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Laboratorium voor Ballistisch
Onderzoek (LBO)
Bezoek adres
Buitenplaats Ypenburg
Ypenburgse Boslaan 2
2496 ZA 's-Gravenhage

Fax

Onderwerp

Ball. test ord. no
09OD00063

Datum

24-03-2009

Referentie

XXXX

E-mail

kkw@tno.nl

Doorkiesnummer

+31 15 2843728

Doorkiesfax

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Aantal bladen

1 van 2

Hierbij doe ik u de resultaten in concept toekomen van de ballistische experimenten op uw doelmaterialen.

Wilt u contact met ons
opnemen, indien u niet alle
pagina's heeft ontvangen?

Sample - 7 (09MB00840) : EN 1522-1 - Kalashnikov Mild Steel Core - 7.62x39 Ball (M43, Mild Steel Core)				
Schotnummer	Inslagsnelheid [m/s]	Schootshoek [°NATO]	Stop / Perforatie	Splinters
KKW1 09SN00990	709	0	Gestopt	NS
KKW1 09SN00991	711	0	Gestopt	NS
KKW1 09SN00992	709	0	Gestopt	NS

Sample - 8 (09MB00841) : EN 1522-1 - Kalashnikov Mild Steel Core - 7.62x39 Ball (M43, Mild Steel Core)				
Schotnummer	Inslagsnelheid [m/s]	Schootshoek [°NATO]	Stop / Perforatie	Splinters
KKW1 09SN00993	704	0	Gestopt	NS
KKW1 09SN00994	707	0	Gestopt	NS
KKW1 09SN00995	732	0	Gestopt	NS

Sample - 9 (09MB00842) : EN 1063 - BR6 NS - 7.62x51 Ball Sintox				
Schotnummer	Inslagsnelheid [m/s]	Schootshoek [°NATO]	Stop / Perforatie	Splinters
KKW1 09SN00996	827		Gestopt	NS
KKW1 09SN00997	840		Gestopt	S
KKW1 09SN00998	828		Geperforeerd	S



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Laboratory for Ballistic
Research (LBO)
Visiting address
Suburb Ypenburg
Ypenburgse Boslaan 2
2496 ZA 's-Gravenhage

Allplast B.V.
attn. Jos Lobee
Schelde Rijnweg 6
4691 RW Tholen
Nederland

Dear mr Lobee,

Hereby we send you the front page of the ballistic test(s), we have carried out
order from Allplast B.V..

Subject

Ballistic experiments

Date

08-05-2008

Reference

08 DV3-1361

Contact

J. Beetsma

E-mail

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The Standard Conditions for Research
Instructions given to TNO, as filed at
the Registry of the District Court and
the Chamber of Commerce in The
Hague shall apply to all instructions
given to TNO.

Yours faithfully,

E.J.M. van Riet

Manager Laboratory for Ballistic Research



TNO
P.O. Box 45
2496 ZA The Hague
The Netherlands

Summary of Research

EN 1063

Bullet-resistant glazing, november 1999

(This page is a summary, for details refer to the test report 08MB01447/08MB01448/08MB01449)

Date
10-04-2008
Reference
08 DV3/1348

Contractor : Allplast BV,
Schelde Rijnweg 6
4691 RW Tholen
The Netherlands.

Produced by : Allplast BV,
Schelde Rijnweg 6
4691 RW Tholen
The Netherlands.

Product : **Seculam**

Test level : **BR4 NS**

Test result : The tested sample is **complying**
with the requirements of 'EN 1063' according to level 'BR4 NS'.

Signature :

A handwritten signature in black ink, appearing to be 'M.J.G. Bakker', written over a horizontal line.

M.J.G. Bakker
Project leader

A handwritten signature in black ink, appearing to be 'E.J.M. van Riet', written over a horizontal line.

E.J.M. van Riet
Manager

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Visiting address:
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Ypenburgse Boslaan 2
2496 ZA 's-Gravenhage

Test certificate *

The test has been carried out according to **EN 1063**
class **BR4 NS**

Assignor Aliplast
 Schelde Rijnweg 6
 4691 RW Tholen
 The Netherlands

Experiment date 10-04-2008

Project Composite

Sample identification Seculam

Subject

Ballistic experiments

Date

10-04-2008

Reference

08MB01447 08MB01448
08MB01449

Contact

M.J.G. Bakker

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the Chamber of Commerce in The
Hague shall apply to all instructions
given to TNO

For details see page 2 upto page 5.

The tested samples are complying with the requirements of 'EN 1063' according to level 'BR4 NS'.

M.J.G. Bakker

Project leader

* This test certificate can not be used as a product certification



Test certificate number 08MB01447 / 08MB01448 / 08MB01449
Assignor Allplast B.V.

page 3 of 5
Experiment date 10-04-2008

Test results

Description of testmethod

In order to determine the multi-hit performance of a pane, three experiments are performed according to EN 1063. "Bullet-resistant glazing, November 1999. The pane is clamped on four sides in a specially designed mounting system. The ballistic impact experiments are conducted in a triangular hit pattern with a bullet for the desired protection level as described in the standard. The mutual distance between the consecutive points of impact is 120 x 10 mm. The triangle position is drawn in the centre of the panel. If no penetrations occur but splinters are released at the rear face of the test panel, this is marked as S (Splinters) behind the protection level in the test results. If not, this is marked as NS (No Splinters). To fulfill the requirements of the EN 1063 the above mentioned test method must be performed on three panels.

Results

Seculam - A (08MB01447) : EN 1063 - BR4 NS					
Number of shots		Number of stopped shots		Multihit triangle [mm]	Angle [°NATO]
3		3		120	0
Shot number	Impact velocity [m/s]	Stop / Perforation	Glass splinter ?	Valid (Yes/No)	
KKW1 08SN01849	442	Stopped	NS	Yes	
KKW1 08SN01850	442	Stopped	NS	Yes	
KKW1 08SN01851	437	Stopped	NS	Yes	

Seculam - B (08MB01448) : EN 1063 - BR4 NS					
Number of shots		Number of stopped shots		Multihit triangle [mm]	Angle [°NATO]
3		3		120	0
Shot number	Impact velocity [m/s]	Stop / Perforation	Glass splinter ?	Valid (Yes/No)	
KKW1 08SN01846	445	Stopped	NS	Yes	
KKW1 08SN01847	444	Stopped	NS	Yes	
KKW1 08SN01848	440	Stopped	NS	Yes	

Seculam - C (08MB01449) : EN 1063 - BR4 NS					
Number of shots		Number of stopped shots		Multihit triangle [mm]	Angle [°NATO]
3		3		120	0
Shot number	Impact velocity [m/s]	Stop / Perforation	Glass splinter ?	Valid (Yes/No)	
KKW1 08SN01843	447	Stopped	NS	Yes	
KKW1 08SN01844	443	Stopped	NS	Yes	
KKW1 08SN01845	441	Stopped	NS	Yes	

* This test certificate can not be used as a product certification



Test certificate number 08MB01447 / 08MB01448 / 08MB01449
Assignor Allplast B.V.

page 4 of 5
Experiment date 10-04-2008

Sample specifications

	Seculam - A	Seculam - B	Seculam - C	
Assignor identification	:	Seculam - A	Seculam - B	Seculam - C
TNO identification	:	08MB01447	08MB01448	08MB01449
Reference	:			
Date of arrival	:	09-04-2008	09-04-2008	09-04-2008
Size	:	500 x 500 mm ²	500 x 500 mm ²	500 x 500 mm ²
Thickness	:	34 mm	34 mm	34 mm
Weight	:	9928 gram	9974 gram	9882 gram
Areal mass	:	39.7 kg m ²	39.9 kg m ²	39.5 kg m ²
Composition of sample in direction as encountered by projectile (Specification assignor)	:	4 mm PC one side hard coated, alifatic PUR, 12 mm PMMA, alifatic PUR, 12 mm PC, alifatic PUR, 4 mm PC one side hard coated	4 mm PC one side hard coated, alifatic PUR, 12 mm PMMA, alifatic PUR, 12 mm PC, alifatic PUR, 4 mm PC one side hard coated	4 mm PC one side hard coated, alifatic PUR, 12 mm PMMA, alifatic PUR, 12 mm PC, alifatic PUR, 4 mm PC one side hard coated
Remarks	:	None	None	None

Test specifications

	Small Calibre Firing Range no. 1 Ypenburg	Small Calibre Firing Range no. 1 Ypenburg	Small Calibre Firing Range no. 1 Ypenburg
Experimental facility	:	Small Calibre Firing Range no. 1 Ypenburg	Small Calibre Firing Range no. 1 Ypenburg
- temperature	:	20 °C	20 °C
- relative humidity	:	27 %	27 %

Conditioning of sample material

	12 - hours	12 - hours	12 - hours
- duration at least	:	12 - hours	12 - hours
- temperature	:	13 - 23 °C	13 - 23 °C
- relative humidity	:	10 - 90 %	10 - 90 %
Remarks	:	None	None

Ballistic specifications

	SVB	SVB	SVB
Weapon	:	SVB	SVB
- barrel length	:	605 mm	605 mm
- rifling twist	:	1 : 450 mm	1 : 450 mm
Projectile	:	.44 FMJ FN	.44 FMJ FN
- weight	:	15.6 gram	15.6 gram
- calibre	:	11.18 mm	11.18 mm
- manufacturer	:	CCI-Speer	CCI-Speer
- description	:		
Distance muzzle to target	:	7.8 m	7.8 m
Target obliquity	:	0 °NATO	0 °NATO

Other specifications

	12771	12771	12771
Contract number	:	12771	12771
Backing	:	None	None

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Test certificate number 08MB01447 / 08MB01448 / 08MB01449
Assignor Allplast B.V.

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Experiment date 10-04-2008

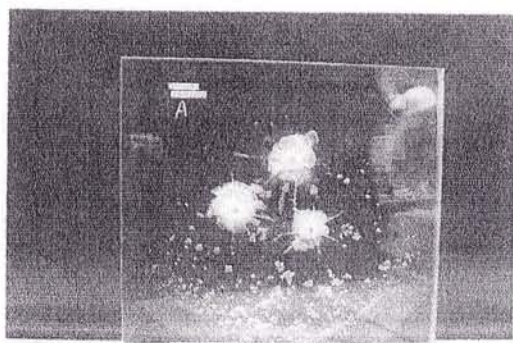


Figure 1 : Panel A, strike face.

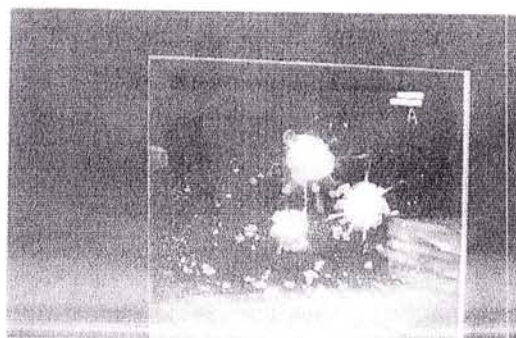


Figure 2 : Panel A, back side.

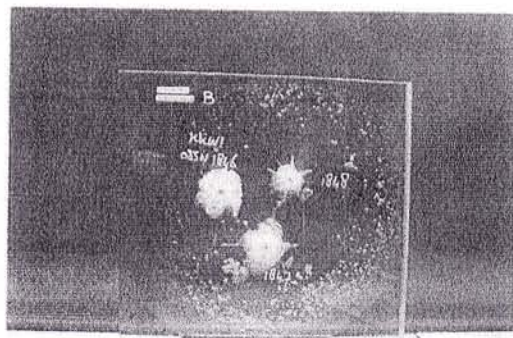


Figure 3 : Panel B, strike face.

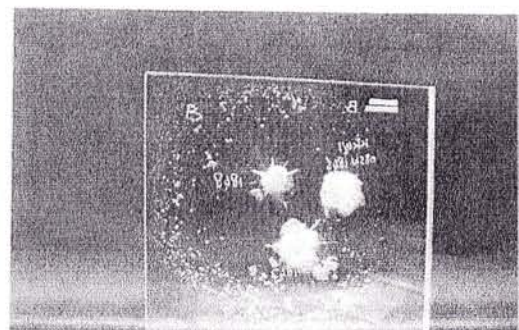


Figure 4 : Panel B, back side.

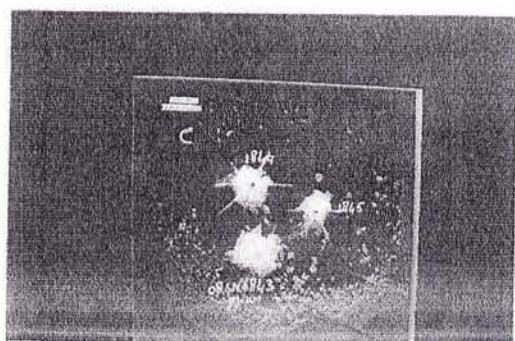


Figure 5 : Panel C, strike face.

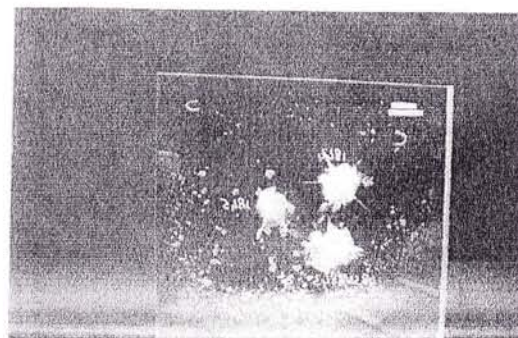


Figure 6 : Panel C, back side.

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