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May 10, 2019

Mr. Jarno Pietilä
Sioen Ballistics Oy
Ensimmäinen savu
01510 Vantaa
Finland

Dear Mr. Pietilä:

In accordance with your instructions, National Technical Systems, Inc. conducted ballistic testing of body armor samples submitted by **Sioen Ballistics Oy, Model VBPFIN2032**, which were received on May 3rd, 2019. Testing was not witnessed by a representative of the manufacturer.

The testing was conducted in accordance with the requirements of Modified/Abbreviated NIJ Standard- 0101.04 Ballistic Resistance Testing of Police Body Armor, dated June 2001 in accordance with the NIJ 2005 Interim Requirements for Ballistic-Resistant Body Armor. The data presented is for the samples tested only; it does not guarantee the performance of other samples of the same or similar product. The test results do not imply endorsement by National Technical Systems, Inc.; however, the attached data indicates that this sampling of **Sioen Ballistics Oy, Model VBPFIN2032 did satisfy** the ballistic requirements of Modified/Abbreviated **NIJ Standard-0101.04/2005 Interim, Threat Level 3A protection.**

Please refer to NTS record number **SB019011-1** for test details. The test samples will be returned per your instructions. Should you have any questions, please feel free to call upon us

Best regards,

A handwritten signature in dark ink, appearing to read "Matt Lutz", is written over a light blue horizontal line.

Matt Lutz
Division Manager

BODY ARMOR TESTING INFORMATION

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)
FACILITY DESCRIPTION:

Test Laboratory: NTS-Wichita Division
Test Date: 07/5/2019
Test Standard: NIJ 0101.04 Revision A
June 2001
IAW NIJ 2005 Interim Requirements

Report Number: SBO19011-1
Report Date: 09/5/2019

ARMOR DESCRIPTION:

Manufacturer: Sioen Ballistics
Date Received: 03/5/2019
*Ballistic Material: Hybrid

*Ballistic Material Choices

Aramid	PBO	Ceramic	Metal
Polyethylene	Hybrid	Composite	Other

Model: VBPFIN2032
Style: Side Opening
Male/Female: Male

Armor Type: 3A Enter as: 1, 2A, 2, 3A, 3, 4, or Special

SAMPLE DESCRIPTION:

	Penetration-Backface Signature (P-BFS)										Baseline Ballistic Limit									
	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5											
	Front	Back	Front	Back	Front	Back	Front	Back	Front	Back										
Size (in):	C-3	C-3	C-3	C-3	C-3	C-3	C-3	C-3	C-3	C-3										
Panel Serial Number:	1	2	3	4	5	6	7	8	9	10										
Plate Serial Number:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A										
Lot Number:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A										
Gross Weight (kg):	0.72	0.74	0.72	0.74	0.71	0.74	0.72	0.74	0.71	0.74										

TEST DESCRIPTION:

	Penetration-Backface Signature (P-BFS)										Baseline Ballistic Limit									
	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5											
	Front	Back	Front	Back	Front	Back	Front	Back	Front	Back										
Test Condition:	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry										
Threat Ammunition:	9mm	9mm	9mm	9mm	.44 Mag	.44 Mag	.44 Mag	.44 Mag	9mm	9mm										
Bullet (grain/type):	124/FMJ	124/FMJ	124/FMJ	124/FMJ	240/SJHP	240/SJHP	240/SJHP	240/SJHP	124/FMJ	124/FMJ										
NIJ Reference Velocity (m/s):	435.9	435.9	435.9	435.9	435.9	435.9	435.9	435.9	435.9	435.9										
Estimated BL Lower Velocity (m/s):									481.6	481.6										
Bullet Manufacturer:	Remington	Remington	Remington	Remington	Remington	Remington	Remington	Remington	Remington	Remington										
Bullet Lot Number:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A										
Test Barrel ID#:	WC023708	WC023708	WC023708	WC023708	WC040854	WC040854	WC040854	WC040854	WC023714	WC023714										
Test Barrel Length (cm):	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.40										

ARMOR CONSTRUCTION:

	Front Panel	Rear Panel
Front Closure (Y/N):	N	N
Removable Carrier (Y/N):	Y	Y
Number of Layers:	N/A	N/A
Description of Stitching:	Customer Proprietary	Customer Proprietary
Individual Layer Description:	Customer Proprietary	Customer Proprietary

REMARKS:

*Panels 1-10 assigned "S/N 1-10" by NTS due to none provided by manufacturer
**P-BFS Panels 1-8 tested "Dry" per customer request

Project Manager: Nold
Technician(s): Wilson

Drop Test Results

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample/Panel: **1 Front**
 Manufacturer: Sioen Ballistics
 Model: VBPFIN2032

Range Conditions:
 Temperature: 20.1 °C
 Relative Humidity: 50.0 %
 Test Date: 07/5/2019

Report No.: SBO19011-1
 Report Date: 09/5/2019

Pre-Test Drop Calibration:

Block ID: 6
 Time of Day: 7:55 hrs
 Clay Temperature: 37.3 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
21.25	21.16	20.81	20.22	20.56	20.80

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID:
 Time of Day: hrs
 Clay Temperature: C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: N

Sample/Panel: **1 Back**

Range Conditions:
 Temperature: 20.2 °C
 Relative Humidity: 50.0 %

Report Number: SBO19011-1

Pre-Test Drop Calibration:

Block ID: 6
 Time of Day: 8:15 hrs
 Clay Temperature: 36.8 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
21.07	20.88	20.72	20.12	20.37	20.63

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID:
 Time of Day: hrs
 Clay Temperature: C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: N

Drop Test Results

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample/Panel: **2 Front**
 Manufacturer: Sioen Ballistics
 Model: VBPFIN2032

Range Conditions:
 Temperature: 20.3 °C
 Relative Humidity: 50.0 %
 Test Date: 07/5/2019

Report Number: SBO19011-1
 Report Date: 09/5/2019

Pre-Test Drop Calibration:

Block ID: 6
 Time of Day: 8:35 hrs
 Clay Temperature: 36.2 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
20.91	20.57	20.24	19.77	19.62	20.22

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID:
 Time of Day: hrs
 Clay Temperature: C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: N

Sample/Panel: **2 Back**

Range Conditions:
 Temperature: 20.1 °C
 Relative Humidity: 49.0 %

Report Number: SBO19011-1

Pre-Test Drop Calibration:

Block ID: 6
 Time of Day: 8:52 hrs
 Clay Temperature: 35.8 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
20.76	20.33	19.66	18.51	18.45	19.54

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID: 6
 Time of Day: 9:05 hrs
 Clay Temperature: 35.4 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
19.68	19.25	19.38	18.14	19.12	19.11

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Drop Test Results

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample/Panel: **3 Front**
 Manufacturer: Sioen Ballistics
 Model: VBPFIN2032

Range Conditions:
 Temperature: 20.3 °C
 Relative Humidity: 48.0 %

Report Number: SBO19011-1
 Report Date: 09/5/2019

Pre-Test Drop Calibration:

Block ID: 8
 Time of Day: 9:45 hrs
 Clay Temperature: 37.1 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
21.47	21.55	20.84	20.98	20.71	21.11

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID:
 Time of Day:
 Clay Temperature: C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: N

Sample/Panel: **3 Back**

Range Conditions:
 Temperature: 20.1 °C
 Relative Humidity: 48.0 %

Report Number: SBO19011-1

Pre-Test Drop Calibration:

Block ID: 8
 Time of Day: 10:15 hrs
 Clay Temperature: 36.7 C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
21.20	21.33	20.54	20.71	20.63	20.88

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: Y

Post-Test Drop Calibration:

Block ID:
 Time of Day:
 Clay Temperature: C

Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.

Depth of Indent: Requirement: 19 ± 2 mm
 Pass: N

Drop Test Results

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample/Panel: **4 Front**
Manufacturer: Sioen Ballistics
Model: VBPFIN2032

Range Conditions:
 Temperature: 20.1 °C
 Relative Humidity: 50.0 %
 Test Date: 07/5/2019

Report Number: SBO19011-1
Report Date: 09/5/2019

Pre-Test Drop Calibration:

Block ID: 8
Time of Day: 10:35 hrs
Clay Temperature: 36.3 C

	Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
Depth of Indent:	20.54	20.66	20.14	19.52	19.61	20.09

Requirement: 19 ± 2 mm
Pass: Y

Post-Test Drop Calibration:

Block ID:
Time of Day: hrs
Clay Temperature: C

	Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
Depth of Indent:						

Requirement: 19 ± 2 mm
Pass: N

Sample/Panel: **4 Back**

Range Conditions:
 Temperature: 20.3 °C
 Relative Humidity: 50.0 %

Report Number: SBO19011-1

Pre-Test Drop Calibration:

Block ID: 8
Time of Day: 10:55 hrs
Clay Temperature: 36.0 C

	Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
Depth of Indent:	20.20	20.15	19.74	19.30	19.18	19.71

Requirement: 19 ± 2 mm
Pass: Y

Post-Test Drop Calibration:

Block ID: 8
Time of Day: 11:15 hrs
Clay Temperature: 35.7 C

	Drop 1	Drop 2	Drop 3	Drop 4	Drop 5	Avg.
Depth of Indent:	19.56	18.77	19.28	18.98	19.55	19.23

Requirement: 19 ± 2 mm
Pass: Y

Penetration and BFS Firing Data - Sample 1

NOT AN OFFICIAL COMPLIANCE TEST REPORT

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample No: Sample 1
Manufacturer: Sioen Ballistics
Model: VBPFIN2032
Ammunition: 9mm 124/FMJ
Conditioning: Dry
Test Date: 07/05/19
Report Number: SBO19011-1
Report Date: 09/5/2019
Armor Threat Level (Type): 3A

Panel Serial No: 1
Plate Serial No: N/A
Panel Serial No: 2
Plate Serial No: N/A

FRONT PANEL											BACK PANEL											COMPLIANCE	
Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Front Panel	Back Panel
1	3523	432.6	2873	433.3	433.0		Y	N		27.02	1	3570	426.9	2910	427.8	427.4		Y	N		26.30	Y	Y
2	3487	437.1	2843	437.9	437.5		Y	N		25.34	2	3499	435.6	2853	436.4	436.0		Y	N		26.35	Y	Y
3	3488	436.9	2844	437.8	437.3		Y	N	27.68		3	3507	434.6	2859	435.5	435.0		Y	N	25.94		Y	Y
4	3442	442.8	2807	443.5	443.1	Y	Y	N			4	3454	441.2	2817	442.0	441.6	Y	Y	N			Y	Y
5	3518	433.2	2868	434.1	433.7	Y	Y	N			5	3457	440.8	2819	441.6	441.2	Y	Y	N			Y	Y
6	3441	442.9	2805	443.9	443.4		Y	N			6	3461	440.3	2822	441.2	440.8		Y	N			Y	Y
7		0.0		0.0							7		0.0		0.0								
8		0.0		0.0							8		0.0		0.0								

Velocity input for time factor requires microsecond (10⁻⁶) format.

Firing Sequence Start: 8:00 hrs
Firing Sequence End: 8:10 hrs
Duration: 0:10 min

Firing Sequence Start: 8:20 hrs
Firing Sequence End: 8:29 hrs
Duration: 0:09 min

TEST CONDITIONS:

Ambient Temp: 21.4 °C
 Rel. Humidity: 50.0 %

TEST DIMENSIONS:

Range Length: 5.00 m
 Velocity 1: 1.52 m
 Velocity 2: 1.25 m

VELOCITY SUMMARY:

	Min	Max	
Front Panel 0°:	433.0	443.4	m/s
Front Panel 30°:	433.7	443.1	m/s
Back Panel 0°:	427.4	440.8	m/s
Back Panel 30°:	441.2	441.6	m/s

Handload Verification Velocity: 438.2 m/s
NIJ Reference Velocity: 435.9 m/s
Velocity Range: 426.8 445.0 m/s

NOTE:

- a - Excessive velocity
- b - Insufficient velocity
- c - Too close to edge
- d - Too close to prior impact
- e - Excessive total impacts (test terminated)
- f - Excessive area impacts (test terminated)
- g - Impact on seam

Penetration and BFS Firing Data - Sample 2

NOT AN OFFICIAL COMPLIANCE TEST REPORT

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample No: Sample 2
Manufacturer: Sioen Ballistics
Model: VBPFIN2032

Ammunition: 9mm 124/FMJ
Conditioning: Dry
Test Date: 07/05/19

Report Number: SBO19011-1
Report Date: 09/5/2019
Armor Threat Level (Type): 3A

Panel Serial No: 3
Plate Serial No: N/A

Panel Serial No: 4
Plate Serial No: N/A

FRONT PANEL											BACK PANEL											COMPLIANCE	
Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Front Panel	Back Panel
1	3571	426.8	2911	427.7	427.2		Y	N		27.35	1	3569	427.0	2913	427.4	427.2		Y	N		26.13	Y	Y
2	3503	435.1	2856	435.9	435.5		Y	N		26.12	2	3465	439.8	2825	440.7	440.3		Y	N		27.68	Y	Y
3	3503	435.1	2857	435.8	435.4		Y	N	26.16		3	3490	436.7	2846	437.5	437.1		Y	N	26.81		Y	Y
4	3453	441.4	2815	442.3	441.8	Y	Y	N			4	3496	435.9	2850	436.8	436.4	Y	Y	N			Y	Y
5	3449	441.9	2812	442.7	442.3	Y	Y	N			5	3481	437.8	2838	438.7	438.2	Y	Y	N			Y	Y
6	3517	433.3	2867	434.3	433.8		Y	N			6	3515	433.6	2866	434.4	434.0		Y	N			Y	Y
7		0.0		0.0							7		0.0		0.0								
8		0.0		0.0							8		0.0		0.0								

Velocity input for time factor requires microsecond (10⁻⁶) format.

Firing Sequence Start: 8:40 hrs
Firing Sequence End: 8:47 hrs
Duration: 0:07 min

Firing Sequence Start: 8:55 hrs
Firing Sequence End: 9:03 hrs
Duration: 0:08 min

TEST CONDITIONS:

Ambient Temp: 21.4 °C
 Rel. Humidity: 50.0 %

TEST DIMENSIONS:

Range Length: 5.00 m
 Velocity 1: 1.52 m
 Velocity 2: 1.25 m

VELOCITY SUMMARY:

	Min	Max	
Front Panel 0°:	427.2	435.5	m/s
Front Panel 30°:	441.8	442.3	m/s
Back Panel 0°:	427.2	440.3	m/s
Back Panel 30°:	436.4	438.2	m/s

Handload Verification Velocity: 438.2 m/s
NIJ Reference Velocity: 435.9 m/s
Velocity Range: 426.8 445.0 m/s

NOTE:

- a - Excessive velocity
- b - Insufficient velocity
- c - Too close to edge
- d - Too close to prior impact
- e - Excessive total impacts (test terminated)
- f - Excessive area impacts (test terminated)
- g - Impact on seam

Penetration and BFS Firing Data - Sample 3

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample No: Sample 3 **Ammunition:** .44 Mag 240/SJHP **Report Number:** SBO19011-1
Manufacturer: Sioen Ballistics **Conditioning:** Dry **Report Date:** 09/5/2019
Model: VBPFIN2032 **Test Date:** 07/05/19 **Armor Threat Level (Type):** 3A

Panel Serial No: 5 **Panel Serial No:** 6
Plate Serial No: N/A **Plate Serial No:** N/A

FRONT PANEL											BACK PANEL											COMPLIANCE	
Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Front Panel	Back Panel
1	3480	437.9	2838	438.7	438.3		Y	N		35.08	1	3502	435.2	2868	434.1	434.6		Y	N		36.62	Y	Y
2	3496	435.9	2853	436.4	436.2		Y	N		37.01	2	3494	436.2	2850	436.8	436.5		Y	N		36.62	Y	Y
3	3503	435.1	2870	433.8	434.4		Y	N	35.34		3	3452	441.5	2828	440.2	440.9		Y	N		39.21	Y	Y
4	3493	436.3	2850	436.8	436.6	Y	Y	N			4	3468	439.4	2841	438.2	438.8	Y	Y	N			Y	Y
5	3497	435.8	2843	437.9	436.9	Y	Y	N			5	3502	435.2	2870	433.8	434.5	Y	Y	N			Y	Y
6	3429	444.4	2808	443.4	443.9		Y	N			6	3568	427.1	2910	427.8	427.5		Y	N			Y	Y
7		0.0		0.0							7		0.0		0.0								
8		0.0		0.0							8		0.0		0.0								

Velocity input for time factor requires microsecond (10⁶) format.

Firing Sequence Start: 9:53 hrs
Firing Sequence End: 10:05 hrs
Duration: 0:12 min

Firing Sequence Start: 10:20 hrs
Firing Sequence End: 10:30 hrs
Duration: 0:10 min

TEST CONDITIONS:

Ambient Temp: 21.0 °C
 Rel. Humidity: 50.0 %

TEST DIMENSIONS:

Range Length: 5.00 m
 Velocity 1: 1.52 m
 Velocity 2: 1.25 m

VELOCITY SUMMARY:

	Min	Max	
Front Panel 0°:	434.4	443.9	m/s
Front Panel 30°:	436.6	436.9	m/s
Back Panel 0°:	427.5	440.9	m/s
Back Panel 30°:	434.5	438.8	m/s

Handload Verification Velocity: 438.0 m/s
NIJ Reference Velocity: 435.9 m/s
Velocity Range: 426.8 445.0 m/s

NOTE:

- a - Excessive velocity
- b - Insufficient velocity
- c - Too close to edge
- d - Too close to prior impact
- e - Excessive total impacts (test terminated)
- f - Excessive area impacts (test terminated)
- g - Impact on seam

Penetration and BFS Firing Data - Sample 4

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Sample No: Sample 4
Manufacturer: Sioen Ballistics
Model: VBPFIN2032

Ammunition: .44 Mag 240/SJHP
Conditioning: Dry
Test Date: 07/05/19

Report Number: SBO19011-1
Report Date: 09/5/2019
Armor Threat Level (Type): 3A

Panel Serial No: 7
Plate Serial No: N/A

Panel Serial No: 8
Plate Serial No: N/A

FRONT PANEL											BACK PANEL											COMPLIANCE	
Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	30° (Y)	Fair (Y/N)	Penetrate (Y/N)	Note	BFS (mm)	Front Panel	Back Panel
1	3429	444.4	2809	443.2	443.8		Y	N		39.03	1	3475	438.6	2847	437.3	437.9		Y	N		37.59	Y	Y
2	3489	436.8	2849	437.0	436.9		Y	N	37.91		2	3461	440.3	2824	440.9	440.6		Y	N		40.29	Y	Y
3	3480	437.9	2839	438.5	438.2		Y	N		37.21	3	3473	438.8	2845	437.6	438.2		Y	N	38.19		Y	Y
4	3543	430.1	2891	430.6	430.4	Y	Y	N			4	3467	439.6	2840	438.4	439.0	Y	Y	N			Y	Y
5	3478	438.2	2837	438.8	438.5	Y	Y	N			5	3489	436.8	2846	437.5	437.1	Y	Y	N			Y	Y
6	3444	442.5	2820	441.5	442.0		Y	N			6	3482	437.7	2853	436.4	437.0		Y	N			Y	Y
7		0.0		0.0							7		0.0		0.0								
8		0.0		0.0							8		0.0		0.0								

Velocity input for time factor requires microsecond (10⁶) format.

Firing Sequence Start: 10:40 hrs
Firing Sequence End: 10:50 hrs
Duration: 0:10 min

Firing Sequence Start: 11:00 hrs
Firing Sequence End: 11:12 hrs
Duration: 0:12 min

TEST CONDITIONS:

Ambient Temp: 21.0 °C
 Rel. Humidity: 50.0 %

TEST DIMENSIONS:

Range Length: 5.00 m
 Velocity 1: 1.52 m
 Velocity 2: 1.25 m

VELOCITY SUMMARY:

	Min	Max	
Front Panel 0°:	436.9	443.8	m/s
Front Panel 30°:	430.4	438.5	m/s
Back Panel 0°:	437.0	440.6	m/s
Back Panel 30°:	437.1	439.0	m/s

Handload Verification Velocity: 438.0 m/s
NIJ Reference Velocity: 435.9 m/s
Velocity Range: 426.8 445.0 m/s

NOTE:

- a - Excessive velocity
- b - Insufficient velocity
- c - Too close to edge
- d - Too close to prior impact
- e - Excessive total impacts (test terminated)
- f - Excessive area impacts (test terminated)
- g - Impact on seam
- h - Excessive Yaw

Ballistic Limit Firing Data

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC).

Manufacturer: Sioen Ballistics
 Model: VBPFIN2032
 Test Date: 07/5/2019

Ammunition: 9mm 124/FMJ
 Conditioning: Dry

Report Number: SBO19011-1
 Report Date: 09/5/2019
 Armor Threat Level (Type): 3A

Enter Types III and IV Sample Number(s) in Remarks Column as Applicable

BL PANEL 1										BL PANEL 2									
Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 2 (μs)	Vel. 2 (m/s)	Vel. Avg. (m/s)	Penetration		Remarks	Used (Y/N)	Shot No.	Time 1 (μs)	Vel. 1 (m/s)	Time 1 (μs)	Velocity (m/s)	Vel. Avg. (m/s)	Penetration		Remarks	Used (Y/N)
						C	P									C	P		
1	3105	490.8	2532	491.7	491.3		X	9.3	N	1	3267	466.5	2664	467.3	466.9		X	9.3	N
2	2968	513.5	2421	514.3	513.9	X		10.3	Y	2	2983	510.9	2433	511.7	511.3	X		10.3	Y
3	3056	498.7	2492	499.6	499.1		X	9.8	Y	3	3055	498.9	2491	499.8	499.3		X	9.8	Y
4	2960	514.9	2414	515.7	515.3	X		10.3	Y	4	2900	525.5	2365	526.4	526.0	X		10.3	Y
5	3064	497.4	2499	498.2	497.8		X	9.8	N	5	3068	496.7	2501	497.8	497.3		X	9.8	Y
6	2976	512.1	2426	513.2	512.6		X	10.3	Y	6	2898	525.9	2363	526.9	526.4		X	10.3	Y
7	2903	525.0	2368	525.8	525.4	X		10.8	Y	7	2840	536.6	2316	537.6	537.1		X	10.8	Y
8	2931	520.0	2389	521.1	520.5	X		10.3	Y	8	2794	545.5	2279	546.3	545.9	X		11.3	Y
9	3002	507.7	2448	508.6	508.1		X	9.8	Y	9	2896	526.2	2362	527.1	526.7		X	10.8	Y
10	2945	517.5	2402	518.3	517.9	X		10.3	Y	10	2792	545.8	2277	546.8	546.3	X		11.3	N
11	3049	499.8	2486	500.8	500.3		X	9.8	Y	11	2848	535.1	2323	535.9	535.5	X		10.8	Y
12	2973	512.6	2424	513.6	513.1		X	10.3	Y	12	2953	516.1	2408	517.0	516.6	X		10.3	Y
13		0.0		0.0						13		0.0		0.0					
14		0.0		0.0						14		0.0		0.0					
15		0.0		0.0						15		0.0		0.0					
Count:		12		5		7		10		Count:		12		6		6		10	

INSTRUCTIONS:

1. Fill in shaded cells only -all others are automatic calculations
2. Enter an "x" to designate complete or partial penetrations
3. Enter a "y" to designate use of the shot for calculation purposes - calculation group must include highest partial and lowest complete.
4. Velocity input for time factor requires microsecond (10^6) format.

TEST CONDITIONS:

Ambient Temp: 20.3 °C
 Rel. Humidity: 51.0 %

TEST DIMENSIONS:

Range Length: 5.00 m
 Velocity 1: 1.52 m/s
 Velocity 2: 1.25 m/s

Provided BL Lower Velocity: 481.6 m/s

Calculated Lower Velocity: 481.6 m/s

Calculated Upper Velocity: 527.3 m/s

Calculated First Shot Velocity: 504.4 m/s

Velocity Results:

	Min	Max
Panel 1:	491.3	525.4
Panel 2:	466.9	546.3

CLAY BLOCK TEMPERATURE:

Pre-Test: 38.3 °C
 Post Test: 37.4 °C

Remarks: Enter Sample No. e.g., 5...10

- a - Too close to edge
- b - Too close to prior impact
- c - Impact on seam

BASELINE BALLISTIC LIMIT CALCULATION

**IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ)
OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)**

Manufacturer: Sioen Ballistics
Model: VBPFIN2032
Test Date: 07/5/2019

Ammunition: 9mm 124/FMJ
Conditioning: Dry

Report Number: SBO19011-1
Report Date: 09/5/2019
Armor Threat Level (Type): 3A

BL PANEL 1				BL PANEL 2			
Shot No.	Velocity (m/s)	Penetration		Shot No.	Velocity (m/s)	Penetration	
		Complete	Partial			Complete	Partial
2	513.9	X		2	511.3	X	
3	499.1		X	3	499.3		X
4	515.3	X		4	526.0	X	
				5	497.3		X
6	512.6		X	6	526.4		X
7	525.4	X		7	537.1		X
8	520.5	X		8	545.9	X	
9	508.1		X	9	526.7		X
10	517.9	X					
11	500.3		X	11	535.5	X	
12	513.1		X	12	516.6	X	
Count:		10	5	5	Count:		

BALLISTIC LIMIT SUMMARY		
Panel 1 BL:	512.6	m/s
Velocity Range:	26.0	m/s
Standard Deviation (σ)	8.3	m/s
Panel 2 BL:	522.2	m/s
Velocity Range:	49.0	m/s
Standard Deviation (σ)	16.0	m/s
Difference Panel 1 to 2:	9.0	m/s
Panel 1 & 2 Average BL:	517.4	m/s

PAGE WILL AUTOMATICALLY CALCULATE

Summary of Results

NOT AN OFFICIAL COMPLIANCE TEST REPORT

IMPORTANT NOTE: THE DATA SHOWN IN THIS REPORT IS NOT SANCTIONED BY THE NATIONAL INSTITUTE OF JUSTICE (NIJ) OR THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER (NLECTC)

Armor Manufacturer: Sioen Ballistics
 Armor Model No: VBPFIN2032
 Armor Threat Level: 3A

Report Number: SBO19011-1Report Date: 09/5/2019

PENETRATION AND BACKFACE SIGNATURE												
Test Samples (b)					Ballistic Threat					Results		
Item Number	Serial Number	Panel	Weight (lbs)	No. of Plies	Caliber	Obliquity (degrees)	Req'd Shots	Velocity (m/s)		Penetration (Y/N)	BFS (mm)	
								Max.	Min.		BFS 1	BFS 2
Sample 1	1	Front	0.72	N/A	9mm	0 30	4 2	443.4 443.1	433.0 433.7	N	27.02	25.34
	2	Back	0.74	N/A	9mm	0 30	4 2	440.8 441.6	427.4 441.2	N	26.30	26.35
Sample 2	3	Front	0.72	N/A	9mm	0 30	4 2	435.5 442.3	427.2 441.8	N	27.35	26.12
	4	Back	0.74	N/A	9mm	0 30	4 2	440.3 438.2	427.2 436.4	N	26.13	27.68
Sample 3	5	Front	0.71	N/A	.44 Mag	0 30	4 2	443.9 436.9	434.4 436.6	N	35.08	37.01
	6	Back	0.74	N/A	.44 Mag	0 30	4 2	440.9 438.8	427.5 434.5	N	36.62	39.21
Sample 4	7	Front	0.72	N/A	.44 Mag	0 30	4 2	443.8 438.5	436.9 430.4	N	39.03	37.21
	8	Back	0.74	N/A	.44 Mag	0 30	4 2	440.6 439.0	437.0 437.1	N	37.59	40.29

NOTES:	
Maximum BFS:	44 mm
Ballistic Material:	Hybrid

P-BFS Result	Baseline Ballistic Limit
Penetration: <u>Pass</u>	Panel 1: Type: <u>10</u> shots Ballistic Limit: <u>512.6</u> m/s Std Dev. (σ): <u>8</u> m/s Panel 2: Type: <u>10</u> shots Ballistic Limit: <u>522.2</u> m/s Std Dev. (σ): <u>16</u> m/s
BFS: <u>Pass</u>	

PAGE WILL AUTOMATICALLY CALCULATE

SIGNATURES:

Jake Crawford	No Witness Present
Authorized Signatory	Name of Witness
Range Operations Manager	No Witness Present
Title	Representing