### Our vision To build partnerships that drive good business through sustainability



## Partner with the global market leader in advanced sustainable PVB products

#### An innovative pioneer

We transform laminated glass into advanced, sustainable PVB raw materials.



#### A reliable partner

Present in the EU and US we source a reliable, steady supply of laminated glass to ensure a consistent supply of PVB raw materials.



#### Sustainable, high quality PVB

Our PVB is a non-toxic, sustainable and price competitive alternative to PVC, SBR Latex, Styrene Acrylics, Epoxy and other less sustainable materials.



Leading brands are already steering the ship towards a more sustainable future when it comes to plastics

Peg IIIII adidas

SIBELCO IKEA OTarkett

NIKE



## There is an invisible layer of PVB resin inside every windshield

This is essential as it provides safety during accidents. Unfortunately, the windshields are simply dumped in landfill once they are broken, where it takes almost **a million years to decompose.** 

Laminated glass from a lot of the construction industry also contains PVB.





### What is PVB

(PolyVinyl Butyral)





## Every year these rich PVB resources are sent straight to landfill!



## ... The question is how to harness all this potential?



## Shark Solutions has cracked the code of reliable laminated glass and PVB supply!





## From here the application possibilities are limitless!





## Every year we deliver for our customers & the environment

### 10 million

car windshields recycled

14,000 tons recycled PVB processed in 2019 58,000

tons CO<sub>2</sub> saved



### Our network has gone global

#### Headquarters & R&D Roskilde, Denmark

#### PVB dispersion operations

Overpelt, Belgium

#### **Glass & PVB operations**

Lavonia, GA, USA Victorville, CA, USA

#### Sales agents & distributors

Europe, North America & Asia



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## Through innovation & a head for business we have become the global market leader





## Through innovation & a head for business we have become the global market leader



**2012** New glass recycling plant in the US. World Trade Award in sustainability. **2017** PVB processing established in Georgia, US.

**2011** New PVB plant in Belgium.





**2019** Glass recycling plant established in California. US.

California, US. State of California GHG Reduction Grant recipient. Part of the UN's Sustainable Development Program.



### And the journey has just begun...

### ...with a solid financial base backed by Blue Equity and Circularity Capital

- Danish Private Equity firm, Blue Equity, invests in strong companies that benefit from global mega-trends
- UK Private Equity firm, Circularity Capital, invests in SMEs operating in the circular economy

DEA

Blue Equity investments comes from leading Danish companies including:









### We offer great value for our partners through:

#### **Consistently clean PVB**

Ready-to-use non-chloride, low VOC based PVB raw materials with equal or enhanced technical properties compared to other virgin raw materials.



#### Competitive price

Our prices compete with alternatives including; PVC, SBR Latex, Styrene Acrylics and Epoxy.

### .....

#### **Excellent service level**

We always go the extra mile for our partners, often customizing raw PVB materials according to requirements and have a reputation as a supportive, reliable partner.



#### **Technical expertise & know-how**

We have the technological advantage of being the first mover and owning the IP – we have expertise that no-one else has.



#### **Global presence & plentiful supply**

We have a presence in the US & EU that means we have a readily available supply of laminated glass, which we can convert into PVB.



### Our mission Transform, create and innovate possibilities for the applications of recycled PVB worldwide





## The existing chemical binders used in a wide array of industries are far from sustainable

	Styrene Acrylics	Poly- Urethane	Ероху	EVA latex	SBR xSBR emulsion	PVC plastisol	TPU
Sustainably sourced?	$\otimes$	$\otimes$	$\oslash$	$\otimes$	$\otimes$	$\otimes$	$\oslash$
Non-toxic?	$\otimes$	$\otimes$	$\otimes$	~	$\otimes$	$\otimes$	$\otimes$
Recyclable?	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$
Meets future standards?	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$
Backed by consumers?	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$



## We provide a price competitive, sustainable, alternative with superior technical properties

	Styrene Acrylics	Poly- Urethane	Ероху	EVA latex	SBR XSBR emulsion	PVC plastisol	TPU	Shark Solutions PVB	The reason why	
Sustainably	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	~	Reuses laminated glass that would go to landfill	
Non-toxic?	$\otimes$	$\otimes$	$\otimes$	~	$\otimes$	$\otimes$	$\otimes$	~	Non-toxic, reduced VOCs - no chlorine or phthalates	
Recyclable?	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	~	Fully recyclable after use to re-enter the circular economy	
Meets future	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	$\otimes$	~	Lives up to the future standards of the industry	
Backed by	$\otimes$	$\otimes$	$\odot$	$\otimes$	$\otimes$	$\otimes$	$\odot$	~	Backed by consumer trends towards more sustainable products	
SHAR SHAR	<b>K</b> °									

## Available Forms of rPVB





### Dispersion

### SharkDispersions – Water Based

No VOC, low CO<sub>2</sub>, no biocide,  $\sim$ 0,3 µm particle size

#### **Basic types**

SharkDispersionMW2™ Standard Dispersion SharkDispersionSX2™ Stabilized Dispersion

SharkDispersionFX2<sup>™</sup> and FX6<sup>™</sup> Cross linking Dispersions for better adhesion to surfaces and better abrasion resistance





### SharkPellets – Standard

Basic types

SharkPelletsC2c™: Post consumer based SharkPelletsC4c<sup>™</sup>: Post industrial based, coloured SharkPelletsC5c™: Post industrial based, clear



## The advantages & applications of recycled PVB are multiple

#### Environmentally

- Less than 10% CO<sub>2</sub> footprint of virgin PVB
- Reduced carbon footprint
- Cradle to cradle benefits

#### Financially

- Competitive with traditional binders
- More filler can be used saving costs
- Increased marketing opportunities
- Existing materials are subject to fluctuations in oil prices

#### Technically

- Incredibly strong binder
- Adhesion to various surfaces
- Extreme toughness and flexibility
- Sound absorbing
- Ready-to-use & customizable
- UV resistance

SHAZ

#### Healthwise

- Non-toxic
- Low VOCs
- Meets future industry health standards

# Looking forward finding mutual and sustainable business opportunities

