

# Ballistic Evaluation of Portable Bullet Trap

Report No. : DRDO-TBRL-BEHI-EVR-01B-08-2021 dt. 23-08-2021

User : Sunflex Recycling Pvt. Ltd., Ahmedabad

Ballistic Evaluation and Hypervelocity Impact Terminal Ballistics Research Laboratory Sector 30, Chandigarh - 160 030



Issue Date 16/08/2021

User Sunflex Recycling Pvt. Ltd., Ahmedabad

Trial Plan & Date 1235 dt 23/07/2021

03-04/08/2021 **Trial Date** 

# REPORT DOCUMENTATION PAGE

Ballistic Evaluation of Portable Bullet Trap 1. Title

DRDO-TBRL-BEHI-EVR- 01B- 08-2021 2. Report No.

16/08/2021 4. Date of issue Restricted Classification 3.

Issuing Group BEHI 09 5. No. of Pages

03-04/08/2021 Trial date : 1235 7. Trial Plan No.

Sunflex Recycling Pvt. Ltd., Plot No.274/4, Shital Estate, B/H Satyamev Complex, S.G. 9. Distribution Highway, Sola, Ahmedabad - 380060, Gujarat, India

(c) TD, BEHI

(b) Director, TBRL

: A portable bullet trap system consisting of three rubber blocks was submitted by Sunflex 10. Abstract

Recycling Pvt. Ltd Ahmedabad. The system was tested against 7.62x39 (MSC), 7.62x51 mm and 5.56x45 mm ammunitions. Movement of trolley after each shot was observed. The bullet trap

stopped five shots of each ammunition and no movement was observed.

11. Prepared by:

Reviewed by:

(Ajay Kumar), TO 'B'

**Trial Officer** 

Page 2 of 9

Sc. 'F' : BEHI

Recommended by:

Approved by:

(Dr. Prince Sharma), Sc. 'F

JD: BEHI

(Ipsita Biswas), Sc. 'G'

TD: BEHI

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# **SUMMARY OF RESULTS**

No. of Samples : 03 Type of Test : Perforation/ Non Perforation

Page 3 of 9

S.				No. of fair	٧	Perforation		
No.	Sample ID	Ammunition	Weapon	Shots	Max.	Min. Ref.		
1	Sunflex/R-Block-1	7.62x51 mm	Bolt Action	05	849.8	828.0	838±15	No
2	Sunflex/R-Block-2	7.62x39 (MSC)	AK-47	05	709.5	700.1	710±15	No
3	Sunflex/R-Block-3	5.56x45mm	INSAS	05	918.5	902.9	890±15	No

Remarks: Nil

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User : Sunflex Recycling Pvt. Ltd., Ahmedabad

03-04/08/2021

Page 4 of 9

Trial Plan & Date : 1235 dt 23/07/2021

**BEHI** 

Trial Date

A SAMPLE ID: Sunflex/R-Block-1									B SAMPLE CONDITIONING: NA									
C PI	HYSICAL	VERIFIC	ATION															
Type of Sample : Rubber 10 mm s			r Block + n steel	Thicknes	s (mm) : 30		300	00 Observations		s : Weight of rubber block onl								
Length (mm) : Width (mm) :		: 500		Material		:	-								•			
Width (mm)		: 300	300		lies	:	-	Ref. Letter		:	E mail from Sunflex Pvt. Ltd			t. Ltd.				
Weight (kg)		: 38.25		Construction		:	-		Da	te Recd.	:	: 04 May 2021						
D TI	RIAL SE	Γ – UP									·							
Location	tion : Ballistic Test Facility Distance							targ	et (	(m)	Range Conditions							
Ref. document			dix E of em x dt 01.06.2		Weap			:	10.0	Temperature (° C)				22.4				
Backing material : N		: NA			Velocity Scree				:	2.5	Relative Humidity (%			:	57			
Witness Plate : 0.5mm Al. Sheet Witne						ss Pl	ate	: 0.15										
E B	ACKING	MATERIA	AL CONDIT	IONING														
DROP No.			1	2		3 4			4 5		A۱	Average R			ment			
Depth of Inc	dentation	(mm)	<u></u>							NA	l	i						
F B	ALLISTIC	C EVALU	ATION															
Ammunitio	n						V	<b>Veap</b>	on									
Туре		: 7.62	x51 mm					ype			: Bolt Actiom							
Lot No/Yea	r	: OF\	/-90				R	egn.	. N	0.	1:	Y-5905						
Shot No.	Veloci	ty (m/s)	Impact A	nale (°)	Impact	Res	:ult	Fa	air/	Unfair		Ωł	servatio	)n				
1		19.8	0			Not Perforated			Fair			No movement of trolley						
2						Not Perforated						No movement of trolley						
3	828.0		0'			Not Perforated		Fair			No movement of trolley							
4	_	9.8	0'		Not Perforated			Fair			No movement of trolley							
5		3.7	0'	)	Not Pe					air	No movement of trolley							
			1					1		1								

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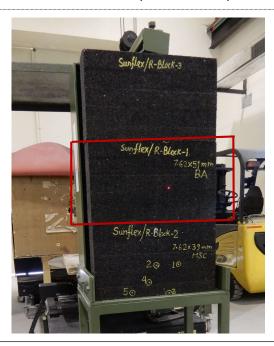
User : Sunflex Recycling Pvt. Ltd., Ahmedabad

Trial Plan & Date : 1235 dt 23/07/2021

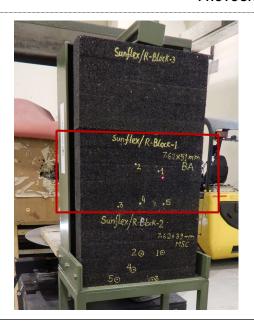
**EHI** Trial Date : 03-04/08/2021

G SAMPLE ID: SAMPLE ID: Sunflex/R-Block-1

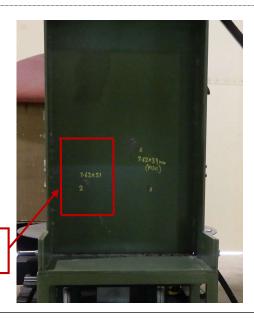
# PHOTOGRAPHS (BEFORE TRIAL)



# PHOTOGRAPHS (AFTER TRIAL)







Page 5 of 9

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Page 6 of 9

Trial Plan & Date : 1235 dt 23/07/2021

**REHI** Trial Date : 03-04/08/2021

A SAMPLE ID: Sunflex/R-Block-2									B SAMPLE CONDITIONING: NA									
C PI	HYSIC	AL \	/ERIFIC	ATION				_!										
Type of Sam	ple	:	Rubbe 10 mm	r Block+ Steel	Thickness	(mm) : 30		300	)	Observations			Weight	ght of rubber block only				
Length (mm) : 500			Material			-						g.it of raddor blook offly						
Width (mm) : 300				Layers/Plies			-		R	ef. Letter	:	E mail from Sunflex Pvt. Ltd.						
Weight (kg)		:	38.25		Construction			-		Da	ate Recd.	:	04 May	2021				
D TI	RIAL S	ET -	- UP															
Location : Ballistic Test Facility Distance								s fron	n tar	get	(m)	Rang	je Condit	tions				
			dix E of en				: 10.0			Temperature (° C)			22.4					
Backing material : NA				Velocity			creer	ens : 2.5		2.5	Relat	tive Humidity (%) :			57			
Witness Plate : 0.5mm Al. Sheet						Witness Plate : 0.15												
E B	ACKIN	G M	IATERIA	L CONDI	ΓΙΟΝΙΝG													
DROP No.				1	2		3		4		5	A۱	Average Requirement					
Depth of Ind	entatio	n (m	ım)		i	NA NA												
F B	ALLIS	TIC I	EVALU <i>A</i>	ATION														
Ammunition	<u> </u>								Wea	poı	n							
Туре			: 7.62	x39 mm (N	VISC)				Type			:	AK-47					
Lot No/Year			: 21/0	6				Regi	n. N	ı. No.		TN 1659						
Shot No.	Velo	city	(m/s)	Impac	t Angle (°)	Impact R			esult Fair/ U		Fair/ Unf	nfair		Observation				
1			04.9		0°		Not Perfo				Fair		-		novement of trolley			
2		709.5			0°	No	Not Perfor		rated *		Fair		No movement of trolley					
3	703.1			0°	No	Not Perfor				Fair		No movement of trolley						
4		700.	.1		0°	Not Perfo		erfora			Fair		No movement of trolley					
5		703.	.5		0°	Not Perfo			orated Fair				No movement of trolley					
Remarks: *	Stoppe	ed b	y Steel			İ				I			<u>.i</u>					

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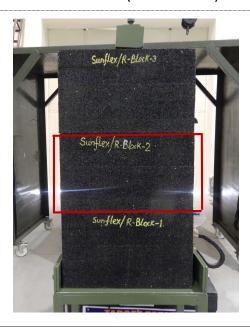
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**SEHI** Trial Date : 03-04/08/2021

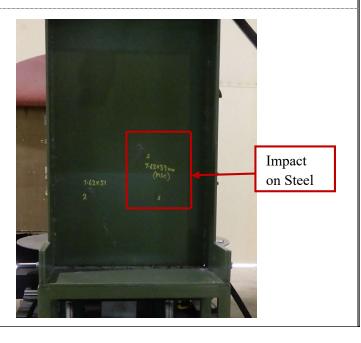
# G SAMPLE ID: SAMPLE ID: Sunflex/R-Block-2

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Page 7 of 9

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Page 8 of 9

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**SEHI** Trial Date : 03-04/08/2021

A SAMPLE ID: Sunflex/R-Block-3									B SAMPLE CONDITIONING: NA									
C PI	HYSICA	AL V	'ERIFIC	ATION				.!!										
Type of Sample : Rubber Block 10 mm Steel					Thickness (		(mm) : 30		00		Observations		Weigh	Weight of rubber block only				
Length (mm) : 500				N	/laterial		:	-						Tronging or raide or closest orm,				
Width (mm) : 300			L	Layers/Plies			-		Ref. Letter			E mail from Sunflex Pvt. Ltd.						
Weight (kg)			38.15	C	Constructi	ion	:	-		Da	ate Recd.		04 May	y 2021				
D TF	RIAL SI	ET -	- UP				_											
Location : Ballistic Test Facility Distance							nces	s from	targ	et	(m)	Rang	nge Conditions					
				dix E of email x dt 01.06.21	from		: 10.0			Temperature (° C)			:	22.4				
Backing mate			ty S	creens	ens : 2.5				Relative Humidity (%) : 5									
Witness Plate : 0.5mm Al. Sheet						Witnes	late		:	0.15								
E B	ACKIN	G M	ATERIA	AL CONDITIO	NING													
DROP No.				1	2		3 4				5	5 Average Requirer						
Depth of Inde	entation	า (m	m)	ål.				<u>k</u>			NA				•••••			
F B	ALLIST	TIC E	EVALU <i>A</i>	ATION														
Ammunition	)							٧	Veap	or	1							
Туре			: 5.56	x45 mm		Type				ре			INSAS					
Lot No/Year			: OFV	/-04			F	Regn	. N	lo.	:	68172	4DT2					
Shot No.	Velo	city	(m/s)	Impact Ang	gle (°)	Impact Re			sult Fair/ Unf		ıfair		Observation					
1	(	903.	8	0°		Not	Per	forated	ated Fair		N		No movement of trolley					
2	909.8			0°		Not	forated	ated Fair		No movem			ent of trolley					
3	918.5			0°		Not	forated	ated I				No movement of trolley						
4		909.	_	0°				forated	ated Fair				No movement of trolley					
5	(	902.	9	0°		Not Perforated					d Fair			No movement of trolley				
Remarks:																		

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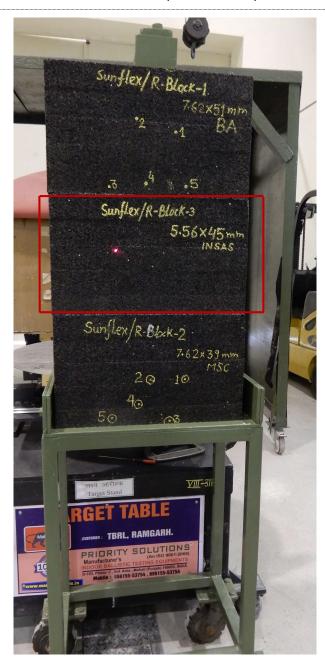
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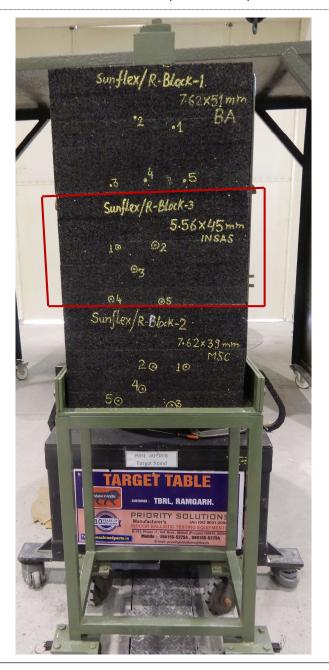
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Page 9 of 9



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