

TEST REPORT

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Report No.: S230100514_1

06 February 2023

APPLICANT: RAJA INTERNATIONAL GENERAL TRADING
(FZE) (C39230)

PO BOX 123618, A2-89, SAIF ZONE,
SHARJAH UAE
123618 SHARJAH
UNITED ARAB EMIRATES

Date of receipt : 19 Jan. 2023
Testing period : 25 Jan. 2023
: 06 Feb. 2023

Buyer: ---

Sample description: ISU RIG-SHIELD ANTI -IMPACT GLOVES

Reference no. : ISU4544EP
Style / Article no. : ISU4544EP
Test(s) requested : ---
Service : REGULAR
Brand / Section : ISHIELDU
Season : ---
End use : ---
Factory name : ---
Factory code : ---

Previous report : ---
Product category : ---
Product type : ---
Test stage : FIRST TEST
Supplier name : ---
Exported to : ---

1. Conclusion:

	<u>Tests description</u>	<u>Conformity</u>
	EN 388:2016+A1:2018	
1	Abrasion resistance: 2016	Level 4
2	Cut resistance: 2016	Level 3
3	Cutting resistance TDM	Level F
4	Tear strength resistance: 2016	Level 4
5	Puncture resistance: 2016	Level 2
6	Impact protection of knuckles	Pass

	<u>Tests description</u>	<u>Conformity</u>
	ISO 21420:2020	
7	pH - Textile (KCl solution)	Pass
8	Aromatic amines derived from azo colorants	Pass
9	Dimethylformamide (DMF/DMFo/DMFa)	Pass
10	Polycyclic Aromatic Hydrocarbons (8)	Pass
11	Dexterity	Level 5
12	XRF screening	Pass
13	XRF screening (Tin)	Pass
14	Phthalates	Pass

Pass: requirements met Fail: requirements not met None: no requirement for this test N/A: not applicable

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Approved by

Henry YAN 严滨
Laboratory Manager

Tony SHU 束永玮
Technical Supervisor for Chemical Lab

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2. Sample(s) description assigned by laboratory:

- 1 PALM - BLACK (YELLOW+WHITE)/NITRILE (HPPE (HIGH PERFORMANCE POLYETHYLENE /NYLON/SPANDEX/GLASS FIBER)
- 2 PALM REINFORCEMENT - WHITE POLYESTER/WHITE PU FOAM/WHITE EVA
- 3 BACK - YELLOW+WHITE/HPPE (HIGH PERFORMANCE POLYETHYLENE) /NYLON/SPANDEX/GLASS FIBER
- 4 BACK REINFORCEMENT - BLACK/YELLOW TPR (THERMOPLASTIC RUBBER)
- 5 CUFF - YELLOW+WHITE/HPPE (HIGH PERFORMANCE POLYETHYLENE) /NYLON/SPANDEX/GLASS FIBER/ELASTIC
- 6 BINDING - BLACK PU (POLYESTER BACKING)
- 7 THUMB CROTCH REINFORCEMENT - BLACK PVC (POLYESTER BACKING)
- 8 VELCRO - BLACK POLYESTER



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3. GLOVE/

Whole glove

	Method	Client Requirement	Unit	Result	Conformity
(+) 5.2. Dexterity	ISO 21420: 2020				
Smallest diameter of pin fulfilling test condition			mm	5.0	
Smallest diameter of pin fulfilling test condition (2)			mm	5.0	
Smallest diameter of pin fulfilling test condition (3)			mm	5.0	
Smallest diameter of pin fulfilling test condition (4)			mm	5.0	
Performance level				5	

palm

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.1. Abrasion resistance: 2016	EN 388:2016 + A1:2018				
used consumables - abrasive				Klingspor PL31B Grit 180	
used consumables - adhesive				3M Scotch	
Number of cycles at the hole detection				>8000	
Number of cycles at the hole detection (2)				>8000	
Number of cycles at the hole detection (3)				>8000	
Number of cycles at the hole detection (4)				>8000	
Performance level				4	
(+) 4.1. Cut resistance: 2016	EN 388:2016 + A1:2018				
Deviation from the test method				No	
used consumables - canvas				LEM 6	
used consumables - blade				OLFA RB45	
C1				1.3	
T1				60.0	
1C1				26.7	
I1				5.3	
C2				1.2	
T2				60.0	
1C2				21.4	

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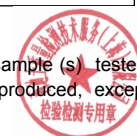
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	Method	Client Requirement	Unit	Result	Conformity
I2				6.3	
C3				1.3	
T3				60.0	
1C3				32.7	
I3				4.5	
C4				1.3	
T4				60.0	
1C4				32.7	
I4				4.5	
C5				1.3	
T5				60.0	
1C5				25.3	
I5				5.5	
Mean value of test piece 1				5.2	
C1 bis				1.2	
T1 bis				60.0	
2C1bis				25.3	
I1 bis				5.5	
C2 bis				1.3	
T2 bis				60.0	
2C2bis				30.4	
I2 bis				4.8	
C3 bis				1.3	
T3 bis				60.0	
2C3bis				31.7	
I3 bis				4.6	
C4 bis				1.4	
T4 bis				60.0	
2C4bis				25.4	
I4 bis				5.5	
C5 bis				1.4	
T5 bis				60.0	
2C5bis				28.8	
I5 bis				5.0	

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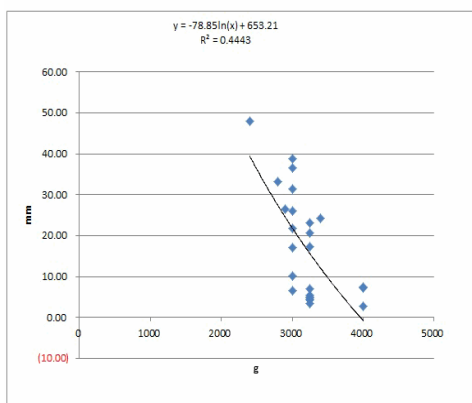
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	Method	Client Requirement	Unit	Result	Conformity
Mean value of test piece 2				5.1	
Considered value				5.1	
Performance level				3	
Observation				First sequence Cn+1 higher than 3xCn, switch to EN13997	
(+) 4.1. Cutting resistance TDM	ISO 13997:1999				
used consumables - blade				202200369	
Coefficient of variation			%	1.0	
Adjusted factor for blade with neoprene				6.80	
Normalized cutting stroke lengths			mm	5.5	
Normalized cutting stroke lengths (2)			mm	20.6	
Normalized cutting stroke lengths (3)			mm	7.1	
Normalized cutting stroke lengths (4)			mm	23.1	
Normalized cutting stroke lengths (5)			mm	17.3	
Mean normalized cutting stroke length			mm	14.7	
Cut load adjusted for a cut length of 20 mm			N	30.1	
Level Performance				Level F	



(+) 4.1. Tear strength resistance: 2016	EN 388:2016 + A1:2018				
Tear strength			N	>75	
Tear strength (2)			N	>75	
Tear strength (3)			N	>75	
Tear strength (4)			N	>75	

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	Method	Client Requirement	Unit	Result	Conformity
Performance level				4	
(+) 4.1. Puncture resistance: 2016	EN 388:2016 + A1:2018				
Puncture resistance			N	108	
Puncture resistance (2)			N	98	
Puncture resistance (3)			N	85	
Puncture resistance (4)			N	89	
Performance level				2	

palm

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution)	ISO 3071:2020				Pass
pH value		3.5< - <9.5		7.1	
▲ 4.2. Polycyclic Aromatic Hydrocarbons (8)	ISO 16190:2021				Pass
Benzo(a)anthracene		<1	mg/kg	<0.2	
Chrysene		<1	mg/kg	<0.2	
Benzo(b)fluoranthene/ Benz[e]acephenanthrylene		<1	mg/kg	<0.2	
Benzo(k)fluoranthene		<1	mg/kg	<0.2	
Benzo(a)pyrene/ Benzo[def]chrysene		<1	mg/kg	<0.2	
Dibenzo(a,h)anthracene		<1	mg/kg	<0.2	
Benzo(e)pyrene		<1	mg/kg	<0.2	
Benzo(j)fluoranthene		<1	mg/kg	<0.2	
(+) XRF screening	ASTM F2617 – 15				Pass
Cd (Cadmium)		<100	ppm	<100	
XRF screening (Tin)	ASTM F2617 – 15				Pass
Sn (Tin)		<150	ppm	<150	
Phthalates	ISO 16181-1:2021				Pass
BBP . Butyl benzyl phthalate		<0.1	%	<0.0020	
DBP . Di-butyl phthalate		<0.1	%	<0.0020	
DEHP . Di-(2-ethylhexyl) phthalate		<0.1	%	<0.0020	
DIBP . Di-iso-butyl phthalate		<0.1	%	<0.0020	

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palm reinforcement

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution) pH value	ISO 3071:2020	3.5< - <9.5		6.8	Pass

back

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution) pH value	ISO 3071:2020	3.5< - <9.5		6.7	Pass
4.2. Aromatic amines derived from azo colorants Accessible without fibre extraction	ISO 14362-1:2017 (w/o extraction)	<30	mg/kg	<5	Pass

back

	Method	Client Requirement	Unit	Result	Conformity
▲ 4.2. Impact protection of knuckles The protector cover 4 phalanges Cracks, deterioration of the glove or the appearance of sharp edges Tear of the chamois leather Single result Single result (2) Single result (3) Single result (4) Mean transmitted force	EN 13594: 2015			Yes No No 5.2 5.5 5.3 5.8 5.4	Pass

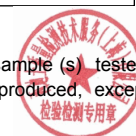
cuff

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution) pH value	ISO 3071:2020	3.5< - <9.5		6.8	Pass
4.2. Aromatic amines derived from azo colorants Accessible without fibre extraction	ISO 14362-1:2017 (w/o extraction)	<30	mg/kg	<5	Pass

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binding

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution) pH value	ISO 3071:2020				Pass
		3.5< - <9.5		6.4	
4.2. Aromatic amines derived from azo colorants Accessible with fibre extraction Accessible without fibre extraction	ISO 14362-1:2017 (combined extraction)				Pass
		<30	mg/kg	<5	
		<30	mg/kg	<5	
● 4.2. Dimethylformamide (DMF/DMFo/DMFa) Dimethylformamide	CTC in house				Pass
		<1000	mg/kg	614.3	
▲ 4.2. Polycyclic Aromatic Hydrocarbons (8) Benzo(a)anthracene Chrysene Benzo(b)fluoranthene/ Benz[e]acephenanthrylene Benzo(k)fluoranthene Benzo(a)pyrene/ Benzo[def]chrysene Dibenzo(a,h)anthracene Benzo(e)pyrene Benzo(j)fluoranthene	ISO 16190:2021				Pass
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
		<1	mg/kg	<0.2	
(+) XRF screening Cd (Cadmium)	ASTM F2617 – 15				Pass
		<100	ppm	<100	
Phthalates BBP . Butyl benzyl phthalate DBP . Di-butyl phthalate DEHP . Di-(2-ethylhexyl) phthalate DIBP . Di-iso-butyl phthalate	ISO 16181-1:2021				Pass
		<0.1	%	<0.0020	
		<0.1	%	<0.0020	
		<0.1	%	<0.0020	
		<0.1	%	<0.0020	

thumb crotch reinforcement

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution)	ISO 3071:2020				Pass

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	Method	Client Requirement	Unit	Result	Conformity
pH value		3.5< - <9.5		9.4	
4.2. Aromatic amines derived from azo colorants	ISO 14362-1:2017 (combined extraction)				Pass
Accessible with fibre extraction		<30	mg/kg	<5	
Accessible without fibre extraction		<30	mg/kg	<5	
▲ 4.2. Polycyclic Aromatic Hydrocarbons (8)	ISO 16190:2021				Pass
Benzo(a)anthracene		<1	mg/kg	<0.2	
Chrysene		<1	mg/kg	<0.2	
Benzo(b)fluoranthene/ Benz[e]acephenanthrylene		<1	mg/kg	<0.2	
Benzo(k)fluoranthene		<1	mg/kg	<0.2	
Benzo(a)pyrene/ Benzo[def]chrysene		<1	mg/kg	<0.2	
Dibenzo(a,h)anthracene		<1	mg/kg	<0.2	
Benzo(e)pyrene		<1	mg/kg	<0.2	
Benzo(j)fluoranthene		<1	mg/kg	<0.2	
(+) XRF screening	ASTM F2617 – 15				Pass
Cd (Cadmium)		<100	ppm	<100	
Phthalates	ISO 16181-1:2021				Pass
BBP . Butyl benzyl phthalate		<0.1	%	<0.0020	
DBP . Di-butyl phthalate		<0.1	%	<0.0020	
DEHP . Di-(2-ethylhexyl) phthalate		<0.1	%	<0.0020	
DIBP . Di-iso-butyl phthalate		<0.1	%	<0.0020	

velcro

	Method	Client Requirement	Unit	Result	Conformity
(+) 4.2. pH - Textile (KCl solution)	ISO 3071:2020				Pass
pH value		3.5< - <9.5		6.4	
4.2. Aromatic amines derived from azo colorants	ISO 14362-1:2017 (combined extraction)				Pass
Accessible with fibre extraction		<30	mg/kg	<5	
Accessible without fibre extraction		<30	mg/kg	<5	

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END OF TEST REPORT (+)CNAS accreditation

- ▲: The test was carried out by external accredited laboratory under their accreditation scope.
- : The test was carried out by external accredited laboratory, not within their accreditation scope.

Unless otherwise specified, the physical test items in this report performed in CTC Shanghai lab were conditioned and tested in the environment of T 23±2°C / RH 50±4%.

Table of Performance Level for Glove

Test Item	Performance Level					
	0##	1	2	3	4	5
Abrasion Resistance (EN 388) Number of cycles (minimum)	<100	100	500	2000	8000	---
Blade Cut Resistance (EN 388) Index (I) (minimum)	<1.2	1.2	2.5	5.0	10.0	20.0
Tear Resistance (EN 388) Force (N) (minimum)	<10	10	25	50	75	---
Puncture Resistance (EN 388) Force (N) (minimum)	<20	20	60	100	150	---
Finger dexterity (EN ISO 21420) Smallest diameter of pin fulfilling test conditions (mm)	---	11.0	9.5	8.0	6.5	5.0

Performance level 0 means the glove falls below the minimum performance level for the given individual hazard

Levels of performance for materials tested with EN ISO 13997

	Level A	Level B	Level C	Level D	Level E	Level F
6.3 TDM: cut resistance (N)	2	5	10	15	22	30

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