

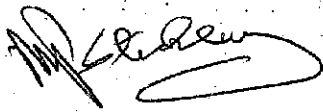
**Confidential Technical Report 39089****Date:** 13<sup>th</sup> March 2002**RAPRA**  
**TECHNOLOGY LTD.**

Registered Office:  
Shawbury, Shrewsbury, Shropshire  
SY4 4NR, United Kingdom  
Telephone: +44 (0)1939 250383  
Fax: +44 (0)1939 251118  
[www.rapra.net](http://www.rapra.net)

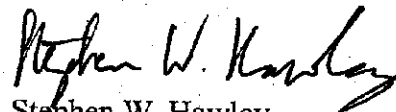
**PROJECT NO:** J0260**TENSILE, TEAR AND OZONE RESISTANCE TESTING OF ONE MATERIAL**

**L'ISOLANTE K-FLEX**  
R&D Department  
Via Don Locatelli 35  
20040 Roncello (Milano)  
Italy

For the attention of: Dr A Marenghi



M P Stickley  
Author



Stephen W. Hawley  
Testing Business Manager

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## TENSILE, TEAR AND OZONE RESISTANCE TESTING OF ONE MATERIAL

### 1. INTRODUCTION

Details of the samples supplied and the tests requested are as follows: -

**Sample Designation:** K-Flex ST.

**Description of Materials Received:** Foam slab material, skin faced.

**Date Received:** 22<sup>nd</sup> February 2002.

**Under purchase Order Number:** ST0202n.

**Tests Requested:**

- Tensile strength
- Elongation at break
- Tear strength
- Ozone resistance

### 2. LIMITATIONS

This report has been prepared solely based on information supplied up to the point of its completion and has been accepted in good faith.

The results relate only to the samples tested and to the particular tests carried out and cannot prove that the product is generally fit for any intended purpose.

The samples were tested as received and to the supplier's instructions and no responsibility can be taken for them being unrepresentative.

Rapra Technology Ltd will destroy all the supplied materials relating to this contract six months after the work is completed unless a written request is received within that time that the client wishes to have the material returned.

### **3. EXPERIMENTAL DETAILS**

The samples were tested in accordance with the following standards, except as otherwise noted. Ambient temperature was maintained at  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and all equipment used was calibrated to the accuracy required in the appropriate standard.

The material was first slit down to nominally 2mm in thickness leaving one skin surface untouched.

#### **3.1 Tensile strength and elongation at break**

Five test pieces, conforming to die C of ASTM D412:1998, were die stamped from the slit material. The tensile strength and elongation at break were then measured in accordance with the above standard at a tensile test speed of 500m/minute. The load was measured autographically and the extension by optical extensometry.

#### **3.2 Tear resistance**

Five test pieces conforming to the angle tear test piece of ASTM D1004:1994, were die stamped from the slit material, and the tear strength determined in accordance with the above standard. The test speed was 51mm/minute and the load recorded autographically.

### 3.3 Ozone resistance

Three test strips suitable for the determination of ozone resistance in accordance with ASTM D1171:Method A (B) were prepared from the slit sheet and exposed to the following conditions:

Conditioning period:	72 hours at 40°C
Ozone concentration:	50±5 PPHM
Temperature during exposure:	40±2°C
Duration of exposure:	72 hours
Magnification of inspection:	X2

The test piece were then examined and graded accordingly.

## 4. RESULTS

### 4.1 Tensile strength and elongation at break

Test piece	Tensile strength (kPa)	Elongation at break (%)
1	210	100
2	210	90
3	220	105
4	220	100
5	220	90
<i>Mean</i>	<i>216</i>	<i>95</i>

Date of test: 8<sup>th</sup> March 2002.

### 4.2 Tear resistance (N/mm)

Test piece	Measured values
1	0.70
2	0.61
3	0.60
4	0.67
5	0.61
<i>Mean</i>	<i>0.64</i>

Date of test: 8<sup>th</sup> March 2002.

### 4.3 Ozone resistance

Test piece	Grade of crack
1	0
2	0
3	0

Grade 0: No cracking visible under a lens of X2 magnification

Date of test: 7<sup>th</sup> March 2002.