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

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

Dear mr Lobee,

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

Subject

Ballistic experiments

Date

16-04-2009

Reference

09 DV3/1039

Contact

E.J.M. van Riet

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 09MB00102/09MB00840/09MB00841)

Date
03-04-2009
Reference
09 DV 3/1022

Contractor : Allplast B.V.
Schelde Rijnweg 6
4691 RW Tholen
Nederland

Produced by : Allplast B.V.
Schelde Rijnweg 6
4691 RW Tholen
Nederland

Product : **Seculam AK47**

Test level : **Kalashnikov Mild Steel Core**

Test result : The tested sample is **complying**
with the requirements of 'EN 1063' according to level 'Kalashnikov Mild Steel Core'.

Signature :

J.P.F. Broos
Project leader

E.J.M. van Riet
Manager

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Laboratory for Ballistic
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Test certificate *

The test has been carried out according to **EN 1063**
class **Kalashnikov Mild Steel Core**

Assignor Allplast B.V.
Schelde Rijnweg 6
4691 RW Tholen
Nederland

Subject
Ballistic experiments

Date
02-04-2009

Reference
09MB00102 09MB00840
09MB00841

Contact
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Experiment date 09-01-2009

Project Glass

Sample identification Seculam AK47

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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 7.

The tested samples are complying with the requirements of 'EN 1063' according to level 'Kalashnikov Mild Steel Core'.

Glasspanel tested according to the testmethod of the standard EN 1063. The weapon / projectile is not prescribed in the standard.


J.P.F. Broos

Project leader

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



Test certificate number 09MB00102 / 09MB00840 / 09MB00841

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Assignor Allplast B.V.

Experiment date 09-01-2009

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 ± 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 AK47 (09MB00102) : EN 1063 - Kalashnikov Mild Steel Core				
Shot number	Impact velocity [m/s]	Stop / Perforation	Splinters	Valid (Yes/No)
KKW1 09SN00077	710	Stopped	NS	Yes
KKW1 09SN00078	709	Stopped	NS	Yes
KKW1 09SN00079	696	Stopped	NS	Yes

Seculam AK47 (09MB00840) : EN 1063 - Kalashnikov Mild Steel Core				
Shot number	Impact velocity [m/s]	Stop / Perforation	Splinters	Valid (Yes/No)
KKW1 09SN00990	709	Stopped	NS	Yes
KKW1 09SN00991	711	Stopped	NS	Yes
KKW1 09SN00992	709	Stopped	NS	Yes

Seculam AK47 (09MB00841) : EN 1063 - Kalashnikov Mild Steel Core				
Shot number	Impact velocity [m/s]	Stop / Perforation	Splinters	Valid (Yes/No)
KKW1 09SN00993	704	Stopped	NS	Yes
KKW1 09SN00994	707	Stopped	NS	Yes
KKW1 09SN00995	732	Stopped	NS	Yes



Test certificate number 09MB00102 / 09MB00840 / 09MB00841
Assignor Allplast B.V.

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Experiment date 09-01-2009

Sample specifications

Assignor identification	:	Seculam AK47	Seculam AK47	Seculam AK47
TNO identification	:	09MB00102	09MB00840	09MB00841
Date of arrival	:	10-10-2008	10-10-2008	10-10-2008
Size	:	500 x 500 mm ²	500 x 500 mm ²	500 x 500 mm ²
Thickness	:	36.6 mm	36.3 mm	36.2 mm
Weight	:	16672 gram	16506 gram	16434 gram
Areal mass	:	66.7 kg/m ²	66.0 kg/m ²	65.7 kg/m ²
Composition of sample in direction as encountered by projectile (Specification assignor)	:	4mm glass, Pur, 8mm glass, Pur, 6mm glass, Pur, 12mm Polycarbonaat, Pur, 3mm hard coated Polycarbonaat.	4mm glass, Pur, 8mm glass, Pur, 6mm glass, Pur, 12mm Polycarbonaat, Pur, 3mm hard coated Polycarbonaat.	4mm glass, Pur, 8mm glass, Pur, 6mm glass, Pur, 12mm Polycarbonaat, Pur, 3mm hard coated Polycarbonaat.
Remarks	:	None	None	None

Test specifications

Experimental facility	:	Small Calibre Firing Range no. 1 Ypenburg	Small Calibre Firing Range no. 1 Ypenburg	Small Calibre Firing Range no. 1 Ypenburg
- temperature	:	22 °C	17 °C	17 °C
- relative humidity	:	16 %	40 %	40 %

Conditioning of sample material

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

Ballistic specifications

Weapon	:	SVB	SVB	SVB
- barrel length	:	655 mm	655 mm	655 mm
- rifling twist	:	1 : 12"	1 : 12"	1 : 12"
Projectile	:	7.62x39 Ball (M43, Mild Steel Core)	7.62x39 Ball (M43, Mild Steel Core)	7.62x39 Ball (M43, Mild Steel Core)
- weight	:	7.9 gram	7.9 gram	7.9 gram
- calibre	:	7.62 mm	7.62 mm	7.62 mm
- manufacturer	:	Hungary (case stamp 23)	Hungary (case stamp 23)	Hungary (case stamp 23)
Distance muzzle to target	:	7.8 m	7.8 m	7.8 m
Target obliquity	:	0 °NATO	0 °NATO	0 °NATO

Other specifications

Contract number	:	12771	12771	12771
Backing	:	None	None	None

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



Test certificate number 09MB00102 / 09MB00840 / 09MB00841
Assignor Allplast B.V.

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Experiment date 09-01-2009

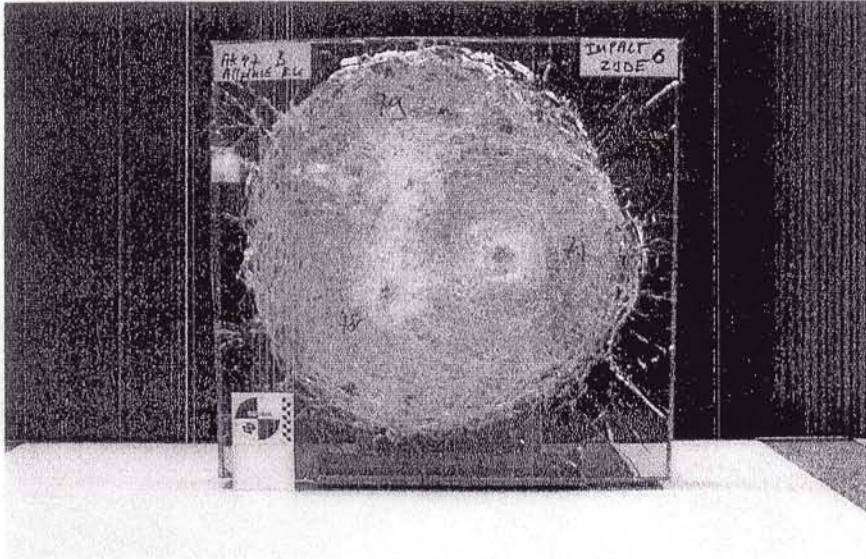


Figure 1 : Panel no.6, impact side.

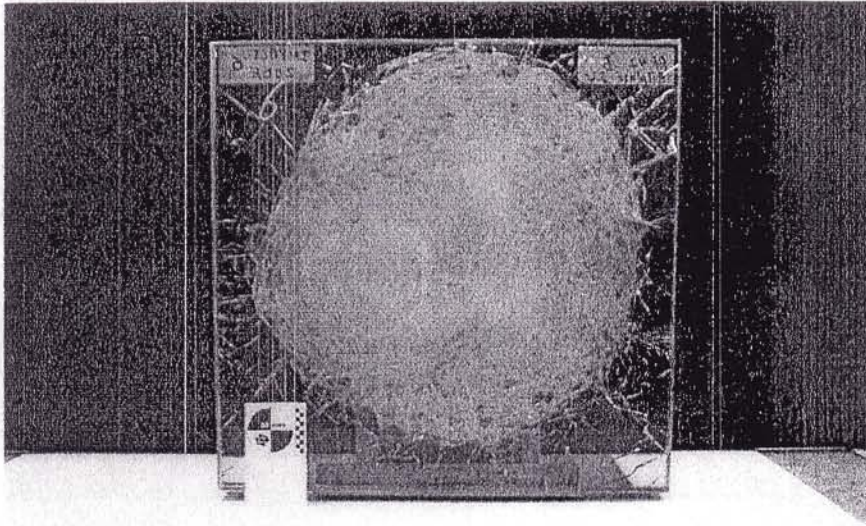


Figure 2 : Panel 6, back side.

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Test certificate number 09MB00102 / 09MB00840 / 09MB00841

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Assignor Allplast B.V.

Experiment date 09-01-2009

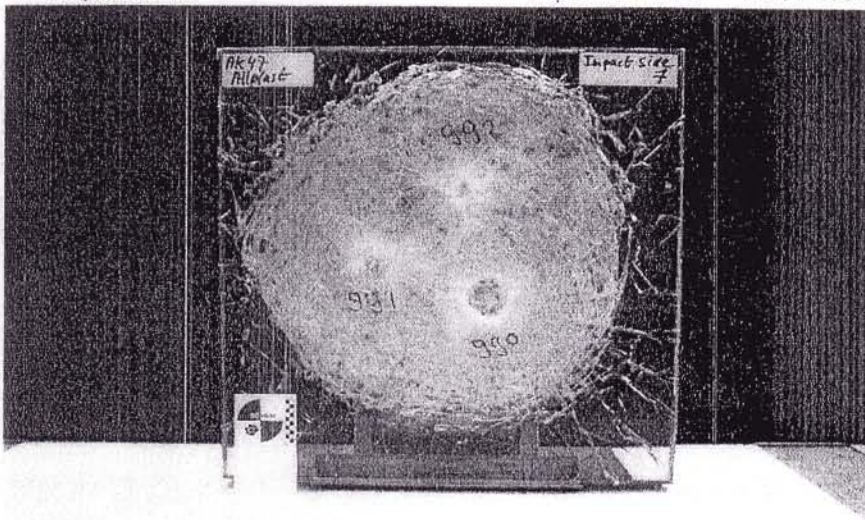


Figure 3 : Panel 7, impact side.

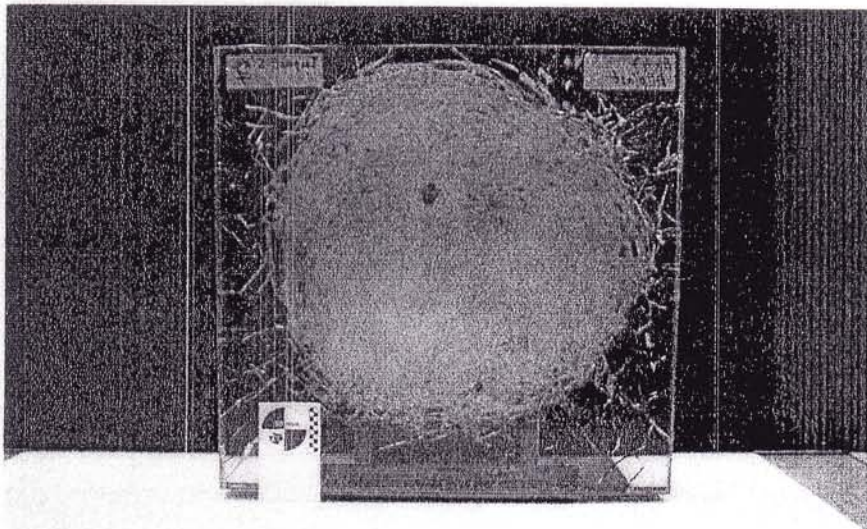


Figure 4 : Panel 7, back side.

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



Test certificate number 09MB00102 / 09MB00840 / 09MB00841

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Assignor Allplast B.V.

Experiment date 09-01-2009

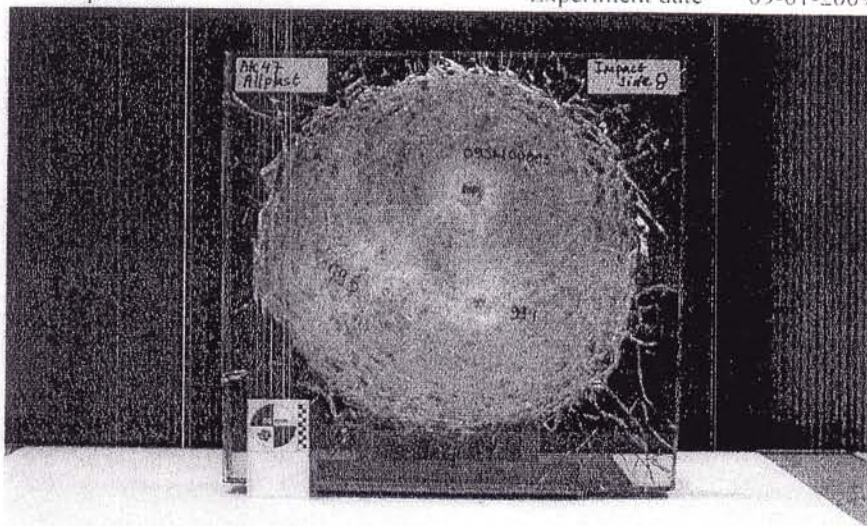


Figure 5 : Panel 8, impact side.

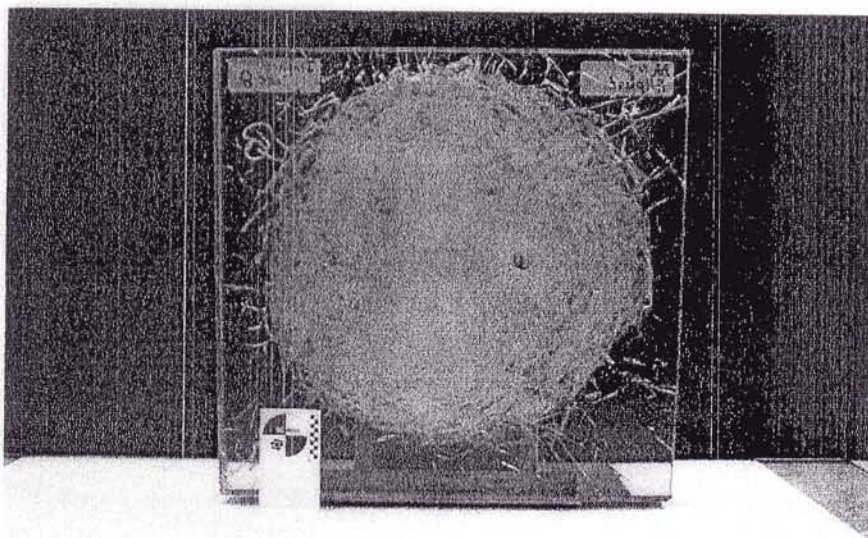


Figure 6 : Panel 8, back side.

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