"Progress Through Innovation, Technology and Customer Satisfaction"



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October 20, 2005

# - TEST REPORT -

PN# 64298A PO# Wire Transfer

# Prepared for:

Shamini Shanmugam GB Industries Sdn. Bhd. 44-1 Jalan USJ 10/1b 47620 Subang Jaya Selangor Malaysia

Approved By:

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MEMBER

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Page 1 of 3- PN# 64298A

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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:

Twelve pairs of orange gloves identified as Novax Class O Type I.

POLYMER IDENTIFICATION, ASTM D 3677-90(95)

Instrument:

Perkin-Elmer Spectrum BX Spectrometer

Resolution:

Number of Scans:

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 = 0.46 - 1.02

Thickness Palm & Back, mm = 0.51 - 1.02

	LENGTH, mm	WIDTH, mm	PALM, mm	CROTCH, mm	BACK, mm
Glove 1	356	234	1.013	0.980	0.995
Glove 2	352	230	0.990	0.965	1. <b>010</b>
Glove 3	349	232	0.997	0.987	0.995

## ORIGINAL PHYSICAL PROPERTIES, ASTM D 412-98a(02)e1, D 2240-03, D 624-00e1 Die C dumbbells tested at 20 in/min.

	RESULTS	REQUIREMENTS	PASS/FAIL
Shore A Durometer, points Tensile Strength, MPa Ultimate Elongation, % 100% Modulus, MPa	38 27.0 733 0.783	47 max. 17.2 min. 600 min.	Pass Pass Pass
200% Modulus, MPa 300% Modulus, MPa Tear Strength Die C, kN/m	1.13 1.58 43.2	2.1 max 21 min.	Pass

Page 2 of 3- PN# 64298A

October 20, 2005

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

Palm area punctured at 20 in/min.

	RESULTS	REQUIREMENTS	PASS/FAIL
Puncture Resistance, kN/m	36.8	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>	PASS/FAIL
No cracks	No cracks	Pass

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

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

	RESULTS	<u>REQUIREMENTS</u>	PASS/FAIL
Durometer, point change	0	-	-
Tensile Strength, % of original	102	80 min	Pass
Elongation, % of original	97.6	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 1000 V/s until specified voltage for each class of glove was reached. For Class 00 gloves a maximum voltage of 2500 V and a maximum current of 8 mA were used. For Class 0 gloves a maximum voltage of 5000 V and a maximum current of 12 mA were used. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

	Pass/Fail	Measured Current
1	Passed Passed	4 mA 4 mA

Page 3 of 3 - PN# 64298A

October 20, 2005

Shamini Shanmugam GB Industries Sdn. Bhd.

# 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 1000 V/s until specified voltage for each class of glove was reached. For Class 00 gloves a maximum voltage of 2500 V and a maximum current of 8 mA were used. For Class 0 gloves a maximum voltage of 5000 V and a maximum current of 12 mA were used. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

	Pass/Fail	Measured Current
1 2	Passed Passed	7 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 1000 V/s until specified voltage for each class of glove was reached. For Class 00 gloves a maximum voltage of 4000 V was used. For Class 0 gloves a maximum voltage of 6000 V was used.

•	Pass/Fail	Measured Current
1 2	Passed Passed	7 mA 6 mA

Sandy Jones

Project Technician

AKRON RUBBER DEVÉLOPMENT LABORATORY, INC.

PN# 64298A SJ/JD/sc Jim Drummond

Physical Testing Manager