

**"Progress Through Innovation, Technology  
and Customer Satisfaction"**



February 8, 2006

**AKRON RUBBER DEVELOPMENT LABORATORY, INC.**  
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## **- TEST REPORT -**

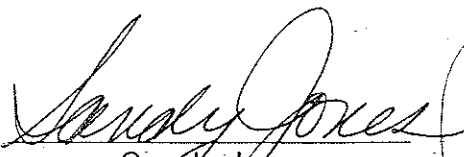
**PN# 66025**

**PO#**

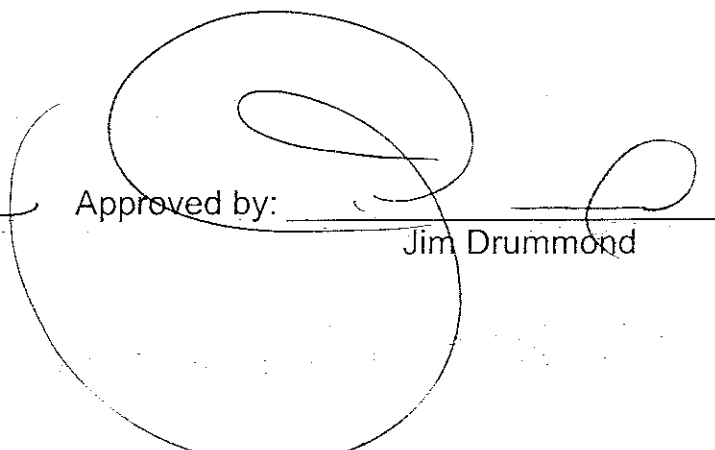
**Prepared for:**

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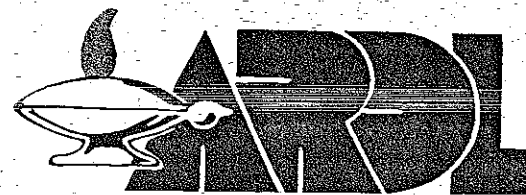
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**SUBJECT:** Physical testing on material submitted by the above company to ASTM D 120-02a test specification.  
PO# Wire Transfer

**RECEIVED:** Two (2) pairs of gloves identified as Novax Orange Rubber Insulating Gloves Class 1 Beaded Cuff  
Size 8

**POLYMER IDENTIFICATION, ASTM D 3677-90(95)**

Instrument: Perkin-Elmer Spectrum BX Spectrometer  
Resolution: 4.0  
Number of Scans: 6  
Method of Preparation: Film

**RESULTS**

Polyisoprene

**DIMENSIONS, PARA. 17.1 - 17.3.1**

Three gloves tested.  
Average of four readings reported.

**REQUIREMENTS:** Thickness Crotch, mm = 0.63 - 1.52  
Thickness Palm & Back, mm = 0.76 - 1.52

	<u>LENGTH, mm</u>	<u>WIDTH, mm</u>	<u>PALM, mm</u>	<u>CROTCH, mm</u>	<u>BACK, mm</u>
Glove 1	355	190	1.30	1.21	1.38
Glove 2	357	186	1.34	1.20	1.34
Glove 3	358	192	1.31	1.24	1.35

**ORIGINAL PHYSICAL PROPERTIES, ASTM D 412-98a(02)e1, D 2240-03, D 624-00e1**

Die C dumbbells tested at 20 in/min.

	<u>RESULTS</u>	<u>REQUIREMENTS</u>	<u>PASS/FAIL</u>
Shore A Durometer, points	39	47 max.	Pass
Tensile Strength, MPa	27.9	17.2 min.	Pass
Ultimate Elongation, %	824	600 min.	Pass
100% Modulus, MPa	0.75		
200% Modulus, MPa	1.04	2.1 max.	Pass
300% Modulus, MPa	1.41		
Tear Strength Die C, kN/m	51.4	21 min.	Pass

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**PUNCTURE RESISTANCE, ASTM D 120-02a**

Palm area punctured at 20 in/min.

	<u>RESULTS</u>	<u>REQUIREMENTS</u>	<u>PASS/FAIL</u>
Puncture Resistance, kN/m	19.32	18 min.	Pass

**OZONE RESISTANCE, ASTM D 1149-99**

Test specimens per ASTM D 518-99, Method A

Specimens exposed 3 hrs. @ 50 pphm @ 40°C, 20% elongation.

Observations made at 7x magnification.

	<u>RESULTS</u>	<u>REQUIREMENTS</u>	<u>PASS/FAIL</u>
	No cracks	No cracks	Pass

**HEAT-AGED PROPERTIES, ASTM D 573-04**

Specimens aged 168 hrs. @ 70°C in a forced air oven.

	<u>RESULTS</u>	<u>REQUIREMENTS</u>	<u>PASS/FAIL</u>
Durometer, point change	-6	-	-
Tensile Strength, % of original	96.4	80 min	Pass
Elongation, % of original	99.7	80 min.	Pass

**A-C PROOF TEST ASTM D120-95, SECTION 18.4.2**

The glove was filled with tap water and immersed in water to a depth about 1 ½ inches from the cuff. A metal rod was lowered inside the glove as one electrode and a metal rod placed in the water tank outside the glove as the other electrode. A voltage was applied to the electrodes at an increasing rate of 1,000 V/s until specified voltage was reached. For Class 1 glove a maximum voltage of 10,000 V and a maximum current of 14 mA were used. The voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

	<u>Pass/Fail</u>	<u>Measured Current</u>
1	Passed	6 mA
2	Passed	6 mA

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**A-C MOISTURE ABSORPTION/PROOF TEST ASTM D120-95, SECTION 18.4.4**

The glove was filled with tap water and immersed in water to a depth about 1 ½ inches from the cuff. The glove was soaked for a period of 16 hours. A metal rod was lowered inside the glove as one electrode and a metal rod placed in the water tank outside the glove as the other electrode. A voltage was applied to the electrodes at an increasing rate of 1,000 V/s until specified voltage was reached. For Class 1 glove a maximum voltage of 10,000 V and a maximum current of 14 mA were used. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

	<u>Pass/Fail</u>	<u>Measured Current</u>
1	Passed	10 mA
2	Passed	10 mA

**A-C BREAKDOWN TEST ASTM D120-95, SECTION 18.4.3**

The glove was filled with tap water and immersed in water to a depth about 1 ½ inches from the cuff. A metal rod was lowered inside the glove as one electrode and a metal rod placed in the water tank outside the glove as the other electrode. A voltage was applied to the electrodes at an increasing rate of 1,000 V/s until specified voltage was reached. For Class 1 glove a maximum voltage of 20,000 V was used.

	<u>Pass/Fail</u>	<u>Measured Current</u>
1	Passed	26 mA
2	Passed	28 mA

  
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