Test Report

JIANGMEN PENGCHENG HELMETS LTD (MHR)
SEVENTH NO. 01, DONGSHENG ROAD, GONGHE TOWN, HESHAN JIANGMEN CITY, 529728, GUANGDONG PROVINCE, P. R. CHINA

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description	:	WRSI TRIDENT HELMET
Style / Item No.	:	TRIDENT
Size	:	55cm-56cm, 59cm-60cm
HPI (from basic plane)	:	55cm-56cm: 40mm For EN960 535 59cm-60cm: 45mm For EN960 575
Test Performed	:	EN 1385:2012 Analysis of Azo Dye, To Determine the pH Value, Color Fastness to Perspiration
Sample Receiving Date	:	Dec 12, 201
Test Performing Date	:	Dec 12, 2016 to Dec 19, 2016
Test Result(s)	:	For further details, please refer to the following page(s)

Signed for and on behalf of
Guangzhou Branch,
SGS-CSTC Ltd.

Lell Wu
Approved Signatory

I. Test Conducted: Based on **EN 1385:2012** Helmets for canoeing and white water sports

Test results: Details shown as following table

Clause	Test Method/Requirement	Result
5	**Construction**	
5.1	**Materials** The mechanical properties of the materials used in the manufacture of the helmet should not deteriorate significantly during the period of normal use, due to influences such as exposure to sun, to temperature changes or to fresh or salt water. Metal parts used to fasten the chin strap and/or a suspension cradle to the shell, should be protected from or resistant to corrosion. The materials forming the parts of the helmet coming into contact with the skin should not deteriorate in strength significantly due to contact with sweat, and materials which are known to cause skin disorders shall not be used. The thread used for stitching on webbing should be resistant to rotting.	Pass
5.2	**Extent of shell** When the helmet is placed on a headform of size given in table 1, and the chin strap is secured, the shell, including any holes, shall cover all parts of the headform above the lines ACDF shown in figure 1, except that there may be cut-outs on each side of the helmet to expose the ears for hearing purposes. The dimension `Y' (see figure 1) for the headforms in table 1 shall be taken from table 1 of EN 960:2006. The point C for each headform (figure 1) is the midpoint of AÐZ and the point D is vertically beneath it on the reference plane.	Pass
5.3	**Holes** The shell may be pierced by holes that allow ventilation or the draining of water.	Pass
5.4	**Projections** Rivet heads shall be rounded and shall not project more than 2 mm beyond the outer surface of the shell. All edges of the shell shall be smooth and rounded to a radius of not less than 1 mm. Any rigid internal projection shall be covered with protective padding.	Pass
5.5	**Retention system** The width of any chin strap shall be not less than 15 mm. The chin strap shall be fitted with a device to adjust and maintain tension in the strap, and shall not include a chin cup.	Pass
5.6	**Face guards and visors** If the helmet is fitted with means for attaching a face guard or visor then the means of attachment shall not reduce the degree of protection of the helmet.	N/A
6	**Performance requirements**	
6.1	**Impact protection** Helmets shall be capable of withstanding an impact of not less than 15 J. The deceleration of the headform shall not exceed 250 *g*n, where *g*n is an acceleration of 9.81 m/s2. Testing shall be in accordance with 7.6. The helmet shall be capable of conforming to these requirements regardless of which conditioning procedure in 7.5 has been chosen. A helmet that has been subjected to the procedure in 7.6 shall not be subjected to it a second time. ***NOTE***: This implies that in order to use all four conditioning procedures, a set of at least four helmets is needed.	Pass See annex 1

6.2	**Retention system strength** When the retention system is tested by the method described in 7.7 the maximum dynamic extension shall not exceed 25 mm.	Pass See annex 2
6.3	**Retention system effectiveness** When the helmet is tested by the method in 7.8 the front edge of the helmet shall not move upwards by more than 80 mm.	Pass See annex 3
6.4	**Buoyancy** After conditioning for water immersion in accordance with 7.5.3 the helmet shall float to the surface.	Pass
8	**Marking**	
8.1	Each helmet shall be marked in such a way that the following information is easily legible for the user, and is likely to remain legible throughout the life of the helmet:	--
	a) the number of this European Standard;	Pass
	b) the name or identification mark of the manufacturer;	Pass
	c) the year and quarter of manufacture;	Pass
	d) the designation `Helmet for canoeing and whitewater sports';	Pass
	e) the size or size range, in cm.	Pass
8.2	A label shall be attached to each helmet giving the following instructions, in the language of the country of sale.	--
	a) For adequate protection this helmet has to fit or be adjusted to the size of the user's head.	Pass
	b) The helmet is made to absorb the energy of a blow by partial destruction or damage to the shell and the harness, and even though such damage may not be readily apparent, any helmet subjected to severe impact should be replaced.	Pass
	c) The attention of users is also drawn to the damage of modifying or removing any of the original component parts of the helmet, other than as recommended by the helmet manufacturer. Helmets should not be adapted for the purpose of fitting attachments in any way not recommended by the helmet manufacturer.	Pass
	d) Do not apply paint, solvents, adhesives or self-adhesive labels, except in accordance with instructions from the helmet manufacturer.	Pass
	e) For cleaning, maintenance or disinfection, use only substances that have no adverse effect on the helmet and are not known to be likely to have any adverse effect upon the wearer, when applied in accordance with the manufacturer's instructions and information.	Pass
	f) This helmet is not intended for use in whitewater classed 5 and 6 as given by the International Canoe Federation.	Pass
	g) This helmet is designed to help protect from bumps, scratches and concussion.	Pass
8.3	Any packaging which is intended by the manufacture for display at the point of sale shall reproduce the statements given in 8.2 f) and g).	Pass

9	**Information to be supplied by the manufacturer**	
	The following information, provided precisely and comprehensibly in the official language(s) of the country of sale, shall accompany each helmet:	--
	a) the name and address of the manufacturer;	Pass
	b) instructions or recommendations regarding adjustment, fitting, use, cleaning, disinfection, maintenance, servicing and storage;	Pass
	c) details of suitable accessories and appropriate spare parts;	Pass
	d) relevant information regarding the obsolescence deadline or period or obsolescence of the helmet and component parts;	Pass
	e) relevant information regarding details of the type of packaging suitable for storage and transporting to the point of sale.	Pass

Model: Trident **Size: 55-56 cm** **Headform: 535 (EN960:2006)**

Annex-1: Impact energy attenuation test results
Test Specification: EN 1385:2012-7.6
Ambient temperature at time of test: 22 ºC

Sample No.	Mass (g)	Conditioning	Test anvil	Impact Location	Vel.-m/sec	Peak'G	Result
1	542	High temperature No reconditioning (Clause 7.5.1)	Flat	Front	2.71	91.0	Pass
			Flat	Left	2.70	98.3	Pass
			Flat	Rear	2.70	82.7	Pass
		After 15 min in ambient	Flat	Left	2.71	109.1	Pass
2	539	Low temperature No reconditioning (Clause 7.5.2)	Flat	Left	2.69	207.6	Pass
			Flat	Crown	2.69	75.8	Pass
			Flat	Right	2.73	145.3	Pass
		After 15 min in ambient	Flat	Left	2.69	237.3	Pass
3	544	Artificial Ageing No reconditioning (Clause 7.5.4)	Flat	Left front	2.71	106.3	Pass
			Flat	Crown	2.70	64.6	Pass
			Flat	Rear	2.70	94.6	Pass
		After 15 min in ambient	Flat	Left front	2.71	128.6	Pass
4	542	Water Immersion No reconditioning (Clause 7.5.3)	Flat	Right front	2.69	97.1	Pass
			Flat	Left	2.70	104.9	Pass
			Flat	Rear	2.69	87.0	Pass
		After 15 min in ambient	Flat	Left	2.69	107.4	Pass

Annex-2: Retention system strength test results
Test Specification: EN 1385:2012-7.7
Ambient temperature at time of test: 22 ºC

Sample No.	Condition	Dynamic extension (mm)	Result
2	Low temperature No reconditioning (Clause 7.5.2)	14.0	Pass
3	Artificial Ageing No reconditioning (Clause 7.5.4)	12.9	Pass

Annex-3: Retention system effectiveness test results
Test Specification: EN 1385:2012-7.8
Ambient temperature at time of test: 22 ºC

Sample No.	Distance of moves (mm)	Result
1	38	Pass

Model: Trident **Size: 59-60 cm** **Headform: 575 (EN960:2006)**

Annex-1: Impact energy attenuation test results
Test Specification: EN 1385:2012-7.6
Ambient temperature at time of test: 22 ºC

Sample No.	Mass (g)	Conditioning	Test anvil	Impact Location	Vel.-m/sec	Peak'G	Result
1	562	High temperature No reconditioning (Clause 7.5.1)	Flat	Front	2.53	130.6	Pass
			Flat	Left	2.51	86.7	Pass
			Flat	Rear	2.54	110.1	Pass
		After 15 min in ambient	Flat	Front	2.53	128.8	Pass
2	563	Low temperature No reconditioning (Clause 7.5.2)	Flat	Left	2.54	161.1	Pass
			Flat	Crown	2.53	75.7	Pass
			Flat	Right	2.55	104.3	Pass
		After 15 min in ambient	Flat	Left	2.51	110.5	Pass
3	564	Artificial Ageing No reconditioning (Clause 7.5.4)	Flat	Left front	2.52	104.0	Pass
			Flat	Crown	2.53	87.7	Pass
			Flat	Rear	2.51	87.0	Pass
		After 15 min in ambient	Flat	Left front	2.51	116.1	Pass
4	574	Water Immersion No reconditioning (Clause 7.5.3)	Flat	Right front	2.52	85.6	Pass
			Flat	Left	2.52	90.4	Pass
			Flat	Rear	2.52	153.0	Pass
		After 15 min in ambient	Flat	Rear	2.54	61.2	Pass

Annex-2: Retention system strength test results
Test Specification: EN 1385:2012-7.7
Ambient temperature at time of test: 22 ºC

Sample No.	Condition	Dynamic extension (mm)	Result
2	Low temperature No reconditioning (Clause 7.5.2)	17.0	Pass
3	Artificial Ageing No reconditioning (Clause 7.5.4)	12.8	Pass

Annex-3: Retention system effectiveness test results
Test Specification: EN 1385:2012-7.8
Ambient temperature at time of test: 22 ºC

Sample No.	Distance of moves (mm)	Result
1	42	Pass

II. Analysis of AZO Dye and to Determine the PH Value in the submitted sample.

1. SGS Ref No.: CAN16-228701

Test Requested	Result
To determine the pH Value in the submitted sample(s).	See Results
Determination of Azodyes in the submitted sample(s) with reference to the Entry 43 of Regulation (EC) No. 552/2009 amending Annex XVII of REACH Regulation (EC) No. 1907/2006 (previously restricted under Directive 2002/61/EC).	PASS

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN16-228701.001	Black/orange fabric

Remarks :

(1) 1 mg/kg = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

pH value

Test Method : With reference to ISO 3071:2005, extracted by KCl solution, analysis was performed by pH meter.

Test Item(s)	*001*
pH value	6.1

Azo Dyes

Test Method : With reference to EN 14362-1 :2012 - Analysis was conducted with GC-MS/HPLC-DAD.

Test Item(s)	CAS NO.	Limit	Unit	MDL	*001*
4-Aminobiphenyl	92-67-1	30	mg/kg	5	ND
Benzidine	92-87-5	30	mg/kg	5	ND
4-chloro-o-toluidine	95-69-2	30	mg/kg	5	ND
2-naphthylamine	91-59-8	30	mg/kg	5	ND
o-aminoazotoluene	97-56-3	30	mg/kg	5	ND
5-nitro-o-toluidine / 2-Amino-4-nitrotoluene	99-55-8	30	mg/kg	5	ND
4-chloroaniline	106-47-8	30	mg/kg	5	ND
4-methoxy-m-phenylenediamine / 2,4-Diaminoanisole	615-05-4	30	mg/kg	5	ND
4,4'-diaminodiphenylmethane	101-77-9	30	mg/kg	5	ND
3,3'-dichlorobenzidine	91-94-1	30	mg/kg	5	ND
3.3'-dimethoxybenzidine	119-90-4	30	mg/kg	5	ND
3,3'-dimethylbenzidine	119-93-7	30	mg/kg	5	ND
3,3'-Dimethyl-4,4'-diaminodiphenylmethane / 4,4'-methylenedi-o-toluidine	838-88-0	30	mg/kg	5	ND
p-cresidine	120-71-8	30	mg/kg	5	ND
4,4'-methylene-bis-(2-chloroaniline)	101-14-4	30	mg/kg	5	ND
4,4'-oxydianiline	101-80-4	30	mg/kg	5	ND
4,4'-thiodianiline	139-65-1	30	mg/kg	5	ND
o-toluidine	95-53-4	30	mg/kg	5	ND
4-methyl-m-phenylenediamine / 2,4-Toluylendiamine	95-80-7	30	mg/kg	5	ND
2,4,5-trimethylaniline	137-17-7	30	mg/kg	5	ND
4-aminoazobenzene	60-09-3	30	mg/kg	5	ND
O-Anisidine	90-04-0	30	mg/kg	5	ND
Comment					**PASS**

Notes :

(1)Test specimen was taken randomly from the sample submitted by client/applicant.

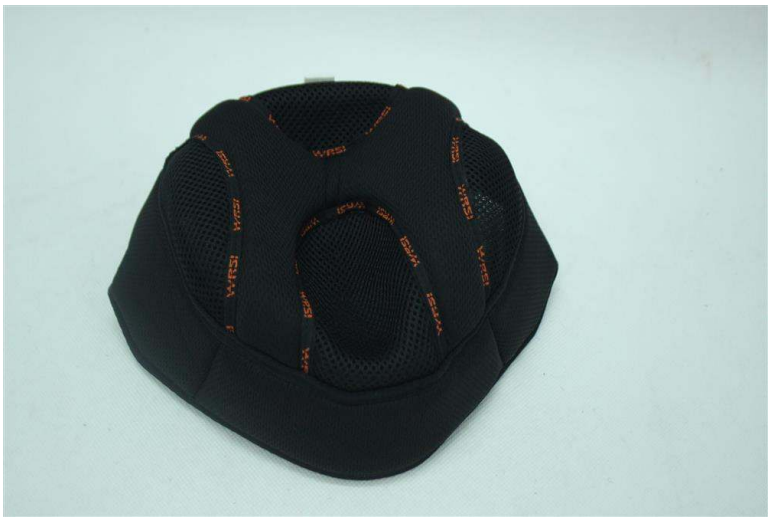
(2) Whenever 4-aminodiphenyl (CAS number 92-67-1), 2-naphylamine (CAS number 91-59-8) and 4-methoxy-m-phenylene-diamine (CAS number 615-05-4) is found, the use of banned azo colorants cannot be reliably ascertained without additional information, e.g. the chemical structure of the colorants used.

(3) In case polyurethane materials are used, e.g. PU foams and coatings and in prints, it cannot be ruled out that certain amines, e.g. 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) and 2,4-toluylen-diamine (TDA, CAS number 95-80-7) are released from the PU component and not from a banned azo colorant.

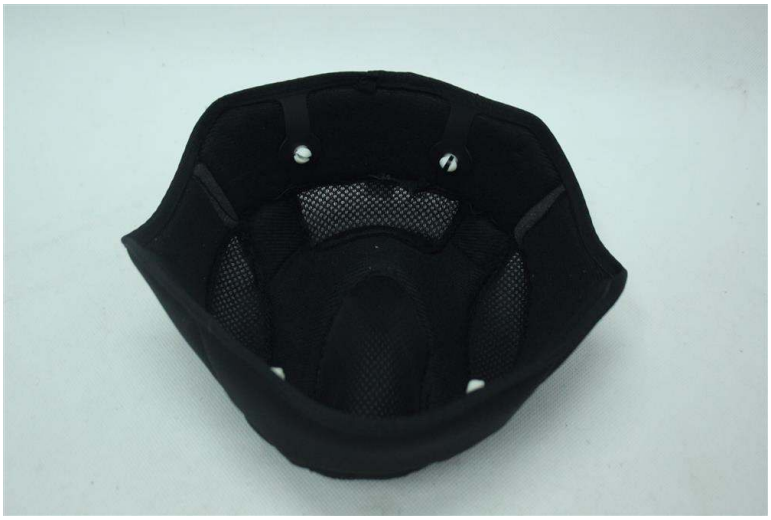
(4) In case of pigment prints care has to be taken that 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) is not released from a source of banned azo colorants but from e.g. a chemical fixing agent.

Requirement : ≤ 30 mg/kg for each aromatic amine according to Requirement of Entry 43 of Regulation (EC) No. 552/2009 amending Annex XVII of REACH Regulation (EC) No. 1907/2006 (previously restricted under Directive 2002/61/EC).

Sample photo:



Product Photo



Product Photo

2. SGS Ref. No.: CAN16-207465

Test Requested	Result
To determine the pH Value in the submitted sample(s).	See Results
Determination of Azodyes in the submitted sample(s) with reference to the Entry 43 of Regulation (EC) No. 552/2009 amending Annex XVII of REACH Regulation (EC) No. 1907/2006 (previously restricted under Directive 2002/61/EC).	PASS

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN16-207465.001	Black fabric strap
SN2	CAN16-207465.002	Black mesh fabric
SN3	CAN16-207465.003	Black fabric

Remarks :

(1) 1 mg/kg = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

pH value

Test Method : With reference to ISO 3071:2005, extracted by KCl solution, analysis was performed by pH meter.

Test Item(s)	*001*	*002*	*003*
pH value	6.5	6.2	6.3

Azo Dyes

Test Method : With reference to EN 14362-1 :2012 - Analysis was conducted with GC-MS/HPLC-DAD.

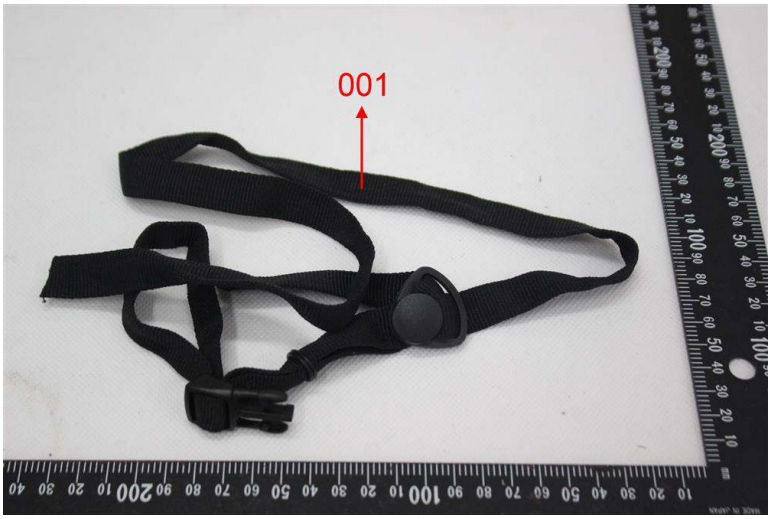
Test Item(s)	CAS NO.	Limit	Unit	MDL	*001*	*002*	*003*
4-Aminobiphenyl	92-67-1	30	mg/kg	5	ND	ND	ND
Benzidine	92-87-5	30	mg/kg	5	ND	ND	ND
4-chloro-o-toluidine	95-69-2	30	mg/kg	5	ND	ND	ND
2-naphthylamine	91-59-8	30	mg/kg	5	ND	ND	ND
o-aminoazotoluene	97-56-3	30	mg/kg	5	ND	ND	ND
5-nitro-o-toluidine / 2-Amino-4-nitrotoluene	99-55-8	30	mg/kg	5	ND	ND	ND
4-chloroaniline	106-47-8	30	mg/kg	5	ND	ND	ND
4-methoxy-m-phenylenediamine / 2,4-Diaminoanisole	615-05-4	30	mg/kg	5	ND	ND	ND
4,4'-diaminodiphenylmethane	101-77-9	30	mg/kg	5	ND	ND	ND
3,3'-dichlorobenzidine	91-94-1	30	mg/kg	5	ND	ND	ND
3.3'-dimethoxybenzidine	119-90-4	30	mg/kg	5	ND	ND	ND
3,3'-dimethylbenzidine	119-93-7	30	mg/kg	5	ND	ND	ND
3,3'-Dimethyl-4,4'-diaminodiphenylmethane / 4,4'-methylenedi-o-toluidine	838-88-0	30	mg/kg	5	ND	ND	ND
p-cresidine	120-71-8	30	mg/kg	5	ND	ND	ND
4,4'-methylene-bis-(2-chloroaniline)	101-14-4	30	mg/kg	5	ND	ND	ND
4,4'-oxydianiline	101-80-4	30	mg/kg	5	ND	ND	ND
4,4'-thiodianiline	139-65-1	30	mg/kg	5	ND	ND	ND
o-toluidine	95-53-4	30	mg/kg	5	ND	ND	ND
4-methyl-m-phenylenediamine / 2,4-Toluylendiamine	95-80-7	30	mg/kg	5	ND	ND	ND
2,4,5-trimethylaniline	137-17-7	30	mg/kg	5	ND	ND	ND
4-aminoazobenzene	60-09-3	30	mg/kg	5	ND	ND	ND
O-Anisidine	90-04-0	30	mg/kg	5	ND	ND	ND
Comment					**PASS**	**PASS**	**PASS**

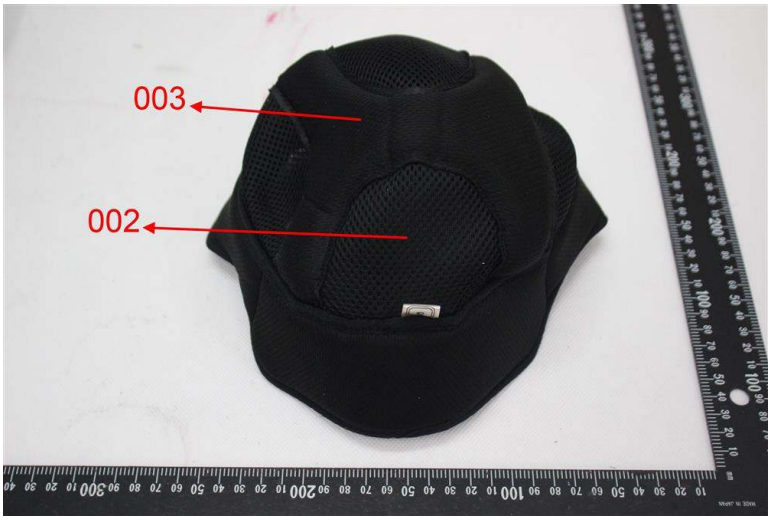
Notes :

(1)Test specimen was taken randomly from the sample submitted by client/applicant.
(2)Whenever 4-aminodiphenyl (CAS number 92-67-1), 2-naphylamine (CAS number 91-59-8) and 4-methoxy-m-phenylene-diamine (CAS number 615-05-4) is found, the use of banned azo colorants cannot be reliably ascertained without additional information, e.g. the chemical structure of the colorants used.
(3)In case polyurethane materials are used, e.g. PU foams and coatings and in prints, it cannot be ruled out that certain amines, e.g. 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) and 2,4-toluylen-diamine (TDA, CAS number 95-80-7) are released from the PU component and not from a banned azo colorant.
(4)In case of pigment prints care has to be taken that 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) is not released from a source of banned azo colorants but from e.g. a chemical fixing agent.

Requirement : ≤ 30 mg/kg for each aromatic amine according to Requirement of Entry 43 of Regulation (EC) No. 552/2009 amending Annex XVII of REACH Regulation (EC) No. 1907/2006 (previously restricted under Directive 2002/61/EC).

Sample photo:





III. Colour Fastness to Perspiration.

1. SGS Ref. No.: GZSL1610123846TX

Three sample of (A) 1# black strap (B) 2# mesh fabric (C) 3# black fabric.

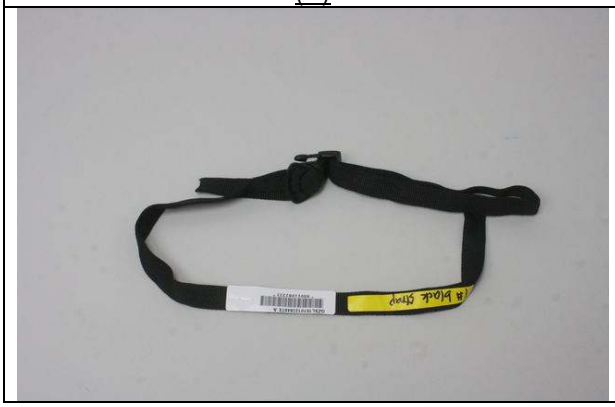
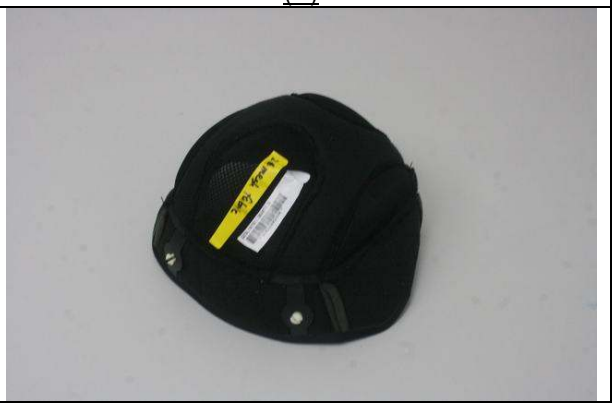
Test Result:

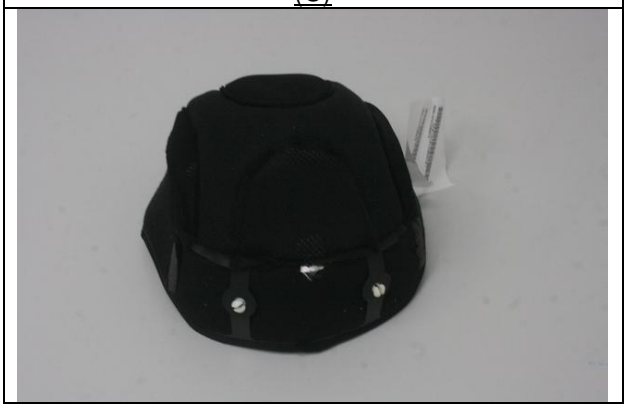
Colour Fastness To Water
(ISO 105-E01:2013; test specimen in vertical position.)

	(A)	(B)	(C)
Change in shade	4-5	4-5	4-5
Staining on multi-fiber stripe			
Acetate	4-5	4-5	4
Cotton	4-5	4-5	4-5
Nylon	4-5	4-5	4
Polyester	4-5	4-5	4-5
Acrylic	4-5	4-5	4-5
Wool	4-5	4-5	4-5

Remark: Grey Scale rating is based on the 5-step scale of 1 to 5, where 1 is bad and 5 is good.

Sample photo:

(A)	(B)
	

(C)


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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075191 e sgs.china@sgs.com

2. SGS Ref. No.: GZSL1611138642TX

One sample of black fabric with orange letter for WRSIMOMENT Helmet.

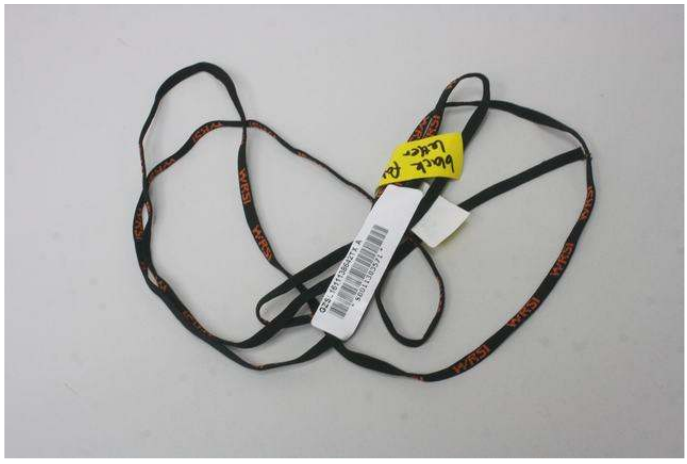
Test Result:

Colour Fastness To Water
(ISO 105-E01:2013, test specimen in vertical position.)

Change in shade	4-5
Staining on multi-fiber stripe	
Acetate	4-5
Cotton	4-5
Nylon	4-5
Polyester	4-5
Acrylic	4-5
Wool	4-5

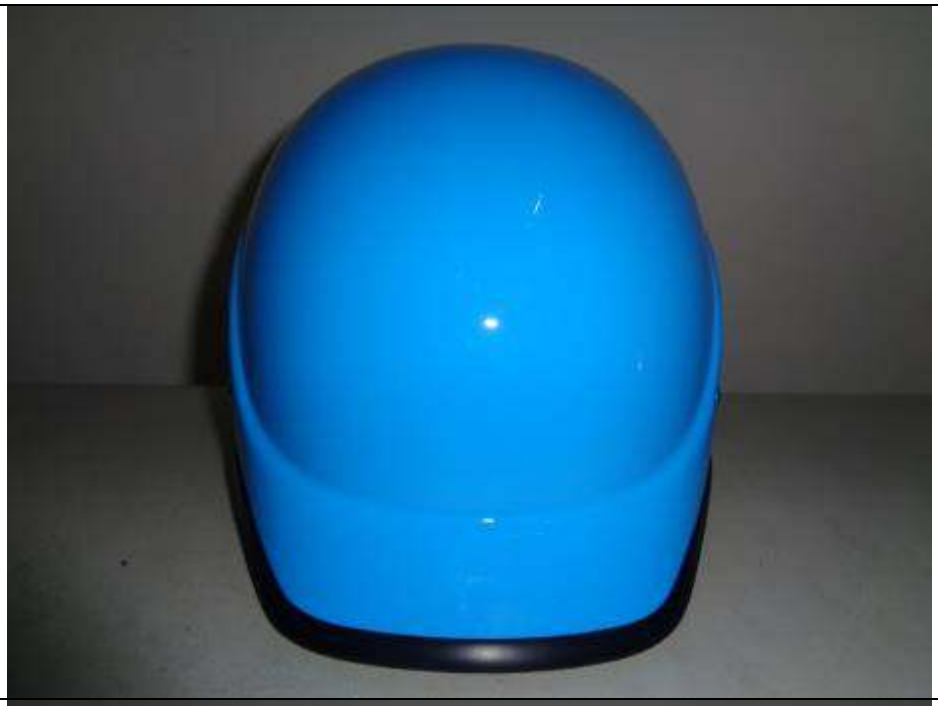
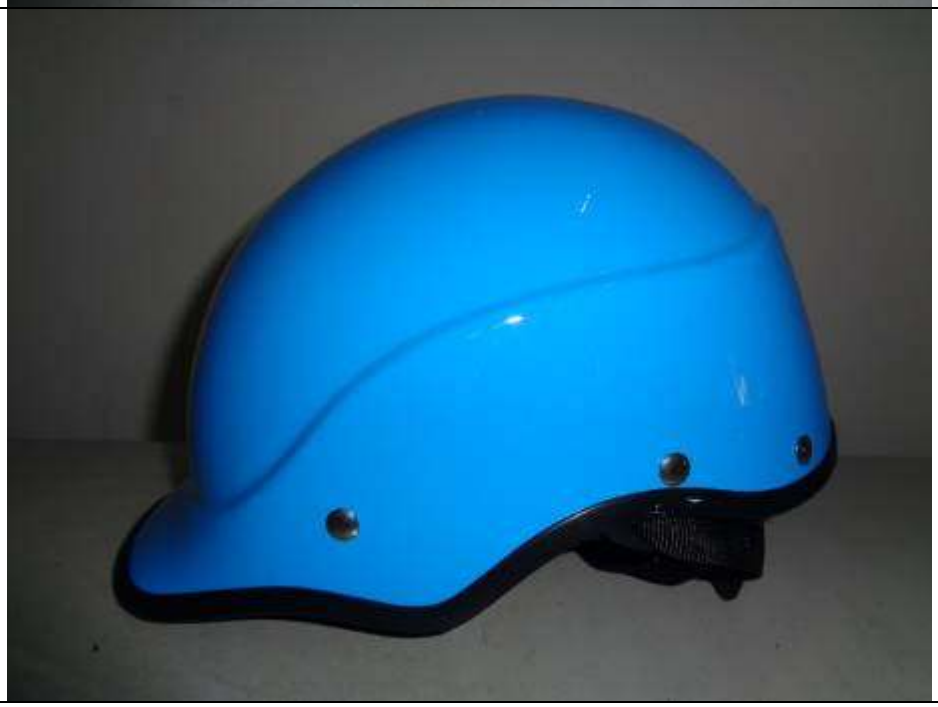
Remark: Grey Scale rating is based on the 5-step scale of 1 to 5, where 1 is bad and 5 is good.

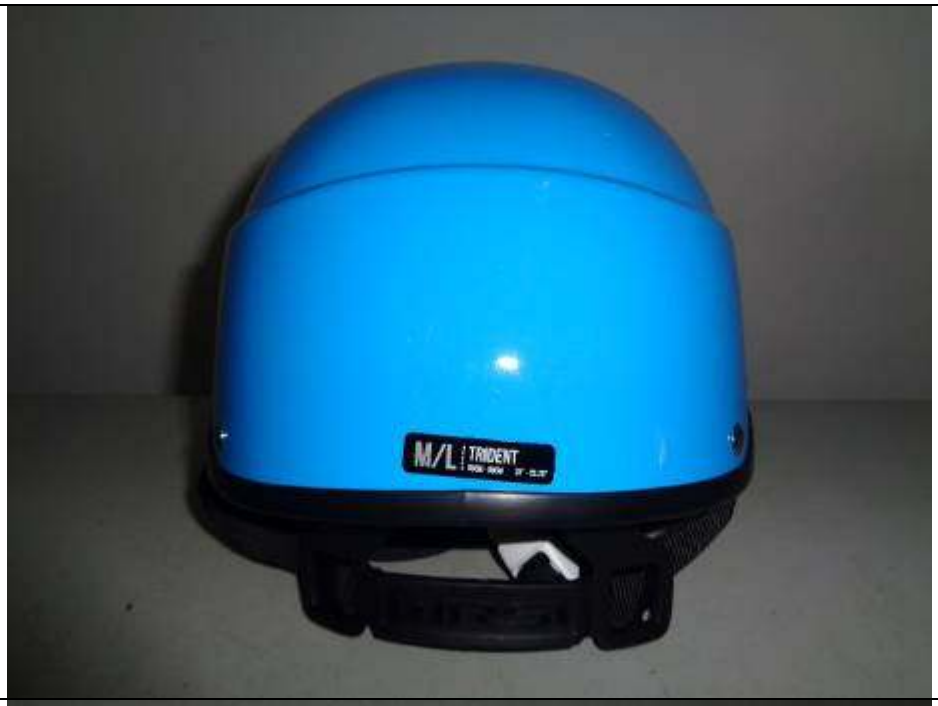
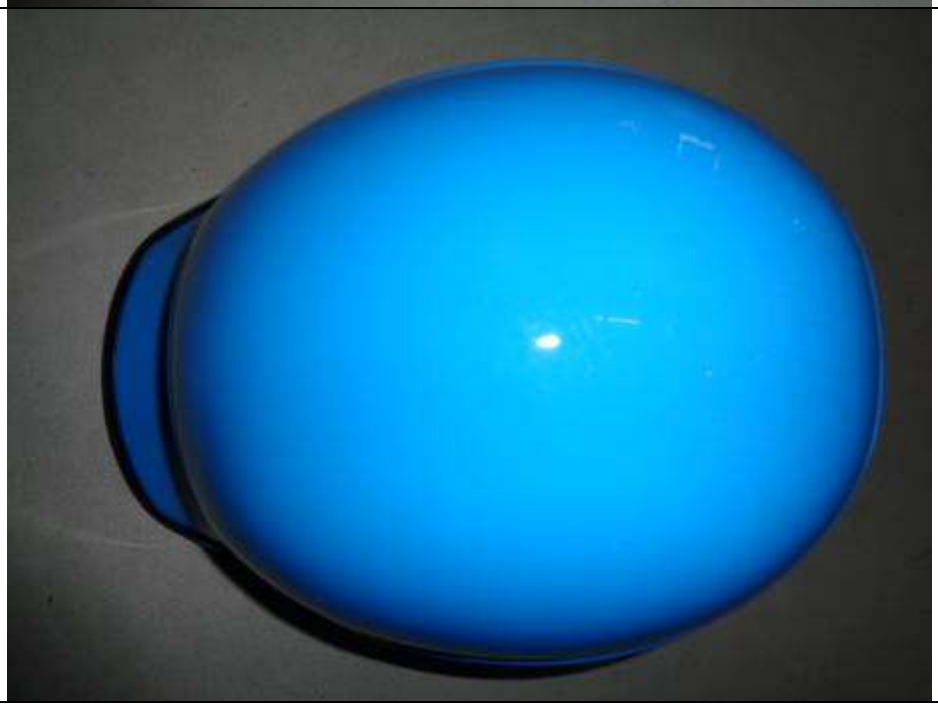
Sample photo:

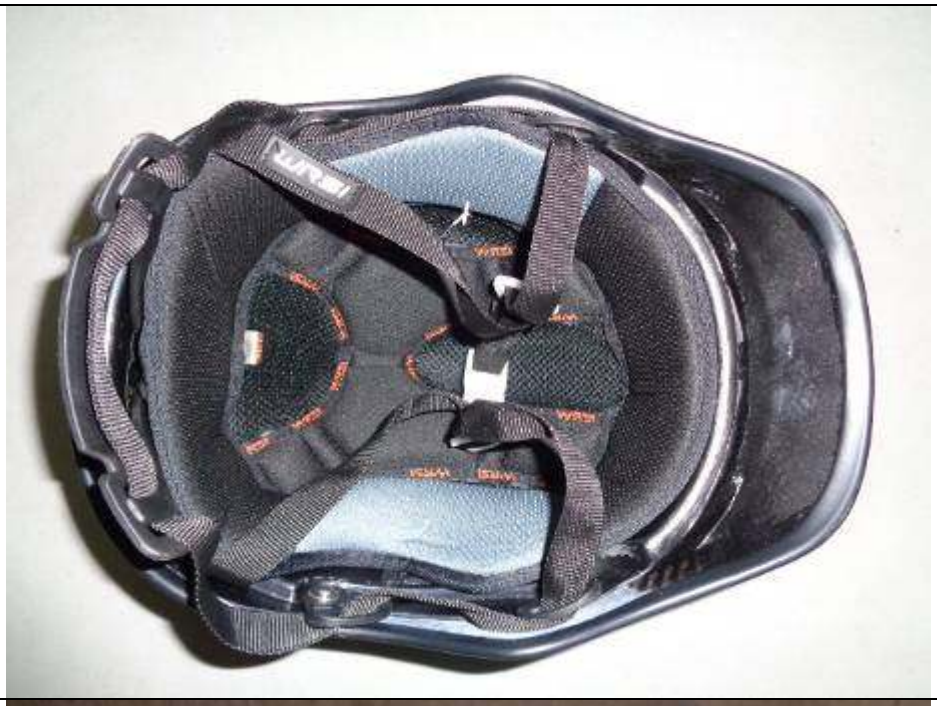
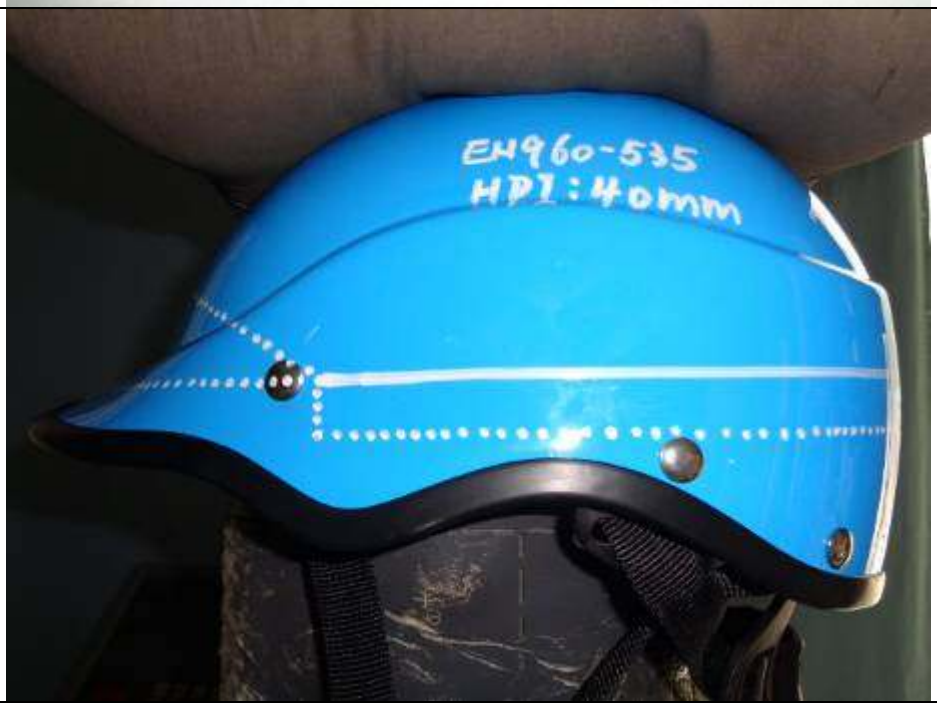


Remark:
1. Pass means the test sample met the requirement of the test item.
2. N/A means not applicable.
   N/T means not tested as per client's request.
3. A material list for each part of the product and a statement to announce the material complying with requirements of the standard are received from the manufacturer
4. Only Part I is tested in this report, Part II & III are extracted from the test report number GZHL1610043620CE-01.

Sample photos:

Front view		
Side view		

Back view		
Top view		

Bottom view	
Test line for (535) EN 960:2006 headform	

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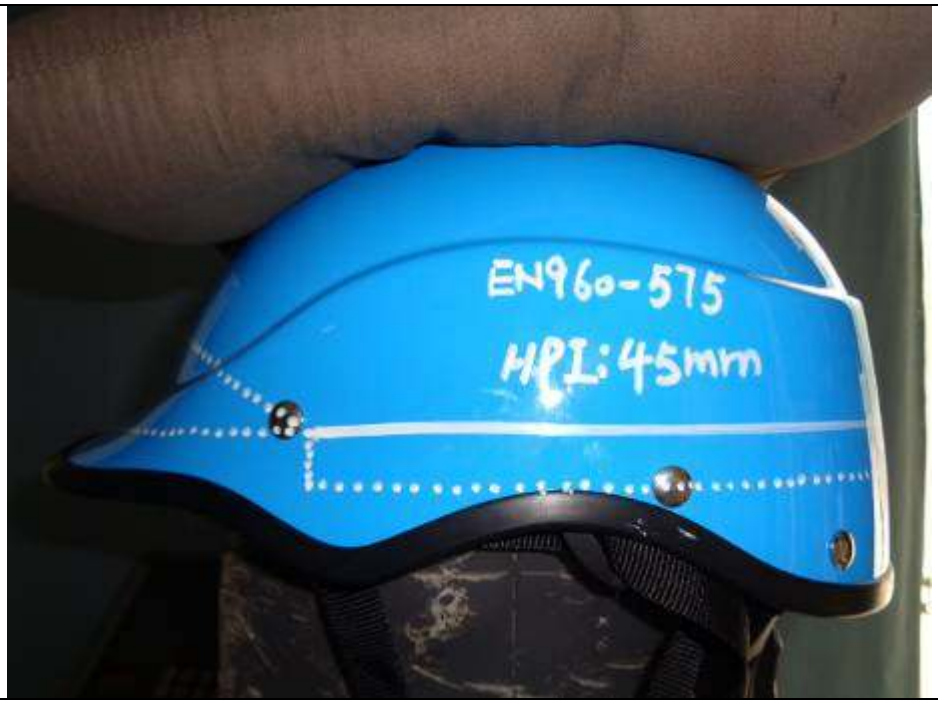
Test line for (575) EN 960:2006 headform		

End of Report

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