

Close Focus Research

Ballistic Testing Services

Phone: 800-513-4291 Email: techsupport@CloseFocusResearch.com**Page 1 of 2**

Report Number: BTR-03-31-2011-52445-Sample 16 - 163825 79.70 mm

CloseFocusResearch.com

Name: Saudi American Glass
Address: PO Box 8418, Riyadh 11482, Kingdom of Saudi Arabia
Phone: Phone: +966-1 265-1212 / Fax: +966-1-265-1738

Report Date: March 31, 2011
Contact: Geoff Sparks
Email: saglass@saglass.com

Ballistic Results**Project Summary**

Type of Products to be tested: All Glass Glazings
Test Specimen Sample size(s): 500 x 500 mm
Number of test specimens: 18 Samples
Weight of all samples: 1,383 lbs
Are Materials a Health Hazard: No
Need the Tests performed by: TBD
Need products shipped back: No
Purchase Order Number: 52445

International Ballistic Standards / Specifications Testing

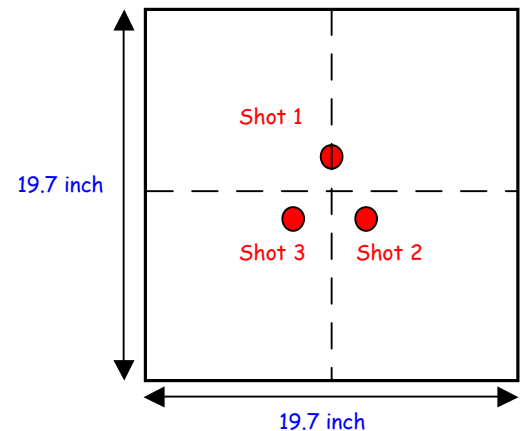
☐ ASTM ☐ Brunswick ☐ FRA ☐ NIJ ☐ CFR Pass All
☐ Australian ☐ Canadian ☐ Germ DIN ☐ State Dept ☐ CFR SYA
☐ British ☒ EN 1063 ☐ MIL-SAMIT ☐ UL 752 ☐ Other

Test Standard: European EN1063 [Spall Acceptable]Particular Test: EN BR75 (7.62 x 51 NATO 150 gr FCJ steel hard corVelocity Range: 2,657 to 2,723 ft/sNumber of Shots: 3 shotsSpacing / Pattern: 4.3 to 5.1 inch triangle**Test Results**

Product Number: Sample 16 - 163825 79.70 mm
Sample Type: All Glass Glazings
Sample Size: 19.7 in x 19.7 in (500 x 500 mm)
Measured Thickness: 3.052 in (77.52 mm)
Weight: 107.0 lbs (48.5 kg)
Weapon Type: 7.62 NATO
Cartridge / Projectile Type: 7.62 x 51 NATO FCJ steel hard core AP)
Projectile Weight: 150 grains
Target Distance: 32.8 feet
Number of Shots: 3 shots

Shot Sequence:	Shot 1	Shot 2	Shot 3
Impact Velocity (ft/sec) *:	2,721	2,719	2,715
Impact Energy (ft-lbs):	2,466	2,462	2,455
Impact Momentum (lb-sec):	1.81	1.81	1.81
Impact Angle (degrees):	0°	0°	0°
Penetration of Sample:	NP	NP	NP
Spall Occurance:	No	No	No
Spall Penetration of Witness:	NP	NP	NP
Rear face ply cracked ¹ :	Yes	Yes	Yes
Impact Spacing (inches) **::	4.75	4.40	5.00

Impact Spacing / Pattern: 4.72 inch (average)
Witness plate material: 0.0008 in. thick Type 1100 Aluminum foil
Spall catch box: 17.32 x 17.32 in.
Witness / Box Distance: 19.69 inches
Test Temperature: 72 ° F
Pass / Fail Results ***: Passed the test

**Footnotes**

* Velocity measurements were taken at a distance of 8.2 feet from muzzle.

** Impact Spacing is the distance between shots (shot 1 = 3 to 1, shot 2 = 1 to 2, shot 3 = 2 to 3).

*** The 4 mm glass face ply is the rear side of the sample, the side opposite to the impact side.

NP = No Penetration

CP = Complete Penetration

Test and Report EngineersTested and Reported by: Sam RahebSignature: Sam RahebDate: March 31, 2011

Name: Saudi American Glass

Report Date: March 31, 2011

Ballistic Test Results and Photographs

Sample 16 - 163825 79.70 mm

Ballistic Test Results:

Test Sample 16 - 163825 79.70 mm passed the European EN1063 [Spall Acceptable] EN BR7S (7.62 x 51 NATO 150 gr FCJ steel hard core AP) Ballistic test.

Projectile Penetration Effects:

There was no partial or complete projectile penetration of the sample for all 3 shots.

Witness Plate and Spall Effects:

No spall or damage to the 0.0008 in. thick Type 1100 Aluminum foil witness plate was observed.

Photographs:

The following photographs show both the pre and post-test sample. Additional larger sized photographs are included with this report.

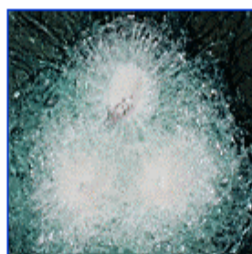
Sample 16 - EN BR7 - 7.62 x 51 NATO 150 gr FCJ AP - [Spall Acceptable - Mod EN 1063]



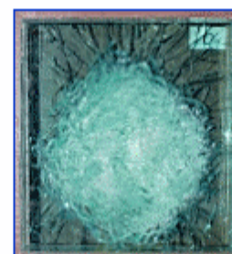
Pretest Impact Side



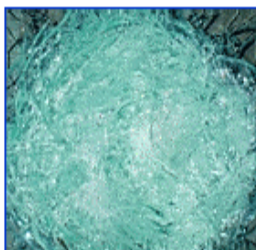
Posttest Impact Side



Posttest Impact Side



Posttest Rear Side



Posttest Rear Side

Test and Report Engineers

Tested and Reported by: Sam Raheb

Signature: *Sam Raheb*

Date: March 31, 2011