TEST REPORT

LIBUS CHILE SPA

Test Report

SCOPE OF WORK
Industrial Hard Hat (ANSI) Testing, brand name Libus, model Andes S/V Helmet

REPORT NUMBER
105165796CRT-001

ISSUE DATE
8/29/2022

PAGES
8

DOCUMENT CONTROL NUMBER
GFT-OP-10i (6-July-2017)

TEST REPORT

Libus Chile Spa
Av. Francia 1314
Comuna Independencia, Santiago
Chile

Quote Number:	Qu-01292315-0
Reference Number/PO Number:	N/A
Certification Type (Initial/Annual/Class I):	Private
Product Type:	Industrial Hard Hat (ANSI)
Brand Name:	Libus
Model:	Andes S/V Helmet
Type (I or II):	Type I
Class (C,E, or G):	Class E
Suspension:	6 point, ratchet
Optional Requirements:	N/A
Sample Control Number:	CRT2208241616-001
Sample Received Date:	8/24/2022
Number of Samples Received:	32
Condition received in:	Production Samples
Type of Testing Entity:	Third Party Testing Laboratory
Test Standard:	ANSI/ISEA Z89.1-2014 (R2019) American National Standard for Industrial Head Protection
Evaluation/Testing Location:	Intertek, 3933 US Rt. 11, Cortland NY 13045
Manufacturer's Name and Address:	Av. Francia 1314, Comuna Independencia Santiago Chile
Date(s) of Testing:	8/25/2022

TEST REPORT

Dear Miguel,

Intertek has completed the evaluation of Industrial Hard Hat brand name Libus, model Andes S/V Helmet, to the following client specified clauses of ANSI/ISEA Z89.1-2014 (R2019). The evaluation was performed at Intertek located in Cortland, NY on the dates posted below. The results of these tests are as indicated below.

Test Completed	Test Date	ANSI/ISEA Z89.1-2014 (R2019) Clause	Pass/Fail
Instructions and Markings	8/26/2022	6	Pass
Flammability	8/26/2022	10.1	Pass
Force Transmission	8/26/2022	10.2	Pass
Apex Penetration	8/26/2022	10.3	Pass
Electrical Insulation	8/26/2022	10.7	Pass

This test report completes the testing covered by Proposal No. Qu-01292315-0. If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact the undersigned.
Please note: this Test Report does not represent authorization for the use of any Intertek certification marks.

Tested By.

Jesse Lloyd
Technician

Reviewed by,

Brandon Wood
Reviewer

REPORT REVISION		
Date	Revision Description	Reviewer
8/29/2022	Original report: 105165796CRT-001	Brandon Wood

TEST REPORT

Conditioning Requirements

Clause 8.3 & 8.5 (ANSI/ISEA Z89.1-2014 (R2019))

Actual Conditions

	Required Temperature	Actual Temperature
Ambient Temperature	20°C to 26°C	20.0°C to 21.0°C
High Temperature	47°C to 51°C	49.7°C to 50.1°C
Low Temperature	-16°C to -20°C	-16.1°C to -17.7°C
Relative Humidity		48.0% to 49.5%

Instructions and Marking Requirements

Clause 6 (ANSI/ISEA Z89.1-2014 (R2019))

Clause / Requirement	Pass/Fail
6.1 - Each helmet shall be accompanied by manufacturer's instructions explaining the proper method of size and adjustment, use, care, useful service life guidelines and, if applicable, reverse wearing.	Pass
6.2 - Each helmet shall bear permanent markings in at least 1.5 mm(0.06 in.) high letters stating the following information	
6.2a - Name or identification mark of the manufacturer	Pass
6.2b - The date of manufacturer	Pass
6.2c - The American National Standard Designation, ANSI/ISEA Z89.1 - 2014 (R2019)	Pass
6.2d - The applicable Type and Class Designations, followed by the optional criteria markings, if applicable	Pass
If optional criteria are applied, the appropriate markings shall follow the sequence as specified below	
Reverse Donning	N/A
LT - Lower Temperature	N/A
HT - Higher Temperature	N/A
HV - High Visibility	N/A

The test samples were marked with the following date code(s): 1/21

TEST REPORT

Flammability

Clause 10.1 (ANSI/ISEA Z89.1-2014 (R2019))

Helmets shall be tested in accordance with Section 10.1 anywhere above the Static Test Line (STL). No flame shall be visible 5.0 seconds after the removal of the test flame.

Sample	Location	After flame (sec.)	Pass/Fail
12	Rear	0.0	Pass

System Calibration

Clause 10.2.4 (ANSI/ISEA Z89.1-2014 (R2019))

Impactor Weight (lbs): 7.98
Drop Height (in.) 8.25

	Load Cell	Accelero-meter	
Impact	Peak lbs.	Peak g	Peak g's Converted to lbs
1	723.52	91.26	728.25
2	725.39	91.36	729.05
3	726.71	91.50	730.17
4	728.02	91.62	731.13
5	728.14	91.79	732.46
Average	726.36	91.51	730.21
Percent Difference(< 2.5%)			0.53%

Instrumentation Check

Required Drop Height (in.): 33.5
Required Velocity (m/s): 3.97 - 4.03

Pre Test		
Impact Number	Velocity (m/s)	Force (lbs.)
1	3.98	1917.29
2	3.98	1921.55
3	3.98	1910.54
Average Force (lbs.)		1916.46

Post Test		
Impact Number	Velocity (m/s)	Force (lbs.)
1	4.01	1907.06
2	3.98	1909.18
3	3.98	1918.79
Average Force (lbs.)		1911.68

Pre-Post Difference (<5%) 0.25%

TEST REPORT

Force Transmission

Clause 10.2 (ANSI/ISEA Z89.1-2014 (R2019))

Helmets shall be tested in accordance with Section 10.2 and shall not transmit a force to the test headform that exceeds 4450 N(1000lbs). Additionally, for each test condition specified, the maximum transmitted force of individual test samples shall be averaged. The averaged values shall not exceed 3780 N(850 lbs).

Velocity Range (m/s)	5.45 - 5.55
Actual Drop Height (in)	61
Impactor Mass (kg) (3.55kg - 3.65 Kg)	3.62

Hot Conditioning			
Sample	**Velocity (m/s)**	**Force (lbs.)**	**Pass/Fail**
1	5.50	410.23	Pass
2	5.48	378.37	Pass
3	5.49	389.90	Pass
4	5.56*	362.34	Pass
5	5.50	397.53	Pass
6	5.50	415.77	Pass
7	5.49	374.61	Pass
8	5.49	400.89	Pass
9	5.49	391.68	Pass
10	5.48	383.90	Pass
11	5.49	430.12	Pass
12	5.49	390.13	Pass
Average		393.79	Pass

Note*- Over velocity, still compliant

Cold Conditioning			
Sample	**Velocity (m/s)**	**Force (lbs.)**	**Pass/Fail**
13	5.50	680.61	Pass
14	5.49	719.05	Pass
15	5.50	680.22	Pass
16	5.49	748.55	Pass
17	5.49	739.90	Pass
18	5.49	733.67	Pass
19	5.50	764.64	Pass
20	5.50	748.68	Pass
21	5.49	692.80	Pass
22	5.49	735.92	Pass
23	5.49	774.67	Pass
24	5.55	700.87	Pass
Average		726.63	Pass

TEST REPORT

Apex Penetration

Clause 10.3 (ANSI/ISEA Z89.1-2014 (R2019))

Helmets shall be tested in accordance with Section 10.3. The penetrator shall not make contact with the top of the test headform.

Velocity Range (m/s)	6.9- 7.1
Headform Used:	J
Penetrator Mass (0.95Kg - 1.05Kg):	1.00

Hot Conditioning		
Sample	**Velocity (m/s)**	**Pass/Fail**
25	7.02	Pass
26	7.00	Pass
27	7.04	Pass

Cold Conditioning		
Sample	**Velocity (m/s)**	**Pass/Fail**
28	7.01	Pass
29	7.04	Pass
30	7.00	Pass

Electrical Insulation

Clause 10.7 (ANSI/ISEA Z89.1-2014 (R2019))

Helmets shall be tested in accordance with Section 10.7.
For **Class E** helmets 20,000 Volts shall be applied for a duration of 3 minutes and the leakage(mA) shall not be greater than 9.0 mA. Then the voltage shall be increased to 30,000 Volts looking for burn through.

Sample	Leakage (mA)	Burn Through	Did Flashover Occur (Yes/No)	Pass/Fail
1	3.189	No	No	Pass
13	3.079	No	No	Pass

TEST REPORT

Measurement Uncertainty

Test	Relative MU (dMU)
Section 6 - Instructions and Markings	1.0%
Section 10.1 - Flammability	1.0%
Section 10.2 - Force Transmission	3.1%
Section 10.3 - Apex Penetration	3.4%
Section 10.7 - Electrical Insulation	0.0%

Sample Pictures