



Ballistic Resistance – Test Report

Client: C-Bond Systems, LLC.
Attention: Bruce Rich
410 Pierce Street
Houston, TX 77002

Date of report: 15 June 2015

Report prepared by: Ashley Gowland, Customer Operations Coordinator

Report reviewed by: Wesley Mason, Manager of Technical Operations - Hard Armor

Test method and supporting documentation: Per Customer Instructions
NIJ-STD-0108.01, Level 1

Job number: 000004449

Test item receipt date, shipping method, identification information, and inspection results: The sample(s) were received on **11 June 2015** via Federal Express. Test items were identified as 3/8" annealed glass. The sample(s) were inspected prior to testing and no anomalies were discovered.

Date of testing, test range, and testing performed: Testing commenced at the H.P. White Laboratory, Inc. facilities at 3114 Scarboro Road, Street, MD on **15 June 2015**.

Date testing completed, sample disposal, return shipping method: Testing concluded on **15 June 2015**; sample(s) will be discarded, unless otherwise instructed.

Test data transmittal method and storage location: This test report and test data were transmitted via email in a manner compliant with ISO 17025 requirements. Permanent electronic and hardcopy files are maintained in accordance with HPWLI data storage policy on data storage systems, filed by job number.

Revision number and date: NA

Disclaimer: Testing was performed on samples provided by the client. H.P. White Laboratory, Inc. holds no responsibility for sample selection methods. This report is based on data obtained from testing only the samples submitted, and should NOT be interpreted as an endorsement by H.P. White Laboratory, Inc. of the continuing quality or performance of any other items of the same, or similar, design. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This testing was performed by H.P. White Laboratory, Inc. to client specification, and the test results are the property of the client, who holds all rights of reproduction or publication of this report and related test data.

Test Procedures

Ballistic Resistance Testing: All testing was conducted on an indoor range at ambient conditions in accordance with your instructions and the general provisions of NIJ-STD-0108.01. Testing was conducted at threat level I, using caliber .38 Special, 158 grain, RN lead and 22, 40 grain, LRHV ammunitions. The test sample was positioned 16.5 feet from the muzzle of the barrel to produce zero degree obliquity impacts. Photoelectric infrared screens were located at 6.5 feet and 9.5 feet which, in conjunction with electronic chronographs, were used to compute bullet velocities at 8.0 feet forward of the muzzle. Penetrations was determined by visual examination of the 0.020 inch thick 2024-T3 aluminum witness plate, placed parallel to and at a distance of 6.0 inches behind the test sample. Table I provides a summary of information on the attached data record(s).

Report prepared by:



Ashley Gowland
 Customer Operations Coordinator

Report reviewed by:



Wesley Mason
 Manager of Technical Operations - Hard Armor

Table I: Ballistic Resistance, Summary of Results

Test Sample			Ballistic Threat			Results		
Sample Number	Thickness (in.) (a)	Weight (lbs.)	Caliber	Obliquity	Shots (b)	Velocity (fps)		Penetrations
						Max	Min	
150609LGPG-1	0.422	11.56	.38 Special	0°	5	867	851	0
150609LGPB-2	0.417	11.59	22 LRHV	0°	5	1043	1011	0

(a) Based on an average of four corner thicknesses
 (b) 4 shot(s) on 8" square – 1 in center



TEST PANEL

Manufacturer : C-Bond systems, LLC
Size : 18 x 18 in.
Thicknesses : 0.421, 0.421, 0.422, 0.422 in.
Avg. Thick : 0.422 in.
Description : 3/8" annealed glass

Sample No. : 150609LGPG-1
Weight : 11.56 lbs.
Hardness : NA
Plies/Laminates : NA

Date Rec'd. : 6/11/15
Via : Federal Express
Returned : N/A

SET-UP

Shot Spacing : 4 ON 8" SQUARE - 1 IN CENTER
Witness Panel : 0.020", 2024-T3 ALUMINUM
Obliquity : 0 deg.
Backing Material : NA
Conditioning : AMBIENT

Primary Vel. Screens : 6.5 ft., 9.5 ft.
Primary Vel. Location : 8.0 ft. From Muzzle
Residual Vel. Screens : NA
Residual Vel. Location : NA
Range to Target : 16.5 ft.
Target to Wit. : 6.0 in.

Range No. : 3
Temp. : 72 F
BP : 29.99 in. Hg
RH : 60%
Barrel No./Gun : R3/ .38 SPECIAL
Gunner : Ches
Recorder : Bonsall

AMMUNITION

(1) : .38 SPECIAL RN LEAD, 158 gr.
(2) :
(3) :
(4) :

Lot No. : 0209025
Lot No. :
Lot No. :
Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

- (1) : NIJ-STD-0108.01
- (2) : LEVEL I
- (3) : REQUIRED VELOCITY: 800-900 FPS.

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Penetration	Footnotes
1	1	3459	867	3462	867	867	None	
2	1	3504	856	3509	855	856	None	
3	1	3509	855	3514	854	854	None	
4	1	3522	852	3529	850	851	None	
5	1	3468	865	3474	864	864	None	

<u>REMARKS :</u>	<u>FOOTNOTES :</u>



H.P. White Laboratory, Inc.

BALLISTIC RESISTANCE TEST

Client : 5805:C-Bond Systems, LLC

Job No. : 000004449 Test Date : 6/15/15

TEST PANEL

Manufacturer : C-Bond systems, LLC
 Size : 18 x 18 in.
 Thicknesses : 0.417, 0.417, 0.417, 0.417 in.
 Avg. Thick : 0.417 in.
 Description : 3/8" annealed glass

Sample No. : 150609LGPB-2
 Weight : 11.59 lbs.
 Hardness : NA
 Plies/Laminates : NA

Date Rec'd. : 6/11/15
 Via : Federal Express
 Returned : N/A

SET-UP

Shot Spacing : 4 ON 8" SQUARE - 1 IN CENTER
 Witness Panel : 0.020", 2024-T3 ALUMINUM
 Obliquity : 0 deg.
 Backing Material : NA
 Conditioning : AMBIENT

Primary Vel. Screens : 6.5 ft., 9.5 ft.
 Primary Vel. Location : 8.0 ft. From Muzzle
 Residual Vel. Screens : NA
 Residual Vel. Location : NA
 Range to Target : 16.5 ft.
 Target to Wit. : 6.0 in.

Range No. : 3
 Temp. : 72 F
 BP : 29.99 in. Hg
 RH : 60%
 Barrel No./Gun : R3/ 22 LR
 Gunner : Ches
 Recorder : Bonsall

AMMUNITION

(1) : 22 LRHV, 40 gr.
 (2) :
 (3) :
 (4) :

Lot No. : UNKNOWN
 Lot No. :
 Lot No. :
 Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

- (1) : NIJ-STD-0108.01
- (2) : LEVEL I
- (3) : REQUIRED VELOCITY: 1010-1090 FPS.

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Penetration	Footnotes
1	1	2950	1017	2954	1016	1016	None	
2	1	2962	1013	2965	1012	1012	None	
3	1	2874	1044	2879	1042	1043	None	
4	1	2965	1012	2968	1011	1011	None	
5	1	2964	1012	2964	1012	1012	None	

<u>REMARKS :</u>	<u>FOOTNOTES :</u>