

Report Number: CT/ESD/664/23

**MATERIALS (ESD) TESTING REPORT
FOR
MISUMI (THAILAND) Co.,Ltd**

**PRODUCT NAME: ESD GLOVES THICK TYPE TOP FIT
PRODUCT CODE: MESD-TF**

TESTED AND PREPARED BY:



CESSTECH (S) PTE LTD
15, YISHUN INDUSTRIAL STREET 1
#02-31, WIN5, SINGAPORE 768091

SEPTEMBER 2023

SUMMARY

Foreword	:	The surface & volume resistance of materials (Gloves) were tested per the appropriate ESDA standards to ascertain the resistance classification of these materials and to determine if these materials could be used as static control items and/or to protect ESD sensitive parts
Standards	:	The samples were tested according to the following standards: <ul style="list-style-type: none"> • ANSI/ESD STM15.1: Methods for Resistance Measurement of Gloves and Finger Cots
Sample Description	:	1 material (consisting of 6 samples) were tested
Conditioning	:	The samples were conditioned at a temperature of 23 ± 3 Deg C and at $12\% \pm 3\%$ RH including $50\% \pm 5\%$ RH within an environmental chamber for 48hrs prior to testing for ANSI/ESD STM11.11 and ANSI/ESD STM11.12 and Two-Point Resistance Measurement & Constant Area and Force Electrode (CAFÉ) test.

SUMMARY STATEMENT

The data presented in this report is an exact record of the materials testing done on the specified dates and in accordance to the stipulated environmental conditions. The results were obtained in accordance with test methods per
 ANSI/ESD STM11.11: Surface Resistance Measurement of Planar Materials &
 ANSI/ESD STM11.12: Volume Resistance Measurements of Planar Materials & Constant Area and Force Electrode (CAFÉ) test.

Certified By :




WONG TZE LIANG

iNARTE Certified ESD Engineer, #ESD-010658-E

Date : 22 September 2023



CESSTECH (S) PTE LTD
An ISO 9001:2015 Certified Company
CERT NO: FS 68089

TEST PROCEDURE

TESTING PROCEDURE & INSTRUCTIONS FOR SURFACE RESISTANCE MEASUREMENT OF GLOVES

AIM

To measure the surface resistance of Gloves per ANSI/ESD STM11 .11.

REFERENCE DOCUMENT / STANDARD

ANSI/ESD STM11.11-2021 Surface resistance Measurement of Planar Materials

- Within a range of 1.0×10^4 ohms $\geq R < 1.0 \times 10^{11}$ ohms

TEST EQUIPMENT

- #5532 Environmental chamber (to condition the samples)
- 5lb Conductive Rubber Electrode(s)
- PRF-911 Concentric Ring Fixture with test bed
- PRS 801 or 812 Wide range resistance meter / Megohmmeter (Open Circuit) with application voltage of 10VDC / 100VDC with 5lb Conductive Rubber Electrode(s), Test lead(s) of sufficient length & accessories

SAMPLE PREPARATION

1. A minimum of 6 representative specimen of the sample material shall be prepared.
2. Sample Size shall be at least 76 mm X 127mm.
3. The material should be clearly marked to identify the specimen's orientation (eg: Front, Back, Inside, Outside etc).

TEST CONDITIONS

The samples will be tested under the following conditions:

- Temp : 23 ± 3 Deg C , RH : 12% $\pm 3\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing
- Temp : 23 ± 3 Deg C , RH : 50% $\pm 5\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing

TEST PROCEDURE

1. Install the BNC adapter on the PRF911 fixture (concentric ring).
2. Install the negative lead (-) of the resistance meter to the RED BNC adapter receptacle connected to the centre INNER RING electrode.
3. Install the positive lead (+) of the resistance meter to the BLACK receptacle connected to the OUTER RING electrode.
4. To enhance the accuracy of the measurement, connect the GREEN auxiliary ground lead to the BLACK BNC adapter receptacle and the other end of the lead to the meter's ground reference.
5. Take one of the Samples and label it as sample 1 using a marker.
6. Insert the PTB-920 Dual test Bed into the glove with the insulated black acrylic surface facing up towards the surface to be tested.
7. Place the PRF-911 Concentric Ring Fixture on sample 1, arrange it so that it is approximately in the centre of the sample.
8. Place a 5lbs electrode on the PRF911 concentric ring (With the 5lbs electrode positioned on the PRF911 fixture, this ensures that both the outer ring & centre electrodes of the PRF911 fixture have approximately 5 lbs of total pressure across both surfaces).
9. Switch ON the PRS 801 resistance meter.
10. Ensure that it is in the "AUTO" mode.
11. Press the Green "TEST" button to initiate the measurement sequence.
12. Record the reading in ohms and the application voltage as shown on the meter.
13. Repeat for another 2 readings.
14. Repeat steps (6) to (13) for the remaining FIVE samples and mark each sample from (2) to (6) accordingly.
15. Calculate and report the minimum, maximum & Average reading for each sample as well.



Figure 1: Surface Resistance Test (Inside)



Figure 2: Surface Resistance Test (Outside)

TESTING PROCEDURE & INSTRUCTIONS FOR VOLUME RESISTANCE MEASUREMENT OF GLOVES

AIM

To measure the volume resistance of Gloves per ANSI/ESD STM11.12

REFERENCE DOCUMENT / STANDARD

ANSI/ESD STM11.12-2021 Volume resistance Measurements of planar materials

- Volume resistance within a range of 1.0×10^4 ohms $\geq R < 1.0 \times 10^{11}$ ohms

TEST EQUIPMENT

- #5532 Environmental chamber (to condition the samples)
- 5lb Conductive Rubber Electrode(s)
- PRF-911 Concentric Ring Fixture with test bed
- PRS 801 or 812 Wide range resistance meter / Megohmmeter (Open Circuit) with application voltage of 10VDC / 100VDC with 5lb Conductive Rubber Electrode(s), Test lead(s) of sufficient length & accessories

SAMPLE PREPARATION

1. A minimum of 6 representative specimen of the sample material shall be prepared.
2. Sample Size shall be at least 76 mm X 127mm.
3. The material should be clearly marked to identify the specimen's orientation (eg: Front, Back, Inside, Outside etc).

TEST CONDITIONS

The samples will be tested under the following conditions:

- Temp : 23 ± 3 Deg C , RH : 12% $\pm 3\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing
- Temp : 23 ± 3 Deg C , RH : 50% $\pm 5\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing



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TEST PROCEDURE

1. Install the BNC adapter on the PRF911 fixture (concentric ring).
2. Install the negative lead (-) of the resistance meter to the RED BNC adapter receptacle connected to the centre INNER RING electrode.
3. Install the positive lead (+) of the resistance meter to the banana receptacle located on the edge of the PTB-920 metal test Bed.
4. To enhance the accuracy of the measurement, connect the GREEN auxiliary ground lead to the BLACK BNC adapter receptacle and the other end of the lead to the meter's ground reference.
5. Take one of the Samples and label it as sample 1 using a marker.
6. Place the PTB-920 Dual test Bed with the conductive metal surface facing up.
7. Place the PRF-911 Concentric Ring Fixture on the sample, arrange it so that it is approximately in the centre of the sample.
8. Place a 5lbs electrode on the PRF911 concentric ring (With the 5lbs electrode positioned on the PRF911 fixture, this ensures that both the outer ring & centre electrodes of the PRF911 fixture have approximately 5 lbs of total pressure across both surfaces.
9. Switch ON the PRS 801 resistance meter.
10. Ensure that it is in the "AUTO" mode.
11. Press the Green "TEST" button to initiate the measurement sequence.
12. Record the reading in ohms and the application voltage as shown on the meter.
13. Repeat for another 2 readings.
14. Repeat steps (6) to (13) for the remaining FIVE samples and mark each sample from (2) to (6) accordingly.
15. Calculate and report the minimum, maximum & Average reading for each sample as well.



Figure 1: Volume Resistance Test (Inside)



Figure 2: Volume Resistance Test (Outside)

TESTING PROCEDURE & INSTRUCTIONS FOR IN-USE RESISTANCE TESTING OF GLOVES

AIM :

To verify the resistance of gloves used to handle ESD sensitive items/devices.

REFERENCE DOCUMENT / STANDARD :

ANSI/ESD STM15.1-2019 Methods for Resistance Measurement of Gloves and Finger Cots

- Resistance measured with personnel as a system of less than 1.0×10^{11} ohms

TEST EQUIPMENT

- PCF-825 CAFÉ – Constant Area & Force Electrode
- Wrist Strap
- Wrist Strap cord without 1Mohm resistor
- Wrist Strap cord with 1Mohm resistor
- PRS 801 or 812 Wide range resistance meter / Megohmmeter (Open Circuit) with application voltage of 10VDC / 100VDC with 5lb Conductive Rubber Electrode(s), Test lead(s) of sufficient length & accessories

SAMPLE PREPARATION

1. A minimum of 6 representative specimen of the sample material shall be prepared.
2. The material should be clearly marked to identify the specimen's orientation (eg : Top, Bottom, Inside, Outside etc).

TEST CONDITIONS

The samples will be tested under the following conditions:

- Temp : 23 ± 3 Deg C , RH : 12% $\pm 3\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing
- Temp : 23 ± 3 Deg C , RH : 50% $\pm 5\%$ - conditioning for at least 48 hrs (but no longer than 72hrs) prior to testing



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TEST PROCEDURE

1. Set the Megohmmeter to "AUTO" mode.
2. Put on the wrist strap/cuff on the same hand that would be used to wear the glove for testing. Make sure that it makes good contact with the skin.
3. Attach one end of the wrist strap's ground cord **without the 1 Mohm resistor** to the wrist strap or cuff and the other end to one input of the resistance meter.
4. Attach one end of the other test lead of the resistance meter to the CAFÉ fixture and the other end of the test lead to the second input of the resistance meter.
5. Wear the glove to be tested and wait a minimum of 15 secs to begin the electrical testing.
6. Balance the CAFÉ fixture on the Thumb and/or fingers of the hand selected for testing.
7. Press the TEST button on the Megohmmeter.
8. Record the resistance reading and the applied voltage (i.e., 10V or 100V).
9. If the applied voltage shown is 10V and the resistance measured is less than 1×10^6 ohms, then record the resistance reading.
10. If the applied voltage shown is 100V and the resistance measured is more than 1×10^6 ohms, then do the following:
 - i. Remove the existing ground cord without the 1 Mohm resistor and replace it with a ground cord **with a 1 Mohm resistor**.
 - ii. Attach one end of the wrist strap's ground cord to the wrist strap or cuff and the other end to one input of the resistance meter.
 - iii. Balance the CAFÉ fixture on the finger print side of the Index finger of the hand selected for testing.
 - iv. Press the TEST button on the Megohmmeter.
 - v. Record the resistance reading and repeat the measurement for the rest of the fingers and the Thumb (For Glove only).



Figure 1: In-Use Resistance Test (RH at 12%)



Figure 2: In-Use Resistance Test (RH at 50%)



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TEST DATA

Material Testing Report
(For Static Control Item)



Date : 21 September 2023	Report No : CT/ESD/664/23
Customer : Misumi (Thailand) Co.,Ltd.	Environmental Conditions :
Item to be tested : Gloves	Ambient Temp : 23.3°C Ambient RH : 55.6%
	Chamber Temp : 23.6°C Chamber RH : 12.1%

Surface Resistance Test

Applicable Standard : ESD Association's ANSI/ESD STM11.11:2021

No of samples : 06

Test Instrument Used :

No	Instrument	Serial No	Cal Due Date	Remarks
1	PRS801 Wide Range resistance meter	1105AB0046	15-Aug-24	
2	PRF-911 Concentric Ring	653	7-Aug-24	

Test Results:

Sample	Surface Resistance (ohms Ω)			Test Voltage (V)	Surface Resistance (ohms Ω)			Test Voltage (V)	Remarks
	Reading 1(Outside)	Reading 2(Outside)	Reading 3(Outside)		Reading 1(Inside)	Reading 2(Inside)	Reading 3(Inside)		
1	8.30E+05	9.10E+05	8.50E+05	10	2.00E+06	1.90E+06	2.30E+06	100	
2	6.10E+05	6.30E+05	5.90E+05	10	1.20E+06	1.10E+06	1.10E+06	100	
3	9.30E+05	8.70E+05	9.40E+05	10	1.10E+06	1.40E+06	1.20E+06	100	
4	4.80E+05	4.60E+05	4.80E+05	10	1.50E+06	1.40E+06	1.90E+06	100	
5	8.90E+05	9.40E+05	9.30E+05	10	1.10E+06	1.10E+06	1.30E+06	100	
6	9.40E+05	9.30E+05	9.10E+05	10	1.50E+06	1.20E+06	1.80E+06	100	

Summary of Test Data for Conditioning at 23 Deg C ± 3 Deg C & RH at 12% ± 3%

	Surface Resistance (ohms Ω)	Remark
Minimum	4.60E+05	
Maximum	2.30E+06	
Average	1.12E+06	

Tested By:

See Chun Keong
 Project Engineer

Material Testing Report
(For Static Control Item)



Date : 15 September 2023	Report No : CT/ESD/664/23
Customer : Misumi (Thailand) Co.,Ltd.	Environmental Conditions :
Item to be tested : Gloves	Ambient Temp : 23.2°C Ambient RH : 55.6%
	Chamber Temp : 23.5°C Chamber RH : 50.6%

Surface Resistance Test

Applicable Standard : ESD Association's ANSI/ESD STM11.11:2021

No of samples : 06

Test Instrument Used :

No	Instrument	Serial No	Cal Due Date	Remarks
1	PRS801 Wide Range resistance meter	1105AB0046	15-Aug-24	
2	PRF-911 Concentric Ring	653	7-Aug-24	

Test Results:

Sample	Surface Resistance (ohms Ω)			Test Voltage (V)	Surface Resistance (ohms Ω)			Test Voltage (V)	Remarks
	Reading 1(Outside)	Reading 2(Outside)	Reading 3(Outside)		Reading 1(Inside)	Reading 2(Inside)	Reading 3(Inside)		
1	9.60E+05	9.30E+05	9.10E+05	10	9.40E+05	9.80E+05	9.30E+05	10	
2	1.30E+06	1.10E+06	1.00E+06	100	2.40E+06	2.10E+06	2.50E+06	100	
3	8.70E+05	8.40E+05	8.80E+05	10	9.10E+05	9.00E+05	9.10E+05	10	
4	9.50E+05	9.20E+05	9.00E+05	10	1.80E+06	1.60E+06	1.50E+06	100	
5	9.20E+05	9.10E+05	9.40E+05	10	2.00E+06	1.40E+06	1.90E+06	100	
6	1.10E+06	1.30E+06	1.00E+06	100	9.70E+05	9.50E+05	9.10E+05	10	

Summary of Test Data for Conditioning at 23 Deg C ± 3 Deg C & RH at 50% ± 5%

	Surface Resistance (ohms Ω)	Remark
Minimum	8.40E+05	
Maximum	2.50E+06	
Average	1.20E+06	

Tested By:

See Chun Keong
 Project Engineer

**Material Testing Report
(For Static Control Item)**



Date : 21 September 2023	Report No : CT/ESD/664/23
Customer : Misumi (Thailand) Co.,Ltd.	Environmental Conditions :
Item to be tested : Gloves	Ambient Temp : 23.3°C Ambient RH : 55.6%
	Chamber Temp : 23.6°C Chamber RH : 12.1%

Volume Resistance Test

Applicable Standard : ESD Association's ANSI/ESD STM11.12:2021

No of samples : 06

Test Instrument Used :

No	Instrument	Serial No	Cal Due Date	Remarks
1	PRS801 Wide Range resistance meter	1105AB0046	15-Aug-24	
2	PRF-911 Concentric Ring	653	7-Aug-24	

Test Results:

Sample	Volume Resistance (ohms Ω)			Test Voltage (V)	Volume Resistance (ohms Ω)			Test Voltage (V)	Remarks
	Reading 1(Outside)	Reading 2(Outside)	Reading 3(Outside)		Reading 1(Inside)	Reading 2(Inside)	Reading 3(Inside)		
1	1.10E+06	1.20E+06	1.20E+06	100	5.30E+05	5.20E+05	5.40E+05	10	
2	4.30E+05	4.80E+05	4.40E+05	10	2.00E+05	2.00E+05	2.20E+05	10	
3	6.30E+05	6.50E+05	6.20E+05	10	4.70E+05	4.90E+05	4.50E+05	10	
4	7.50E+05	7.40E+05	7.10E+05	10	1.80E+05	1.60E+05	1.90E+05	10	
5	6.90E+05	7.10E+05	6.90E+05	10	2.10E+05	2.20E+05	2.40E+05	10	
6	7.00E+05	7.20E+05	7.00E+05	10	3.20E+05	3.00E+05	3.10E+05	10	

Summary of Test Data for Conditioning at 23 Deg C ± 3 Deg C & RH at 12% ± 3%

	Volume Resistance (ohms Ω)	Remark
Minimum	1.60E+05	
Maximum	1.20E+06	
Average	5.25E+05	

Tested By:

See Chun Keong
Project Engineer

Material Testing Report
(For Static Control Item)



Date : 15 September 2023	Report No : CT/ESD/664/23
Customer : Misumi (Thailand) Co.,Ltd.	Environmental Conditions :
Item to be tested : Gloves	Ambient Temp : 23.2°C Ambient RH : 55.8%
	Chamber Temp : 23.5°C Chamber RH : 50.3%

Volume Resistance Test

Applicable Standard : ESD Association's ANSI/ESD STM11.12:2021

No of samples : 06

Test Instrument Used :

No	Instrument	Serial No	Cal Due Date	Remarks
1	PRS801 Wide Range resistance meter	1105AB0046	15-Aug-24	
2	PRF-911 Concentric Ring	653	7-Aug-24	

Test Results:

Sample	Volume Resistance (ohms Ω)			Test Voltage (V)	Volume Resistance (ohms Ω)			Test Voltage (V)	Remarks
	Reading 1(Outside)	Reading 2(Outside)	Reading 3(Outside)		Reading 1(Inside)	Reading 2(Inside)	Reading 3(Inside)		
1	8.60E+05	8.30E+05	8.70E+05	10	5.20E+05	5.10E+05	5.40E+05	10	
2	7.10E+05	7.30E+05	7.00E+05	10	2.00E+05	2.00E+05	2.20E+05	10	
3	5.60E+05	5.90E+05	5.80E+05	10	2.00E+05	2.30E+05	2.30E+05	10	
4	1.10E+06	1.20E+06	1.10E+06	100	4.60E+05	4.50E+05	4.80E+05	10	
5	8.00E+05	8.40E+05	8.20E+05	10	4.30E+05	4.10E+05	4.50E+05	10	
6	7.30E+05	7.60E+05	7.10E+05	10	4.90E+05	5.20E+05	5.00E+05	10	

Summary of Test Data for Conditioning at 23 Deg C ± 3 Deg C & RH at 50% ± 5%

	Volume Resistance (ohms Ω)	Remark
Minimum	2.00E+05	
Maximum	1.20E+06	
Average	5.98E+05	

Tested By:

See Chun Keong
Project Engineer



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CERT NO: FS 68089

CALIBRATION CERTIFICATES FOR TEST INSTRUMENTS

CERTIFICATE OF CALIBRATION

Model Number : PRF-911
 Equipment Description : Concentric Ring Fixture
 Serial Number : PRF653

Level of Calibration : 2
 Ambient Temperature : 23.0 ±2°C
 Relative Humidity : 50.0 ±10%RH

Date Calibrated : August 07, 2023
 Date Due : August 07, 2024

Dou Yee Enterprises (S) Pte Ltd certifies that the above-named unit-under-test has been calibrated under the environmental conditions as stated above and the result meets or exceeds all specification listed in the calibration test procedures. Dou Yee recommends re-calibration be performed annually.

The calibration was carried out with reference to the following calibration and measurement standards which are traceable to SPRING Singapore, NIST (US) and/or other recognized national calibration laboratories.

Method of Calibration:

The method of calibration is based on the procedures "Calibration test procedures LCP319 Rev 2" by Prostat Corporation.

Reference Standard(s) Used During Calibration:

Standard(s) Used	Model No	Serial No	Report No	Due Date	Tracea
Electrometer / High Resistance Meter	Keithley, 6517B	4398606	10544943/2.1	05-Oct-23	SGS
Resistor bank (Surface)	ETS, 809B	476	SV001-230113DYS04	13-Jan-24	DYS
Resistor bank (Volume)	ETS, 819	068	SV001-230116DYS01	16-Jan-24	DYS

Results:

Initial Reading (As received)

	TARGET	MINIMUM	ACTUAL	MAXIMUM	RESULT
Surface Resistance @ 10V	4.98E+05	4.88E+05	5.00E+05	5.08E+05	PASS
Surface Resistance @ 100V	4.98E+05	4.93E+05	4.98E+05	5.03E+05	PASS
Volume Resistance @ 10V	4.97E+05	4.87E+05	4.98E+05	5.07E+05	PASS
Volume Resistance @ 100V	4.97E+05	4.92E+05	5.00E+05	5.02E+05	PASS

Final Reading

	TARGET	MINIMUM	ACTUAL	MAXIMUM	RESULT
Surface Resistance @ 10V	4.98E+05	4.88E+05	5.00E+05	5.08E+05	PASS
Surface Resistance @ 100V	4.98E+05	4.93E+05	4.98E+05	5.03E+05	PASS
Volume Resistance @ 10V	4.97E+05	4.87E+05	4.98E+05	5.07E+05	PASS
Volume Resistance @ 100V	4.97E+05	4.92E+05	5.00E+05	5.02E+05	PASS

Remarks:

- The user is recommended to determine the suitability of the instrument for its intended usage.



Calibration Officer:

Tan CH

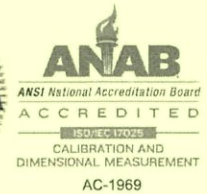


Verified By:

Ker CP



MICRO PRECISION CALIBRATION PTE LTD
 BLOCK 5008 ANG MO KIO AVENUE 5 #07-02/03
 TECHPLACE II SINGAPORE 569874
 65 67484384



Certificate of Calibration

Date: August 15, 2023

Cert No. 5523631030274875

Customer:

CESSTECH (S) PTE LTD
 15 YISHUN INDUSTRIAL STREET 1, #02-31, WIN5
 SINGAPORE 768091.

Work Order #: SG-111028611

MPC Control #: 1105AB0046

Serial Number: 1105AB0046

Asset ID: N/A

Department: N/A

Gage Type: RESISTANCE SYSTEM

Performed By: YIOK TEE CHUA

Manufacturer: PROSTAT

Received Condition: IN TOLERANCE

Model Number: PRS-801

Returned Condition: IN TOLERANCE

Size: N/A

Cal. Date: August 15, 2023

Temp/RH: 23°C / 50 %

Cal. Interval: 12 MONTHS

Location: Calibration performed at MPC facility

Cal. Due Date: August 15, 2024

Calibration Notes:

Performance Test Passed. See attached data (2 Pages)

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CA8100	DECADE RESISTANCE BOX	2793	00060U	YOKOGAWA	May 31, 2024	5523631030093966
CA8198	PRECISION DECADE DC RESISTANCE BOX	SB2015-3	CA8198	CEPREI	Feb 10, 2024	551220085674015

Procedures Used in this Event

Procedure Name	Description
PROSTAT PRS-801	Resistance System, Prostat PRS-801, Apr-01-2009

Calibrating Technician:

YIOK TEE CHUA

QC Approval:

DIVIEERNRAJ CHANDRAN

STATEMENTS OF PASS OR FAIL CONFORMANCE: The uncertainty of measurement has been taken into account when determining compliance with specification. All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL Z540.3-2006.

THE CALIBRATION REPORT STATUS:

- PASS**- Term used when compliance statement is given, and the measurement result is PASS.
- PASS²**- Term used when compliance statement is given, and the measurement result is conditional passed or PASS².
- FAIL**- Term used when compliance statement is given, and the measurement result is FAIL.
- FAIL²**- Term used when compliance statement is given, and the measurement result is conditional failed or FAIL².
- REPORT OF VALUE** - Term used when reported measurement is not requiring compliance statement in report.
- ADJUSTED**- When adjustments are made to an instrument which changes the value of measurement from what was measured as found to new value as left.
- LIMITED** - When an instrument fails calibration but is still functional in a limited manner.

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated. This calibration report complies with ISO/IEC 17025:2017, ANSI/NCSL Z540.3-2006 and ANSI/NCSL Z540.1-1994. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. The information on this report pertains only to the instrument identified, this may not be reproduced in part or in a whole without the prior written approval of the issuing MP Calibration Laboratory.



Calibration Report of Prostat PRS-801 Resistance System

MPC Control #: <u>1105AB0046</u>	Serial Number: <u>1105AB0046</u>
Asset ID: <u>N/A</u>	Calibration Date: <u>August 15, 2023</u>

Resistance Accuracy Test

< 10 V Range

Function Tested	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty (±)
500 Ω	5.0 E+02 Ω	4.8 E+02 Ω	5.0 E+02 Ω	5.0 E+02 Ω	5.3 E+02 Ω	PASS	0.0057 E+02 Ω
1 kΩ	1.0 E+02 Ω	1.0 E+02 Ω	1.0 E+02 Ω	1.0 E+02 Ω	1.1 E+02 Ω	PASS	0.0057 E+03 Ω
2 kΩ	2.0 E+02 Ω	1.9 E+02 Ω	2.0 E+02 Ω	2.0 E+02 Ω	2.1 E+02 Ω	PASS	0.0057 E+03 Ω
4 kΩ	4.0 E+02 Ω	3.8 E+02 Ω	4.0 E+02 Ω	4.0 E+02 Ω	4.2 E+02 Ω	PASS	0.0057 E+03 Ω
6 kΩ	6.0 E+02 Ω	5.7 E+02 Ω	6.0 E+02 Ω	6.0 E+02 Ω	6.3 E+02 Ω	PASS	0.0057 E+03 Ω
10 kΩ	1.0 E+02 Ω	1.0 E+02 Ω	1.0 E+02 Ω	1.0 E+02 Ω	1.1 E+02 Ω	PASS	0.0057 E+04 Ω

10 V Range

Function Tested	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty (±)
10 kΩ	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.1 E+04 Ω	PASS	0.0057 E+04 Ω
30 kΩ	3.0 E+04 Ω	2.9 E+04 Ω	3.0 E+04 Ω	3.0 E+04 Ω	3.2 E+04 Ω	PASS	0.0059 E+04 Ω
50 kΩ	5.0 E+04 Ω	4.8 E+04 Ω	5.0 E+04 Ω	5.0 E+04 Ω	5.3 E+04 Ω	PASS	0.0062 E+04 Ω
70 kΩ	7.0 E+04 Ω	6.7 E+04 Ω	7.0 E+04 Ω	7.0 E+04 Ω	7.4 E+04 Ω	PASS	0.0067 E+04 Ω
100 kΩ	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.1 E+04 Ω	PASS	0.0057 E+05 Ω
300 kΩ	3.0 E+04 Ω	2.9 E+04 Ω	3.0 E+04 Ω	3.0 E+04 Ω	3.2 E+04 Ω	PASS	0.0059 E+05 Ω
500 kΩ	5.0 E+04 Ω	4.8 E+04 Ω	5.0 E+04 Ω	5.0 E+04 Ω	5.3 E+04 Ω	PASS	0.0062 E+05 Ω
700 kΩ	7.0 E+04 Ω	6.7 E+04 Ω	7.0 E+04 Ω	7.0 E+04 Ω	7.4 E+04 Ω	PASS	0.0067 E+05 Ω
1 MΩ	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.0 E+04 Ω	1.1 E+04 Ω	PASS	0.0057 E+06 Ω

100 V Range

Function Tested	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty (±)
1 MΩ	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.1 E+06 Ω	PASS	0.00050 E+06 Ω
3 MΩ	3.0 E+06 Ω	2.9 E+06 Ω	3.0 E+06 Ω	3.0 E+06 Ω	3.2 E+06 Ω	PASS	0.0069 E+06 Ω
5 MΩ	5.0 E+06 Ω	4.8 E+06 Ω	5.0 E+06 Ω	5.0 E+06 Ω	5.3 E+06 Ω	PASS	0.0086 E+06 Ω
7 MΩ	7.0 E+06 Ω	6.7 E+06 Ω	7.0 E+06 Ω	7.0 E+06 Ω	7.4 E+06 Ω	PASS	0.011 E+06 Ω
10 MΩ	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.1 E+06 Ω	PASS	0.0058 E+07 Ω
30 MΩ	3.0 E+06 Ω	2.9 E+06 Ω	3.0 E+06 Ω	3.0 E+06 Ω	3.2 E+06 Ω	PASS	0.0069 E+07 Ω
50 MΩ	5.0 E+06 Ω	4.8 E+06 Ω	5.0 E+06 Ω	5.0 E+06 Ω	5.3 E+06 Ω	PASS	0.0086 E+07 Ω
70 MΩ	7.0 E+06 Ω	6.7 E+06 Ω	7.0 E+06 Ω	7.0 E+06 Ω	7.4 E+06 Ω	PASS	0.011 E+07 Ω
100 MΩ	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.1 E+06 Ω	PASS	0.0058 E+08 Ω
300 MΩ	3.0 E+06 Ω	2.9 E+06 Ω	3.0 E+06 Ω	3.0 E+06 Ω	3.2 E+06 Ω	PASS	0.016 E+08 Ω
500 MΩ	5.0 E+06 Ω	4.8 E+06 Ω	5.0 E+06 Ω	5.0 E+06 Ω	5.3 E+06 Ω	PASS	0.026 E+08 Ω
700 MΩ	7.0 E+06 Ω	6.7 E+06 Ω	6.9 E+06 Ω	6.9 E+06 Ω	7.4 E+06 Ω	PASS	0.035 E+08 Ω
1 GΩ	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.1 E+06 Ω	PASS	0.0075 E+09 Ω
3 GΩ	3.0 E+06 Ω	2.9 E+06 Ω	3.1 E+06 Ω	3.1 E+06 Ω	3.2 E+06 Ω	PASS	0.016 E+09 Ω
5 GΩ	5.0 E+06 Ω	4.8 E+06 Ω	5.1 E+06 Ω	5.1 E+06 Ω	5.3 E+06 Ω	PASS	0.026 E+09 Ω
7 GΩ	7.0 E+06 Ω	6.7 E+06 Ω	7.1 E+06 Ω	7.1 E+06 Ω	7.4 E+06 Ω	PASS	0.035 E+09 Ω
10 GΩ	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.0 E+06 Ω	1.1 E+06 Ω	PASS	0.0075 E+10 Ω



Calibration Report of Prostat PRS-801 Resistance System

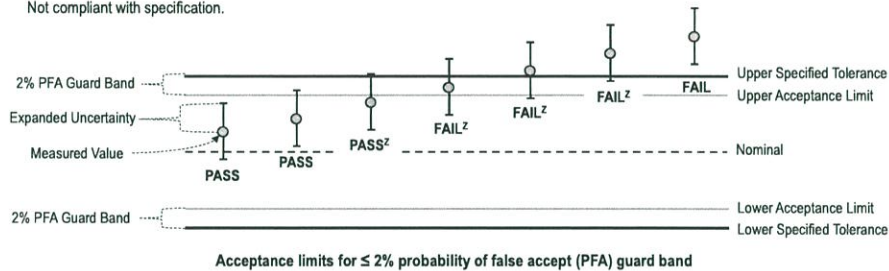
MPC Control #: <u>1105AB0046</u>	Serial Number: <u>1105AB0046</u>
Asset ID: <u>N/A</u>	Calibration Date: <u>August 15, 2023</u>

Statements of Pass or Fail Conformance

The uncertainty of measurement has been taken into account when determining compliance with specification.
 All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL Z540.3-2006

The status of compliance with the acceptance criteria is reported as:

- PASS** — Compliant with specification.
- PASS^z** — The measured value is within acceptance limits.
However, a portion of the expanded uncertainty of measurement at 95% exceeds the specified tolerance.
- FAIL^z** — The measured value is not within the acceptance limits.
However, a portion of the expanded uncertainty of measurement at 95% is within the specified tolerance.
- FAIL** — Not compliant with specification.



The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated.

This calibration report complies with ISO/IEC 17025:2017 and ANSI/NCSL Z540.3-2006, Method 6 — Guard Bands Based on Test Uncertainty Ratio.

- End of Calibration Report -



Device Type : **SMART**

Serial No : **SMART2206240234A**

ZOGLAB Environment used in Calibration

Temperature : 20.7 °C

Relative Humidity : 60.5% RH

Barometric Pressure : 1001.9 hPa

Caution:

1. The calibration results of this certificate only effective for inspected meter.
2. Recommendation for re-calibration after 12 months period.

Test Points Value and Readings

Temperature (°C)

Reference	Actual Value	Permissible Tolerance
22.0	22.1	±0.5

Relative Humidity (% RH)

39.7	40.4	±3.0%
61.2	61.0	±3.0%
79.4	79.6	±3.0%

06.02.2023

Date

K.C.

Inspector



CESSTECH (S) PTE LTD
An ISO 9001:2015 Certified Company
CERT NO: FS 68089

ACCREDITATION / QUALIFICATION CERTIFICATES

Electrostatic Discharge Control Engineer

*Certified: Apr 05 2017
Certificate Number: ESD-010658-E
Date of Expiration: Apr 30 2024*



finds

Tze Liang Wong

has demonstrated knowledge, proficiency, education and experience in Electrostatic Discharge Control Engineer.

Issued in accordance with iNARTE administrative rules and guidelines in accordance with memoranda of agreement and guidelines as prescribed by specific elements of government and industry.

ASBaines
Andrew Baines, CEO

iNARTE is a brand of Exemplar Global



Advanced Static Control
CONSULTING

is pleased to present this Certificate of Attendance to

See Chun Keong

who has completed the two day training course

ESD Lab Technician Training for:

**ANSI/ESD STM 11.11
ANSI/ESD STM 11.12
ANSI/ESD STM 11.13
ANSI/ESD STM 11.31
ANSI/ESD STM 15.1**



Ronald J. Gibson
President

August 7-8, 2014



EU-TYPE EXAMINATION CERTIFICATE



The following model of Personal Protective Equipment has been subjected to an EU-type examination in accordance with the module B of the PPE regulation (2016/425) and has been shown to satisfy to essential health and safety requirements.

Certificate N° **0075/2395/162/01/20/0564**

Issued by CTC, Notified Body N°0075, to the following model of personal protective equipment :

Manufacturer :

The content of this section is manufacturer's information.

Description

PPE Type : **protective glove against mechanical risks**

Product reference :

Article code : **/**

Glove description : **13G Carbon fibre/polyester liner with PU finger tip coating**

Available sizes : **7/S**

Pictures :



Size 9/L

EN388:2016



214XX



Reference standard :

Levels of performance / class of protection

EN 420:2003+A1:2009

-

EN 388:2016

2 1 4 X X

« X » indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material.

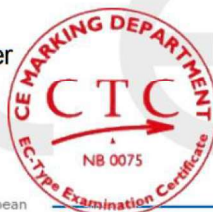
At the date of certificate the product is in compliance with Annex XVII of REACh regulation (n° 1907/2006 and revisions)

Full description of the PPE, reference rules verified in the context of the EU-type examination and information given on the product are detailed in the manufacturer's technical file and the Instruction for use index 01 dated from JANUARY, 2020

NOTA : Any modification to new items of the personal protective equipment object of this EU type approval certificate or any modification of the information contained in the manufacturer technical file which served for the deliverance of the EU type approval certificate (change of address, change of company status) should be brought to the attention of the notified body in accordance with Annex V §7.2 of Regulation 2016/425.

Issued in Lyon by
Didier GUISSADO
Certification and Quality Manager

Date of first issue : 09 January 2020
End of validity date : 09 January 2025



In application of the Regulation 2016/425 of the European parliament and the Council of 9th March 2016 related to Personal Protective Equipment and repealing the Directive 89/686/EEC.

www.ctcgroupe.com

cemarking@ctcgroupe.com

CTC - 4, rue Hermann Frenkel - 69367 Lyon cedex 07 - France
Tél. : +33 (0)4 72 76 10 10 - Fax : +33 (0)4 72 76 10 00 - ctclyon@ctcgroupe.com

Comité Professionnel de Développement Économique (CPDE) Cuir Chaussure Maroquinerie Ganterie
Loi 78-654 du 22.06.1978 - Siret 77564972600160 - Code NAF 9412Z - TVA FR 88775649726

Original CTC



The content of this section is manufacturer's information.

MANUFACTURER'S TECHNICAL FILE TO THE PPE REGULATION 2016/425

Reference of the product	:	
Article code	:	/
Technical file index	:	01
Last update	:	JANUARY, 2020

The content of this section is manufacturer's information.

IDENTIFICATION

Reference of the product :
Article code : /
Basic Model
Technical file index : 01
Last update : JANUARY, 2020

Manufacturer :

The content of this section is manufacturer's information.

Factory :

The content of this section is manufacturer's information.

GLOVE DESCRIPTION

General glove description :

13G Carbon fibre/polyester liner with PU finger tip coating

type of coating finish : smooth

Visual description (picture back and palm sides) :



Field of use

Transportation/small parts handling/equipment handling for mechanical risks

Risk assessment (Essential Health and Safety Requirement. Annex II - PPE Regulation)			
		Applicable	Covered by
§1	Requirements defined in the Annex II §1 are applicable to all PPE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Instruction for use <input checked="" type="checkbox"/> Marking
§1.4	Manufacturer's instructions and information is available	<input checked="" type="checkbox"/>	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> Instruction for use <input type="checkbox"/> Marking
§2.5	PPE which may be caught up during use	<input checked="" type="checkbox"/>	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> Instruction for use <input type="checkbox"/> Marking
§2.12	PPE bearing one or more identification markings or indicators directly or indirectly relating to health and safety	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Instruction for use <input checked="" type="checkbox"/> Marking
§3.3	The PPE is intended to protect against mechanical injuries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Instruction for use <input checked="" type="checkbox"/> Marking

Available sizes :

Minimum length of glove (mm)	Sizes
220	6/XS
230	7/S
240	8/M
250	9/L
260	10/XL
270	11/XXL

Glove constitution :

	Reference	Color	Material	Surfacic mass (g/m ²)	Gauges	Thickness
Palm	fingertips	white	PU	265g/m ²		0.08 mm
		white and grey	carbon fibre/polyester	186g/m ²	13G	
Back	fingertips	white	PU	265g/m ²		0.08 mm
		white and grey	carbon fibre/polyester	186g/m ²	13G	
Cuff		white and grey	carbon fibre + polyester + elastic	280g/m ²	13G	
Binding		Red	polyester			

PROTECTION SCOPE

This glove meets the essential requirements of the Personal Protective Equipment Regulation 2016/425.

This glove is designed for against mechanical risks.

It is a category II product.

GENERAL REQUIREMENTS

Standard EN 420 : 2003 + A1 : 2009

Dexterity : 5

Size : conform

At the date of certificate the product is in compliance with Annex XVII of REACH regulation (n° 1907/2006 and revisions)

SPECIFIC REQUIREMENTS AND PERFORMANCE LEVELS

Mechanical hazard EN 388 : 2016

Protection offered	Performance levels
Abrasion resistance	2
Blade cut resistance	1
Tear strength resistance	4
Puncture resistance	X
Cut Resistance method (EN ISO 13997)	X
Impact Protection	-

The levels of performance have been measured on the palm

« X » indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material.


TEST REPORTS

Laboratory	CTC	Other
EN 420 + innocuousness	S170303595_3 S160301161_2 S181217027_1(DMFu)	
EN 388	S170303595_3 S190405392_2	

MARKING - PACKAGING

Information printed on the glove :

Logo of Manufacturer :

Logo 

Glove's reference :

Article Code : /

Size indicator

Pictograms related to risks against which protection is offered with performance levels

Information pictogram

Address of Manufacturer :

Date of Manufacture (month/year) and/or Serial number :

Marking example :



Method of marking on the glove :

the label sewing in the overlock

Packaging :

12 pairs in the poly bag

PPE subject to ageing :

The design performance can not be significantly affect by ageing when stored in appropriate conditions (humidity, temperature, clean , ventilated, light).

Declaration of conformity :

Available with product.

MEANS OF CONTROL

First,when the gloves are still half finished, we measure the weight by per dozen.If there are some gloves cannot achieve the standard, they will be sent to reproduce.

Then,we will exam to see the smoothness and flatness of the glove' surface.

The following step is viscosity tests and length tests.The tests are very strict so that we can ensure the quality.

After everything prepared, we may start to produce the gloves consulting and following the sample.

Then,we pick out 4%-5% gloves from the total number and leak out the unqualified products.

Finally,we put the gloves(in carton)to our warehouse,we will ask our QC to check the gloves in the warehouse according to the proportion(maybe 3%).If we find the result cannot achieve the standard,then we will ask workers tore package,and check again by QC.

We will shipped the gloves after we checked ok!

After our customer received gloves,they will also check and then give us the report!

We test the quality of gloves every three months according to EN388 and EN420.

For EN388 test:at present, we have machines in our own laboratory.When we beginning a new order,then we will have test firstly by ourself,it will control our quality better.

For EN420 test:we asked our vendor to according to the request,and the will not use any materials which contain Hazardous Substances.when the materials come to our factory, we will check again

INSTRUCTION FOR USE

The content of this section is manufacturer's information.

Glove reference :
Article code: /
User notice index : 01
Last Update : JANUARY, 2020
Available sizes : 6/XS-11/XXL

Glove description :

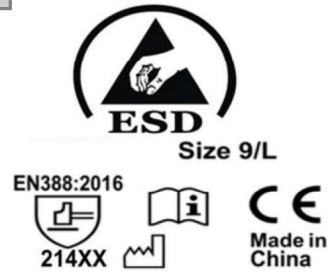
13G Carbon fibre/polyester liner with PU finger tip coating

THIS GLOVE IS A PERSONAL PROTECTIVE EQUIPMENT BELONGING TO THE CATEGORY II.

It meets the requirements of the PPE Regulation 2016/425 applicable from April 21th, 2018 : innocuousness, comfort, solidity.

It has been subject to a UE-type Examination performed by :

C.T.C. (0075)
4, rue Hermann Frenkel
69367 LYON Cedex 07
FRANCE



Applicable standards :

The glove meets the requirements of the standard EN 420 : 2003 + A1 : 2009 « General requirements for work glove ». Dexterity : 5

Moreover, this glove has been designed for the following applications :

Application :

Mechanical hazard - EN 388 : 2016



Levels of performance

Abrasion resistance	2	(on 4 maxi)
Blade cut resistance	1	(on 5 maxi)
Tear resistance	4	(on 4 maxi)
Puncture resistance	X	(on 4 maxi)
Cut Resistance method (EN ISO 13997)	X	(A to F)
Impact Protection		

« X » indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material.

Protection limit :

Users should be warned that gloves should not be worn when there is a risk of entanglement by moving parts of machines.

This model does not contain any substances at levels that are known to, or suspected to, adversely affect user hygiene or health.

The protection against risks or hazards which are not mentioned in this document is not warranted.

The levels of performance mentioned are only valid for the palm of the glove .

The levels of performance mentioned are only valid for new gloves, not washed, nor regenerated.

These levels of performance are obtained from the tests done according to conditions defined by the applicable standards.

This glove shall not be in contact with fire

Before use, the glove shall be visually controlled, in case of deterioration the gloves must be scrapped (abrasion, cut, tear, ...).

For gloves with different layers of material, the performance levels are warranted only for the whole glove.

For gloves with two or more layers the overall classification does not necessarily reflect the performance of the outermost layer.

Storage and cleaning notice

Keep in its original packaging, under ordinary temperature and humidity conditions and in clean, covered and ventilated premises.

PPE subject to ageing :

The design performance can not be significantly affect by ageing when stored in appropriate conditions (humidity, temperature, clean , ventilated, light).

Declaration of conformity :

Available with product.



**SAFETY DATA SHEET(MSDS)
ESD GLOVE
(THICK TYPE)**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Misumi ESD Gloves.

Company Name: MISUMI(THAILAND) CO., LTD.

Address: 300/24 MOO 1, EASTERN SEABOARD INDUSTRIAL ESTATE SOI 5
T.TASITH, A.PLUAKDAENG, RAYONG 21140 THAILAND

Tel: 1382 Fax: 038-959202

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Product Name: Misumi ESD Glove. **MESD-TF/PF-(S/M/L)**

Material Composition	Percent(%)	CAS No.
Polyurethane	50% - 60%	9009-54-5
Polyester Fiber	20% - 30%	/
Carbon Fiber	10% - 15%	7440-44-0
Spandex	2%	/

Section 3 - HAZARDS IDENTIFICATION

Potential Health Effects

Hazard Effects	Health Hazard Effects : None
	Environmental impact : None
	Physical and chemical hazard : None
	Special damages : None
Main Symptoms : No data	
Hazard Class : None	

Section 4 - FIRST AID MEASURES

Skin contact: Wash hands with mild soap after handling.

Eye contact: If the eyes are irritated flush with water for ten minutes. Obtain medical attention.

Avoid ingestion. If ingested seek medical attention.

Section 5 - FIRE FIGHTING MEASURES

Flash Point: > 100 °C

Lower Explosion Limit: N/A

Upper Explosion Limit: N/A

Fire Hazard: Stable under normal situation. Flammable / Combustible under extreme high heat and flame. Can generate toxic and combustible fumes, - carbon monoxide, nitrogen and hydrocarbon compounds, and soot.

Fire Fighting Procedures: Use full protective equipment and SCBA, filter masks, etc.

Extinguishing Media: High expansion foam, water fog and spray.

Section 6 - ACCIDENTAL RELEASE MEASURES

Release Response: Retain for recycle or disposal.

Section 7 - HANDLING AND STORAGE

Gloves shall maintain their properties when stored in dry condition at temperature between 10°C to 30°C. Protect gloves against ultraviolet light sources such as sunlight and oxidizing agents.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Control

Use local exhaust in confined spaces where gloves are heated.

Personal Protective Equipment

Eyes : Not required. or just use goggles if gloves are heated.

Inhalation : Not required. or use face mask 3 ply

Skin : Not required. or use heat resistance gloves if heated to melting state.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Textured, White color

Physical State : Rubber / Odor / pH : 7 (Reference average)

Section 10: CHEMICAL STABILITY AND REACTIVITY INFORMATION

Chemical Stability : Stable at normal temperature and storage condition.

Conditions to Avoid : Avoid contact with excessive heat, sparks or open flame. Avoid dust accumulation.

Incompatibility with other materials

No specific information is available, however strong oxidizers or reducing agents which generally not compatible with compounds.

Hazardous Decomposition Products

Fumes produced when heated to decomposition temperatures may contain carbon monoxide, carbon dioxide, hydrogen cyanide, oxides of nitrogen, and small amounts of aromatic and aliphatic hydrocarbons. Combustion products from natural leather, like those of other natural and synthetic materials, must be considered toxic.

Section 11: TOXICOLOGICAL INFORMATION

No information is available.

Section 12: ECOLOGICAL INFORMATION

Product of Biodegradation: Biodegradable.

Ecotoxicity: Considered as inert.

Section 13: WASTE TREATMENT

Waste disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled, but incinerator must be capable of scrubbing out acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

Incineration: Put appropriate amount of the gloves into the incinerator or furnace to destroy them following the requirements shown below.

Requirements:

- 1) Burning temperature exceeds 850°C
- 2) Combustion retention time is not less than 2 seconds

Note: Gloves should not be destroyed by open burning at low temperature or dispose at normal disposal area

Section 14: TRANSPORTATION INFORMATION

Non-dangerous goods.

Section 15: LAW INFORMATION

No information is available.

Section 16: OTHER INFORMATION

This Product Safety Data Sheet is offered solely for your information. Misumi(Thailand) Co.,Ltd provides no warranties, either express or implied, concerning the safe use of this product in your process or in combination with other substances and assumes no responsibility for the accuracy or completeness of the data contained herein. User has the sole responsibility to determine the suitability of their use and the manner of use contemplated.



Test Report

Report No.: THSD23062648081-2EN

Job No.:48081

Date: June 29, 2023

Applicant : Manufacturer information

Address :

Sample Name : ESD Carbon Fiber PU gloves

Sample Model : PU301

Sample Receive Date : June 26, 2023

Sample Testing Period : June 26, 2023—June 28, 2023

Test Result Summary :

As requested by the applicant, for details refer to attached page(s).

TEST ITEM(S)	TEST REQUESTED	CONCLUSION(S)
Pb, Cd, Hg, CrVI, PBBs, PBDEs and Phthalates(DBP, BBP, DEHP, DIBP) content	RoHS Directive 2011/65/EU and its amendment (EU) 2015/863	PASS

* Applicant, address, sample name and model information have been provided by the customer. GTS is not responsible for its authenticity.

For and on behalf of

Shanghai Global Testing Services Co., Ltd.

Authorized Signature



Shi Lei

Shi Lei/Kevin

General Manager -GTS/SHO

Page 1 of 4

This report is only responsible for the tested sample(s) and item(s), the testing result(s) is used for scientific research, teaching or internal quality control. Without the writing agreement of the company, the client is not allowed to copy the report in part(entire copy is excepted).

Shanghai Global Testing Services Co., Ltd.

Floor 2nd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.

Tel: (86-21) 3363 7866 Fax: (86-21) 3363 7858 E-mail: info@gts-lab.com Web Site: <http://www.gts-lab.com>



Test Report

Report No.: THSD23062648081-2EN

Job No.:48081

Date: June 29, 2023

Test Result(s):

Test Sample Description:

Material No.	Material Description
<u>01</u>	Light gray cloth

RoHS(Pb, Cd, Hg, CrVI, PBBs, PBDEs and Phthalates(DBP, BBP, DEHP, DIBP))

Test Method: Lead(Pb), Cadmium(Cd) –IEC 62321-5: 2013
 Mercury(Hg) –IEC 62321-4: 2013+AMD1:2017
 Chromium VI(CrVI) –IEC 62321-7-2: 2017
 PBBs, PBDEs –IEC 62321-6: 2015
 DBP, BBP, DEHP, DIBP –IEC 62321-8: 2017

Test item(s)	Limit	Unit	MDL	Result(s)
				<u>01</u>
Lead(Pb)	1000	mg/kg	2	N.D.
Cadmium(Cd)	100	mg/kg	2	N.D.
Mercury(Hg)	1000	mg/kg	2	N.D.
Chromium VI(CrVI)	1000	mg/kg	2	N.D.
Dibutyl phthalate(DBP)	1000	mg/kg	50	N.D.
Butyl benzyl phthalate(BBP)	1000	mg/kg	50	N.D.
Di-2-ethylhexyl phthalate(DEHP)	1000	mg/kg	50	N.D.
Di-iso-butyl phthalate(DIBP)	1000	mg/kg	50	N.D.
Monobromobiphenyls	--	mg/kg	5	N.D.
Dibromobiphenyls	--	mg/kg	5	N.D.
Tribromobiphenyls	--	mg/kg	5	N.D.
Tetrabromobiphenyls	--	mg/kg	5	N.D.
Pentabromobiphenyls	--	mg/kg	5	N.D.
Hexabromobiphenyls	--	mg/kg	5	N.D.
Heptabromobiphenyls	--	mg/kg	5	N.D.
Octabromobiphenyls	--	mg/kg	5	N.D.
Nonabromobiphenyls	--	mg/kg	5	N.D.
Decabromobiphenyl	--	mg/kg	5	N.D.
Group PBBs	1000	mg/kg	--	N.D.
Monobromodiphenyl ethers	--	mg/kg	5	N.D.
Dibromodiphenyl ethers	--	mg/kg	5	N.D.

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This report is only responsible for the tested sample(s) and item(s), the testing result(s) is used for scientific research, teaching or internal quality control. Without the writing agreement of the company, the client is not allowed to copy the report in part(entire copy is excepted).

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Test Report

Report No.: THSD23062648081-2EN

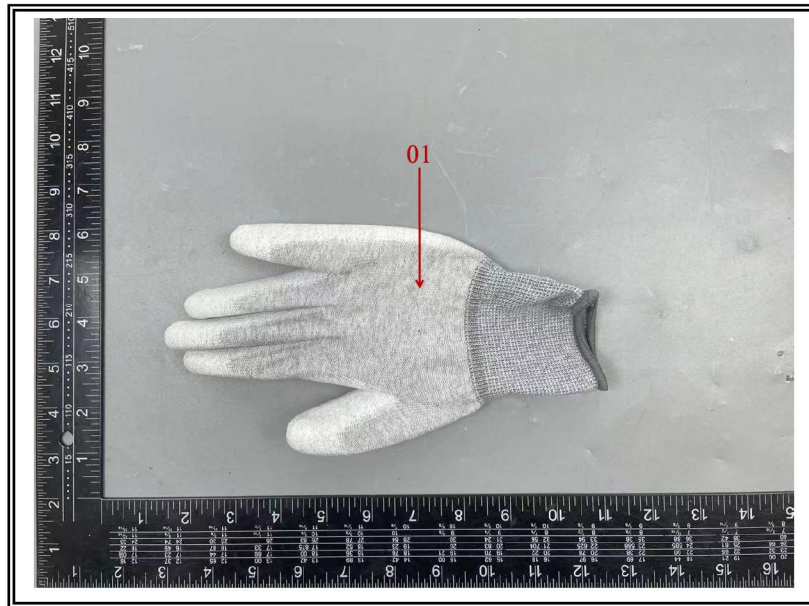
Job No.:48081

Date: June 29, 2023

<u>Test item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>Result(s)</u> <u>01</u>
Tribromodiphenyl ethers	--	mg/kg	5	N.D.
Tetrabromodiphenyl ethers	--	mg/kg	5	N.D.
Pentabromodiphenyl ethers	--	mg/kg	5	N.D.
Hexabromodiphenyl ethers	--	mg/kg	5	N.D.
Heptabromodiphenyl ethers	--	mg/kg	5	N.D.
Octabromodiphenyl ethers	--	mg/kg	5	N.D.
Nonabromodiphenyl ethers	--	mg/kg	5	N.D.
Decabromodiphenyl ether	--	mg/kg	5	N.D.
Group PBDEs	1000	mg/kg	--	N.D.
<u>Conclusion(s)</u>				PASS

Note: 1. MDL = Method Detection Limit.
2. N.D. = Not detected, less than MDL.

Sample Photo(s):



Test Report

Report No.: THSD23062648081-2EN

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Date: June 29, 2023

Sample photo(s) for reference:



*****End of Report*****