

Ballistic Testing Services

Report Number: BTR-11-13-2008-N/A-Sample 5

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Report Date: November 13, 2008
 Contact: Bob Gray
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Ballistic Results

Project Summary

Type of Products to be tested: Poly / Acrylic BR Material
 Test Specimen Sample size(s): 12 x 12 inch
 Number of test specimens: 6 Sample(s)
 Weight of all samples: 29 lbs
 Are Materials a Health Hazard: No
 Need the Tests performed by: November 19, 2008
 Need products shipped back: Yes
 Purchase Order Number: N/A

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: UL 752
 Particular Test: UL Level 2 Part 2 (.357 Magnum JSP)
 Velocity Range: 1,250 to 1,375 ft/s
 Number of Shots: 2 shots
 Spacing / Pattern: 1.25 to 1.75 in.

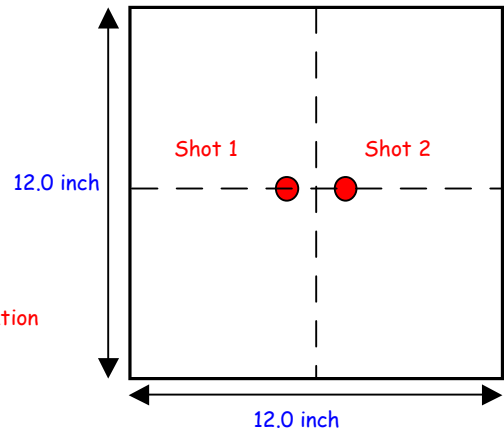
Test Results

Product Number: Sample 5
 Sample Type: Poly / Acrylic BR Material
 Sample Size: 12.0 x 12.0 inch
 Thickness: 0.788 inch
 Weight: 4.86 lbs
 Weapon Type: .357 Magnum
 Cartridge / Projectile Type: .357 Magnum JSP
 Projectile Weight: 158 gr
 Target Distance: 15 ft
 Number of Shots: 2 shots

Shot Sequence:	Shot 1	Shot 2
Impact Velocity (ft/sec) *:	<u>1,315</u>	<u>1,263</u>
Impact Energy (ft-lbs):	<u>607</u>	<u>560</u>
Impact Momentum (lb-sec):	<u>0.92</u>	<u>0.89</u>
Impact Spacing (inches) **::	<u>N/A</u>	<u>1.5</u>
Impact Angle (degrees):	<u>0 °</u>	<u>0 °</u>
Penetration Effect:	<u>NP</u>	<u>NP</u>
Bulge Height (inches) ***:	<u>~0.2</u>	<u>~0.2</u>

Witness plate material: 0.125 in. thick corrugated cardboard
 Witness Plate Distance: 18 inches
 Spall Occurrence: None
 Test Temperature: 73 °F
 Test Date: #####
 Comments: Passed the test

NP = No Penetration
 CP = Complete Penetration



Ballistic Test Results:

The Poly / Acrylic BR Material test sample passed the UL Level 2 Part 2 (.357 Magnum JSP) Ballistic test. However the sample completely delaminated upon removal from the test fixture.

Projectile Penetration Effects:

There was no partial or complete projectile penetration of the Poly / Acrylic BR Material sample for both shots.

Witness Plate and Spall Effects:

No spall was observed and no damage occurred to the witness plate.

Comments and Test Descriptions

- * Velocity measurements were taken at a distance of 6.6 ft from muzzle
- ** Impact Spacing is the distance between shots. (shot 1= N/A, shot 2 = 1 to 2)
- *** The post impact Bulge Height is the distance between the apex of the extruded deformation bulge to the tangent plane of the flat surface. This measurement is taken from the side opposite to the impacts.

Test and Report Engineers

Tested and Reported by: Sam Raheb

Signature: Sam Raheb

Date: November 13, 2008