



Company profile & product portfolio

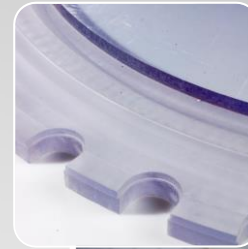
March - 2016

Plastics | Bullet Resistance | Safety | Composites

Allplast (Netherlands) is a specialist in:

- Production of bullet-proof laminates:
 - ❖ Bullet-proof laminates (non bended) for amour vehicles, war ships etc.
 - ❖ Burglary protection/impact resistant laminates (buildings)
 - ❖ STANDARDS against EN 1063 & STANG 4569 levels – TNO approved
- Production of products for personal protection & composites products:
 - ❖ Bullet-proof visors
 - ❖ Bullet-proof shields
 - ❖ Durable composite materials (Defence & non Safety / industrial applicatioins)
- Plastic Processing
 - ❖ Specialist in 2 component adhesion
- Core values:
 - ❖ Innovative and creative organisation
 - ❖ Distinctive (production/lead times – R&D process)
 - ❖ Short lines of communication

- Plastic processing
 - CNC routing, sawing, hotline bending
 - Robotized glueing facility (2 component glueing)
 - CNC milling machines








Plastics conversion

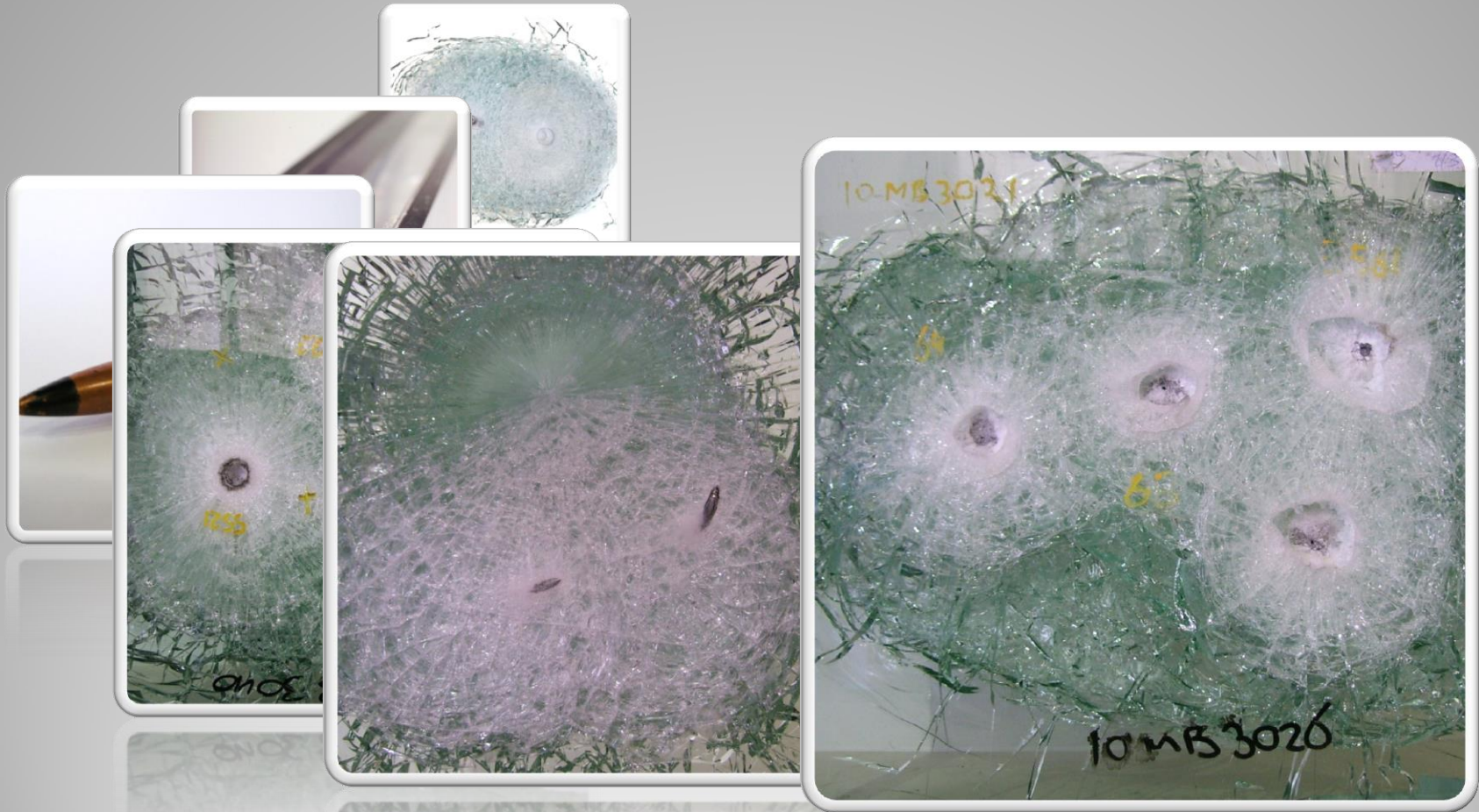


Transparent armour EN1063

Allplast certified product range EN1063

- BR1 (full polymer) — 
- BR2 (full polymer)
- BR3 (full polymer)
- BR4/SG2 (full polymer) — 
- AK 47 (glass/PC) — 
- BR6 (glass/PC) — 
- BR7 (glass/PC) — 

Transparent armour EN1063



Transparent armour STANAG 4569

Allplast certified product range STANAG 4569

- **STANAG level 1**

- 7.62 x 51 NATO Ball



- **STANAG level 2**

- 7.62 x 39 API



- **STANAG level 3**

- 7.62 x 54R Dragunov



- **STANAG level 3**

- 7.62 x 51 API WC



Transparent armour STANAG 4569

- Burglary resistant glazing (EN356 norm)
- Impact resistant glazing for vehicles
- Industrial protective screens



Impact resistant laminates

Ballistic face shields

- Full-polymer ballistic visors: own development and customer projects
- Full production at Allplast
 - Oven forming of PC and PMMA sheet
 - Assembly in clean room
 - Lamination in autoclave
 - Routing and finishing



Laminated ballistic face shields

Dutch Ministry of Defence & Allplast B.V. start innovation project ballistic armoured glazing

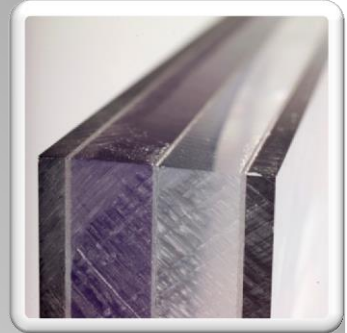
The Hague, June 19th 2014

General Major Peter Dohmen, Director Logistic Companies, Material and Organisation (DMO) dept. and Brigadier General Gerard F. Koot Direction Plans of the Dutch Ministry of Defence, and Mr. Roald Bol, CEO of Allplast B.V. Tholen, today signed a three years agreement under the Codemo subsidy project for the development of thinner and lighter armoured glazing from transparant plastics.



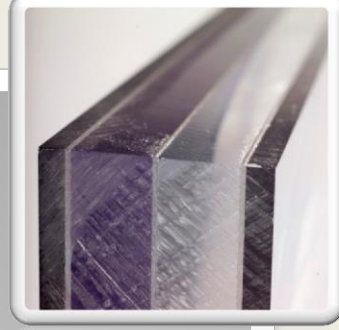
Codemo Project with Dutch Ministry of Defence





Goal of the Project

- Reduction in transport costs/fuels consumption
- Develop lighter & better laminates ('less glass') against the same or better protection levels (BR 7, STANAG II)
- Increase payload of military vehicles
- Improve durability and optical product features (delamination)
- Material innovations (chemical structure/production techniques)
- Variety in combinations of (new) laminated products



Goal of the Project (2)

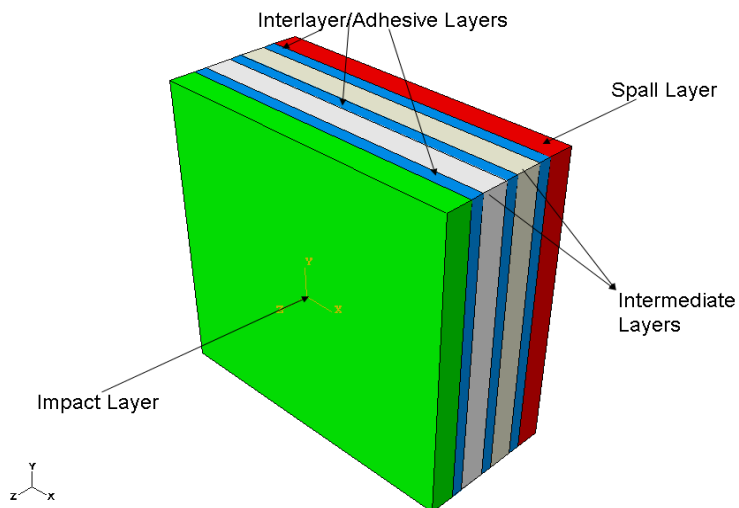
- Develop PC with improved characteristics
- Develop PMMA with improved nano-characteristics
- TNO Laboratory of Ballistic Research:
 - R&D work to support Sabic & Arkema for e.g. aging/impact resistance
 - Numerical model + Certification
- Technical University Eindhoven
 - R&D: polymer chains, network density, optimize weight and interlayers (adhesion)
- Total R&D Budget: EUR. 1.100K

Partnership



TNO innovation
for life

TU/e Technische Universiteit
Eindhoven
University of Technology



SABIC
Innovative Plastics



Codemo Project with Dutch Ministry of Defence

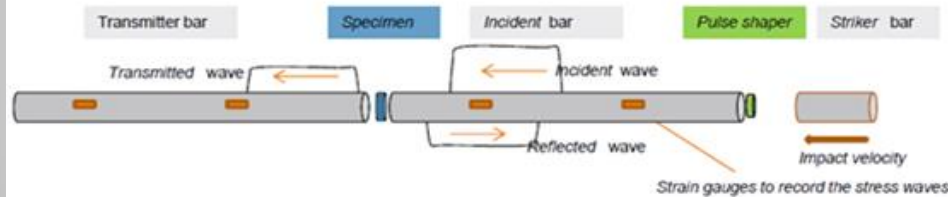


Codemo: Split Hopkinson Bar Research (TNO / TUD)

- Investigate dynamic product properties (PC & PMMA)
- Develop new PC/PMMA (tension/compression tests => ultra high speed)
- Improve molecular weight, density, chain length
 - optimize: hardness, ductility stiffness, brittleness => DAMAGE REDUCTION



The SHB scheme and principle:



Codemo Project with Dutch Ministry of Defence



Carbon/Epoxy – Glassfibers – PE fibers processed in autoclave



Composite products



ALLPLAST

Composite materials processed in autoclave

Aramid (Kevlar) & UHMWPE (Spectra Shield - Endumax)

- Standards: EN1522-1523, National Institute of Justice (NIJ)



Bullet resistance: opaque armour

- Tactical shields (bullet resistant)
- Riot shields
- Visors and face protection
- Own development and customer projects



Personal protection products



- **Disciplines combined** in one company: interaction between plastics, composites & safety activities
- **TQM:** horizontal & vertical principle of work/planning, proces evalutation, HSSE standards
- **Small and flexible:** one-offs and large series sizes
- **Design and engineering** capability for enhanced support in development of product and production
- **Availability of autoclaves** for high quality composite and laminate production
- **Strong R&D:** Allplast is an innovative niche player in Safety Products for Military, Homeland Security & Personal Protection applications.

Allplast's benefits



- **Strong relationship:**

- OEM's
- Resin/Fiber suppliers

- **R&D partnerships**

- TNO - Defence Safety & Security
- Laboratory of Polymer Materials - TU/e
- Brightland Material Center Geleen
- DPI Value Center Eindhoven (thermoplastics)

TNO innovation
for life


TU/e Technische Universiteit
Eindhoven
University of Technology

Brightlands
Knowledge Crossing Borders

DPI VALUECENTRE

Allplast's benefits

ALLPLAST



Allplast BV
Schelde Rijnweg 6
4691 RW Tholen, The Netherlands

T: +31 (0)166 60 3884
F: +31 (0)166 60 5053

info@allplast.nl

www.allplast.nl

Contact

ALLPLAST

- Novelties: **NON TRANSPARANT BALLISTICS**

New: ALLPLAST TACTICAL SHIELD NIJ 3A – BR 4

Specs:

- High Performance UHMWPE Cross Ply base material
- NIJ 3 A protection / BR 4 level: .44 Mag, 9x19mm Ball, .357 Mag. Coned Bullet
- 8 kg (excl. viewing window)
- Max. dimensions 1.150x650mm
- Options in finishing (hand grips/carbon top surface/LED lighting)
- TNO Certification Laboratories for Ballistic Research (NL) EN1522;1998 CLASS FB4 NS

Features:

- Designed in collaboration with Military Police Teams (different countries)
- 25% lower weight vs. others in the market (ceramics)
- Less sensitive for moisture vs. Kevlar
- High level of protection in combination with low weight
- Easy to use in static position & combat situations
- Optimal sizes to guarantee maximum protection

Processing :

- Product Data Sheets (specs) available (different languages)
- Delivery EXW against pre payment or L/C
- Fixed pricing per Shield < 100 units
- Lead time: 60 days per 50 units



Bullet resistance: opaque armour

New: Allplast *BlueGard*®

Specs:

- High Performance flexible UHMW PE Fibers
- BR 4 level (EN 1063 standard): .44 Mag, 9x19mm Ball, .357 Mag. Coned Bullet
- 5,2 kg /m2 (> 50% weight reduction vs. DSM Dyneema)
- Dimensions: optimized per vehicle type & car door => KIA Police Cars (Carens/Ceed)
- TNO/TuV Certification; To be done => EN1522;1998 CLASS FB4 NS

Features:

- Designed in collaboration with KIA Motors Nederland
- High level of protection in combination with low weight
 - No maintenance for door hinges!
- Optimal sizes to guarantee maximum protection

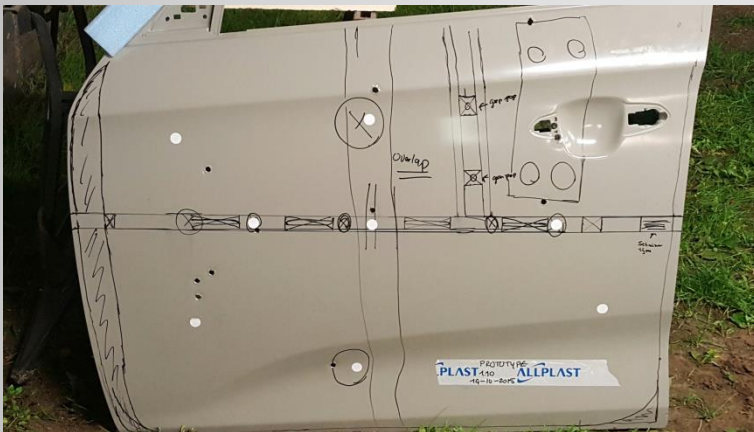
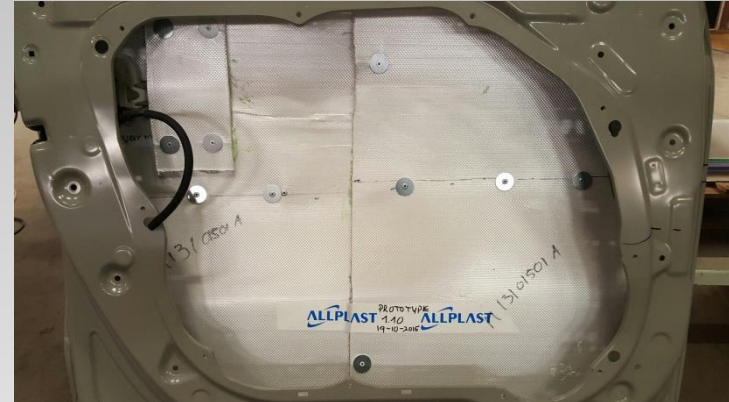
Processing :

- Production done against TNO/TuV Standards!
- Turn key delivery of Bullet Resistant doors all over Europe
- Excellent & simple logistics process
- Very short delivery times (stock delivery within 24 hr)
- Installment Bullet Resistant doors per country with dedicated dealers



Bullet resistance: police car shield plate

New: Allplast BlueGard®



Police car BR- Shield plate/front doors

New: Allplast RIHB AMOR®

Specs:

- High Performance stiff UHMW PE Fibers
- Ak-47 level (EN 1063 standard): 7,62 X 39MM
- 13,8 kg /m2
- Dimensions: max. 1.600 x 3.000mm => optimized per RIHB supplier

Features:

- Hydraulic or manual sliding device system (lift system => amor plates)
- High level of protection in combat situations (entering ships etc.)

Processing :

- Turn key delivery World Wide



Open RIHB: Non armored
(soldiers very easy to 'target')

Bullet resistance system for RIHB's

New: Allplast *RIHB AMOR®*



AK-47 Protection



Bullet resistance system for RIHB's

New: Allplast Anti Granate Protector®

Specs:

- Aramide / PU Fibers
- Protection against hand grenades: 150 gr TNT
- 25 kg & 13 kg (inner/outer tubes)
- Dimension: 30 (high) – 430/700 mm (diameter)
- Tested by: German Bundespolizei

Features:

- Max. protection against handgranates
 - Embassies
 - Banks
 - Data centres
 - Mailrooms
 - Churches/synagogues/mosques
 - Railway/underground stations
 - Football stadiums (domes)
 - Airports



Explosive resistance (EOD)