifications .....	3
3.2.2. Sample Mounting .....	3
4 Testing and Evaluation Methods .....	4
4.1. SECTION 11 – BURNING TEST .....	4
4.2. ACCEPTANCE CRITERIA .....	4
5 Testing and Evaluation Results .....	5
5.1. RESULTS AND OBSERVATIONS .....	5
6 Conclusion .....	5

## **2 Introduction**

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Intertek Testing Services NA Ltd. (Intertek) has conducted testing for ISIL Muhendislik Makina Ve Insaat Sanaii TIC. A.S., on Flexiva Aluminium Sky ventilation duct, to determine whether the submitted samples would meet the requirements of UL 181 Section 11 – Burning Test, *Standard for Factory Made Air Ducts and Connectors*.

This evaluation began October 28, 2010 and was completed the same day.

## **3 Test Samples**

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### **3.1. SAMPLE SELECTION**

Samples were submitted to Intertek directly from the client and were not independently selected for testing. The sample material was received at the Evaluation Center on October 8, 2010.

### **3.2. SAMPLE AND ASSEMBLY DESCRIPTION**

#### **3.2.1. Material Specifications**

A total of six samples of flexible ventilation duct were cut from the submitted material, each measuring 36 in. long. The samples consisted of a flexible ventilation duct made of laminated aluminium foil with high tensile steel wire. The duct is circular in shape with a nominal 6 in. diameter cross-section. The material was described by the client as “Flexiva Aluminium Sky”.

#### **3.2.2. Sample Mounting**

The test was performed in three configurations. In each configuration the interior and the exterior of the duct was tested. The sample was tested in a horizontal position, vertical position and at a 45 degree incline. The sample was held to the specimen holder using steel tie wire. The Bunsen burner was supported in a way that half of the 2 1/2 in. test flame was in contact with the test sample.

For the horizontal exterior and 45 degree incline exterior configurations there is to be untreated cotton placed 12 in. below the test sample except in the area 6 in. from the burner.

## **4 Testing and Evaluation Methods**

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### **4.1. SECTION 11 – BURNING TEST**

Prior to the application of the burner to the sample, the burner is to be adjusted to produce a flame of 2 ½ in. high. The air and fuel input are to be adjusted so that the flame is to be equal parts blue and yellow.

The burner is ignited and the flame remains in contact with the test sample for 60 seconds. After 60 seconds the burner is removed from the sample until any flaming or after glow self extinguishes, the burner is then immediately placed in contact at the same location for an additional 60 seconds. The burner is then removed and any residual flaming or after glow is recorded.

### **4.2. ACCEPTANCE CRITERIA**

A sample will meet the requirements of UL 181 Section 11 – Burning Test if the following criteria are met:

- The duration of flaming or glowing of any sample after withdrawal of the test flame is not to exceed 60 seconds.
- Flaming or glowing is not to travel to the end of the sample farthest from the point of application of the test flame.
- Particles dropped from the exterior surface of the sample during the vertical and 45 degree incline exterior exposures are not to ignite the surgical cotton.

## 5 Testing and Evaluation Results

### 5.1. RESULTS AND OBSERVATIONS

#### Section 11 – Burning Test Results

Sample Configuration	Exposed Surface	Length of Flaming/Glowing (mm)	Time of After Burn/Glowing (Sec.)	Particles Dropped From the Sample (Y/N)	Ignition of Cotton (Y/N)
Horizontal	Exterior	75	5	N	N
Horizontal	Interior	20	0	N/A	N/A
Vertical	Exterior	80	0	N/A	N/A
Vertical	Interior	75	0	N/A	N/A
45-Degree	Exterior	95	2	N	N
45-Degree	Interior	100	0	N/A	N/A

#### Observations:

Sample Configuration	Exposed Surface	Observations
Horizontal	Exterior	Light smoking, opening formed approx. 5/8 in.
Horizontal	Interior	Light smoking, darkening on unexposed side
Vertical	Exterior	Light smoking, pin hole openings formed
Vertical	Interior	Light smoking, darkening of the unexposed side
45-Degree	Exterior	Light smoking, opening formed approximately 1/4 in.
45-Degree	Interior	Light smoking, pin hole openings formed

## 6 Conclusion

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The samples of Flexiva Aluminium Sky ventilation duct, submitted by ISIL Muhendislik Makina Ve Insaat Sanaii TIC. A.S., met the requirements of UL 181 Section 11 – Burning Test, *Standard for Factory Made Air Ducts and Connectors*.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

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