TEST REPORT

G.B. INDUSTRIES SDN. BHD.
198701008047 (166764-T)

BUYER	: ATP WORLD INDUSTRY CO.LTD
REFERENCE NO	: SO 102435
PRODUCT	: RUBBER INSULATING GLOVES
DATE	: 26TH DECEMBER 2023

TEST REPORT

REFERENCE NO.: SO 102435

LOT NO.: 00-BK/1223, 0-BK/1223, 1-BK/1223

REQUIREMENTS

TABLE 1 – Dimension requirements in accordance with IEC 60903:2014, EN 60903:2003 & ASTM D120-22.

Class of gloves	Thickness, mm			Standard length [b], mm			
	Minimum [a]		Maximum				
	In Crotch [a]	Others					
00 [c]	-	-	0.50	280	360	-	-
00 [d]	0.20	0.25	0.75	280	360	-	-
0	0.46	0.51	1.00	280	360	410	460
1	0.63	0.76	1.50	-	360	410	460
2	1.02	1.27	2.29	-	360	410	460
3	1.52	1.90	2.92	-	360	410	460
4	2.03	2.54	3.56	-	-	410	460

[a] In crotch thickness & minimum thickness requirements applied to ASTM D120-22 requirements only.
[b] The permissible variation in length shall be ± 13mm for all classes.
[c] Class 00 maximum thickness 0.50mm applied to IEC 60903:2014 & EN 60903:2003 requirements only.
[d] Class 00 maximum thickness 0.75mm applied to ASTM D120-22 requirements only.

TABLE 2 – AC Voltage requirements proof test current in accordance with IEC 60903:2014, EN 60903:2003 & ASTM D120-22.

Class of gloves	Proof test voltage, kV rms	Maximum proof test current [b, c], mA rms								Withstand test voltage / Min. Breakdown voltage, kV rms
		Glove length, mm								
		60 Hz AC Proof test voltage				50 Hz AC Proof test voltage				
		280	360	410	460	280	360	410	460	
00	2.5	10	12	N/A [a]	N/A	6.7	10.0	N/A	N/A	5
0	5.0	10	12	14	16	6.7	10.0	11.7	13.3	10
1	10	N/A	14	16	18	N/A	11.7	13.3	15.0	20
2	20	N/A	16	18	20	N/A	13.3	15.0	16.7	30
3	30	N/A	18	20	22	N/A	15.0	16.7	18.3	40
4	40	N/A	N/A	22	24	N/A	N/A	18.3	20.0	50

[a] N/A = Not applicable
[b] For AC moisture absorption/proof test current shall not exceed the values specified in Table 2 by more than 2 mA
[c] The proof test voltage is higher than the recommended maximum use voltage.

No. 75-2, Jln USJ 21/11, 47630 Subang Jaya, Selangor Darul Ehsan, Malaysia.
Tel: 603-8023 8899. Fax: 603-8023 8877. E-mail: sales@gb-intl.com. Homepage: http://www.gb-intl.com

TEST REPORT

REFERENCE NO.: SO 102435

LOT NO.: 00-BK/1223, 0-BK/1223, 1-BK/1223

Sample description: Rubber insulating gloves of **Class 00, XBK-075/S1-360, Class 0, 0BK-100/S1-360, Class 1, 1BK-150/S1-360 Black** has been subjected to dimension measurements, physical properties test and AC electrical tests at 50Hz.

DIMENSIONS

Sampling test results in accordance with IEC 60903:2014, clause 5.2.3. & 5.2.4 and EN 60903:2003, clause 8.2.2 and & ASTM D120-22, section 17.

		Thickness		
Sample	Length, mm	Palm, mm	Back, mm	Crotches, mm
CLASS 00	361 – 365	0.75 – 0.77	0.75 – 0.76	0.40 – 0.43
CLASS 0	358 – 363	0.96 – 0.98	0.95 – 0.96	0.52 – 0.58
CLASS 1	360 – 365	1.40 – 1.46	1.43 – 1.45	0.76 – 0.78

PHYSICAL PROPERTIES

Sampling test results in accordance with IEC 60903:2014, clause 5.5.2 and EN 60903:2003, clause 5.2.1 & ASTM D120-22, section 19.2.

	Results	Requirements	Status
CLASS 00: Original.			
1. Tensile strength, MPa	Average: 25	min. 17	PASS
2. Elongation at break, %	Average: 930	min. 600	PASS
CLASS 00: Heat-aged for 168 hrs @ 70°C.			
1. Tensile strength, % of original	(25 MPa) 100%	min. 80	PASS
2. Elongation at break, %	(910%) 98%	min. 80	PASS
CLASS 0: Original.			
3. Tensile strength, MPa	Average: 26	min. 17	PASS
4. Elongation at break, %	Average: 938	min. 600	PASS
CLASS 0: Heat-aged for 168 hrs @ 70°C.			
3. Tensile strength, % of original	(26 MPa) 100%	min. 80	PASS
4. Elongation at break, %	(888%) 95%	min. 80	PASS

No. 75-2, Jln USJ 21/11, 47630 Subang Jaya, Selangor Darul Ehsan, Malaysia.
Tel: 603-8023 8899. Fax: 603-8023 8877. E-mail: sales@gb-intl.com. Homepage: http://www.gb-intl.com

TEST REPORT

REFERENCE NO.: SO 102435

LOT NO.: 00-BK/1223, 0-BK/1223, 1-BK/1223

		Results	Requirements	Status
CLASS 1: Original.				
1.	Tensile strength, MPa	Average: 25	min. 17	PASS
2.	Elongation at break, %	Average: 925	min. 600	PASS
CLASS 1: Heat-aged for 168 hrs. @ 70°C.				
3.	Tensile strength, % of original	(25MPa)100%	min. 80	PASS
4.	Elongation at break, %	(890%) 96%	min. 80	PASS

AC PROOF TEST

Sampling test results in accordance with IEC 60903:2014, clause 5.6.1.4.2 and EN 60903:2003, clause 8.4.2 & ASTM D120-22, section 18.4.2.

The gloves, right side out was filled with tap water and immersed in water to a specified depth from the cuff. The water level during the test shall be the same inside and outside the glove. A metal rod was lowered inside the glove as one electrodes 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 1000V/s until specified voltage for each class of glove was reached. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

Sample	Results	Status
CLASS 00: 2.5 kV, max. leakage allowed 10.0 mA		
	2.5 – 2.6 mA	PASS
CLASS 0: 5.0 kV, max. leakage allowed 10.0 mA		
	4.1 – 4.3 mA	PASS
CLASS 1: 10.0 kV, max. Leakage allowed 11.7 mA		
	5.2 – 5.3 mA	PASS

AC WITHSTAND TEST / BREAKDOWN TEST

Sampling test results in accordance with IEC 60903:2014, clause 5.6.1.4.3 and EN 60903:2003, clause 8.4.2.2 & ASTM D120-22, section 18.4.3.

The gloves, right side out was filled with tap water and immersed in water to a specified depth from the cuff. The water level during the test shall be the same inside and outside the glove. A metal rod was lowered inside the glove as one electrodes 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 1000V/s until specified voltage for each class of glove was reached.

Sample	Min. Voltage Applied, kV AC	Status
CLASS 00	5.0 kV	PASS
CLASS 0	10.0 kV	PASS

No. 75-2, Jln USJ 21/11, 47630 Subang Jaya, Selangor Darul Ehsan, Malaysia.
Tel: 603-8023 8899. Fax: 603-8023 8877. E-mail: sales@gb-intl.com. Homepage: http://www.gb-intl.com

Sample	Min. Voltage Applied, kV AC	Status
CLASS 1	20.0 kV	PASS

AC MOISTURE ABSORPTION / PROOF TEST

Sampling test results in accordance with IEC 60903:2014, clause 5.6.2 and EN 60903:2003, clause 8.4.1 & ASTM D120-22, section 18.4.4.
The gloves, right side out was filled with tap water and immersed in water to a specified depth from the cuff. The gloves were soaked for a period of 16 hours. Then, the gloves shall be tested to AC proof test. The voltage was applied to the electrodes at an increasing rate of 1000V/s until specified voltage for each class of glove was reached. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

Sample	Results	Status
CLASS 00: 2.5 kV, max. leakage allowed 12.0 mA		
	3.5 – 3.7 mA	PASS
CLASS 0: 5.0 kV, max. leakage allowed 12.0 mA		
	4.8 – 4.9 mA	PASS
CLASS 1: 10.0 kV, max. Leakage allowed 13.7 mA		
	6.2 – 6.4 mA	PASS

AC AGEING PROOF TEST

Sampling test results in accordance with IEC 60903:2014, clause 5.7 and EN 60903:2003, clause 8.5.
The gloves shall be place in an air oven for 168 hours at 70°C. Then, the gloves shall be tested to AC proof test. A voltage was applied to the electrodes at an increasing rate of 1000V/s until specified voltage for each class of glove was reached. The specified voltage was applied for a period of 3 minutes after which the voltage was lowered to 0 V.

Sample	Results	Status
CLASS 00: 2.5 kV, max. leakage allowed 10.0 mA		
	2.8 – 3.0 mA	PASS
CLASS 0: 5.0 kV, max. leakage allowed 10.0 mA		
	3.9 – 4.0 mA	PASS
CLASS 1: 10.0 kV, max. Leakage allowed 11.7 mA		
	4.7 – 4.8 mA	PASS

Prepared by	:	Approved by	:
Name	: Viethya Setaram	Name	: Norwahida Yusof
Date	: 26th December 2023	Date	: 26th December 2023

No. 75-2, Jln USJ 21/11, 47630 Subang Jaya, Selangor Darul Ehsan, Malaysia.
Tel: 603-8023 8899. Fax: 603-8023 8877. E-mail: sales@gb-intl.com. Homepage: http://www.gb-intl.com