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**ASTM E 162 Surface Flammability Testing  
of "EPDM 35 FST"**

A Report To: **Caoutchouc Pro-flex Inc.**  
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Submitted by: Element Fire Testing

Report No. 19-002-581(B)  
3 Pages

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**ACCREDITATION** To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

### **SPECIFICATIONS OF ORDER**

Determine surface flammability in accordance with ASTM E 162-16, as per Pro-flex Inc. reference Purchase Order No. AC-006204 and Element Quotation No. 18-002-580,964 accepted August 6, 2019.

**SAMPLE IDENTIFICATION** (Element sample identification number 19-002-S0581)

Rubber compound, identified as:  
"EPDM 35 FST"

### **SUMMARY OF TEST PROCEDURE**

Four specimens, each 6 inches x 18 inches (152 mm x 457 mm) in size, are pre-dried for 24 hours at 60°C in an air-circulating oven. The specimens are then conditioned to equilibrium for a minimum period of 24 hours at a temperature of 23 ± 3° and a relative humidity of 50 ± 5%.

Each specimen is individually removed from conditioning and mounted into a holder. The specimen is then positioned in front of a 12 inch x 18 inch (305 mm x 457 mm) gas-fired radiant panel (gas and air mixture) at an inclined angle of 30° (facing downward). The panel is pre-set to produce a radiant output, as measured by a calibrated optical pyrometer covering a 10 inch (254 mm) diameter area of the central panel, equal to that which would be obtained from a blackbody of the same dimensions operating at a temperature of 1238 ± 7°F (670 ± 4°C). The orientation of the specimen is such that ignition is forced near its upper edge by a pilot flame, and the flame front progresses downwards.

The Flame Spread Index ( $I_S$ ) is derived from the rate of progress of the flame-front and the rate of heat liberation by the material under test.  $I_S$  is calculated as follows, and then reported after rounding the average of the tests to the nearest multiple of 5:

$$I_S = F_S \cdot Q$$

Where:  $I_S$  is the flame spread index

$F_S$  is the flame spread factor

$Q$  is the heat evolution factor

### **SAMPLE PREPARATION**

Specimens were received, pre-cut to the requisite dimensions. In all cases, the specimens were supported in the specimen holders by 1 inch (25 mm) hexagonal wire mesh. Specimens were also individually removed from the conditioning chamber and testing was initiated within 5 minutes after removal.

### **REQUIREMENTS**

The Federal Railroad Administration (FRA) and NFPA 130 *Standard for Fixed Guideway Transit and Passenger Rail Systems* establish performance criteria for vehicle components (materials and assemblies). Different criteria may apply, depending on the type of material and its intended use within the vehicle. Typically, a maximum  $I_S$  acceptance criterion of 35 is cited for the majority of applications, with no flaming running or dripping allowed. Other industry or project documents may also apply performance criteria based on ASTM E 162 testing.

**TEST RESULTS**

**ASTM E 162-16**

Surface Flammability of Materials Using a Radiant Heat Energy Source. ( $I_s$  = Flame Spread Index).

Test	$F_s$	Q	$I_s$	Observations
1	1.0	18.9	19	Flame front progression to a maximum distance of 8 inches.
2	1.0	17.4	17	Surface spalling was observed.
3	1.4	16.0	23	No flaming running or flaming dripping was observed.
4	1.4	17.0	23	Each test duration: 15 minutes.
Average:			20.6	
Rounded Average:			<b>20</b>	
Specified Maximum:			35	No flaming running or flaming dripping permitted

**COMMENTS**

There are no current, specific Federal Railroad Administration requirements cited for elastomeric materials when tested for surface flammability using the ASTM E 162 test procedure. Therefore, the criteria cited in this report are for general requirements and are listed for reference purposes only.

**Note: This is an uncontrolled electronic copy of the report. Signatures are on file with the original.**

Haseeb Ali,  
 Technologist.

Ian Smith,  
 Technical Manager.

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