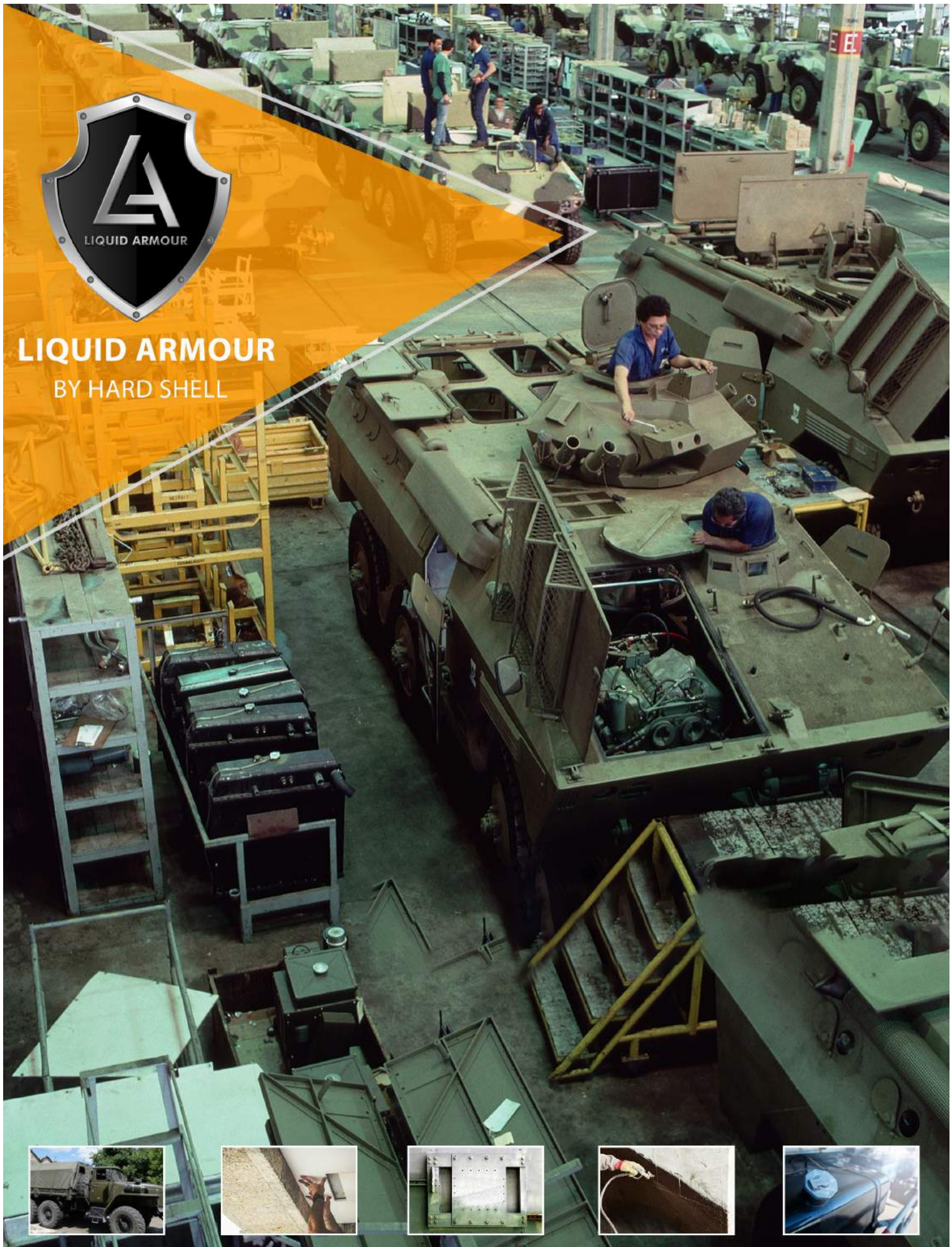




LIQUID ARMOUR

BY HARD SHELL



SPALL LINERS



BLAST PROOF
WALLPAPERS



STANAG 4569
LEVEL 3



BLAST
MITIGATION



FUEL TANKS
FOR VEHICLES

Protective Coatings- LIQUID ARMOUR®

Hard Shell's LIQUID ARMOUR® is the world's most innovative coating. It was developed using advanced Nano technology for next generation protective polymer coatings.

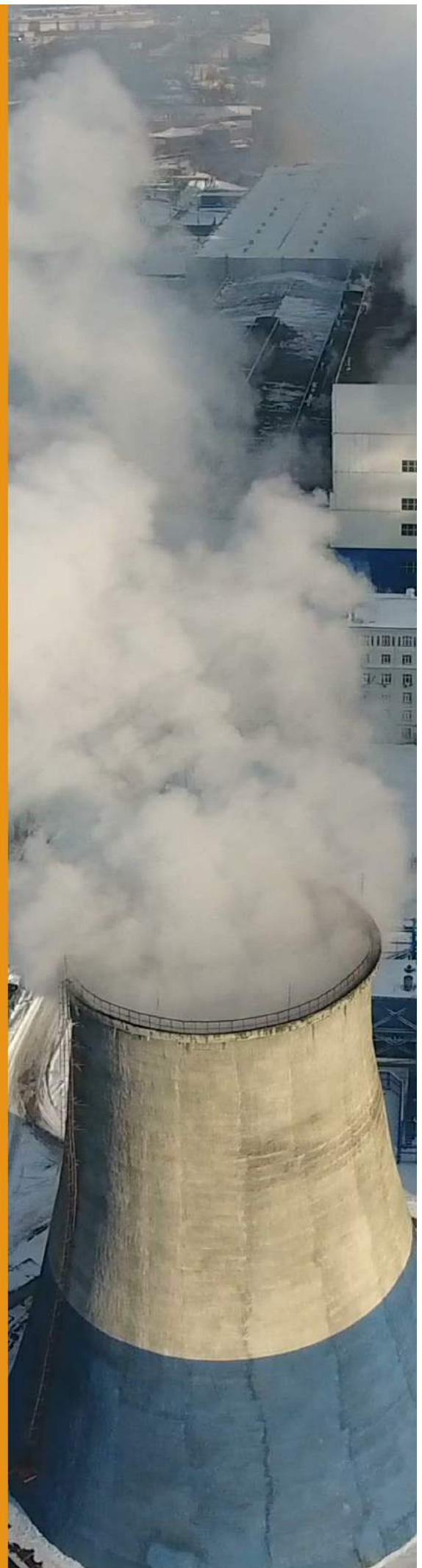
This transformational next-generation product allows us to offer customized solutions that meet or exceed your requirements. At Hard Shell, we are constantly researching and developing products to ensure the highest of standards are met with ever-changing demands.

LIQUID ARMOUR® protective coatings have been used to safeguard man-made structures from kinetic, blast and fragmentation effects. Our specialized, high performance spray-on elastomeric coatings are engineered for maximum durability and limitless application potential.

Hard Shell operates around the globe to serve our customers, offering innovative, cost-saving and light-weight solutions. All our products are engineered to last, ensuring your equipment or assets are protected from everyday hazards as well as the most demanding battlefield environments.

LIQUID ARMOUR® HIGHLIGHTS

-  LIQUID ARMOUR™ is a high-strength and lightweight alternative to traditional building and vehicle armouring
-  Unmatched weight-to-protection ratio
-  Superb tensile strength, tear strength and flexibility
-  Solutions can be used to protect forward operating bases (FOBs), barracks, armories, bunkers, storage areas, and all land, air, and marine transportation
-  LIQUID ARMOUR™ exterior surfaces absorb the impact from a bullet or a blast, preventing fragments and shards from affecting personnel
-  As an interior coating, it prevents high velocity spalling and fragmentation
-  All our nano polymers are 100% VOC (Volatile Organic Compound) free



ABOUT US



VISION

Unprecedented leading-edge advanced nanotechnology protection for work and play.



MISSION

To provide our protectors and enthusiasts with as near perfect protection as leading edge science will allow at the lowest weight, and the lowest possible cost.



VALUES

- Protection you would use yourself
- Think outside the box
- Everyone has a voice to be heard
- Protect the environment
- Standards are meant to be surpassed

OUR COMPANY

Hard Shell is one of the leading manufacturers of ballistic, personal protective and tactical products in the world. We have state-of-the-art manufacturing facilities in Europe, Middle East and Asia, with our design and development team based in United Kingdom.

We offer the latest generation of vehicle, personal and point protection solutions including overt and covert body armour, ballistic helmets, hard armour inserts, bomb disposal suits and suppression blankets, building and vehicle armour. As one of the most vertically integrated manufacturers in the world, we ensure quality and control at every step in the manufacturing process.

Our patented Super nano Liquid Armour® is a breakthrough technology that offers superior size and weight savings at costs comparable to traditional, heavy steel and ceramic armour solutions. Liquid Armour® applications have been developed to meet client-specific needs as a supplementary armour system and as part of the primary vehicle armour structure. Liquid Armour® is also well suited for coatings, linings, joint fillers and repair materials for a wide variety of industrial, commercial and maintenance environments.

SPALL LINERS

Spall liners are made from rubberized aramid, high performance polyethylene or fiberglass. It is designed to stop projectiles and small fragments and to reduce the damage inside a vehicle if hit by an overmatched threat.

Liquid Armour offers bespoke solutions to suit your exact requirements taking into account the weight, threat level and cost. Our spall liners are easy to install resulting in a smooth finish, and adds minimum weight to a platform with very little to no effect on manoeuvrability.

Liquid Armour Spall liners are available with different kinds of surfaces for heat insulation or noise reduction, including cellular foam with both noise and vibration dampening effects. Surfaces are also available in a selection of different colors.

When a mine or improvised explosive device (IED) is detonated, the impact may not be powerful enough to pierce the armor of a military vehicle. Yet the shock wave is still strong enough to pass through the structural armor and cause damage. As the stress limits of the vehicles metal armour are exceeded, fracture occurs. In case of such a fracture in the metal, spall is propelled towards the vehicle's occupants at high velocities.

There are two main types of spall linings. Spall panels are rubber-coated composites that use a resin based system. They are stiff, durable and suitable for vehicles and locations where visibility is high and physical support is low. Spall blankets are more flexible and consist of layers of fibers that are encapsulated by a polymer for protection against moisture, wear, dust and UV light.

The way that protective products are installed and removed is important too as it may be an additional weak spot. Metal fasteners or adhesive spraying based systems can be used. Liquid Armour can also fabricate spall liners such as spall blankets that attach with hook-and-loop (Velcro) fasteners that provide high tensile strength and high shear strength.



BLAST MITIGATION

LIQUID ARMOUR® offers superior energy absorption and fragment containment. Working with end users and industry experts, our Liquid Armour® uses a super nano advanced blasta super mitigating poymer. This patented and proprietary polymer, providing military assets and structures a flexible and dependable debris penetration solution can be applied to almost any existing surface.

Our LIQUID ARMOUR® system forms a seamless, super resistant barrier, ensuring the assets and structures are able to absorb the blast energy. The absorption and elongation of LIQUID ARMOUR® etends the blast duration, significantly reducing the peak shock wave.

Liquid Armour® is available in a Spray form. This allows you to vary the thickness to meet the full range of threat and weight criteria.



ADVANTAGES

- Superior weight to protection
- Simple spray-on application, eliminating complex training requirements
- Photostabilized long-lasting formula means Liquid Armour® will not break down, delaminate or lose strength after long exposure to the sun
- Maintenance free
- Can add colour to match the application surface making it difficult to distinguish where it has been applied

FUEL TANK COATING

Our goal is to help to build a more secure environment that reduces structural damage and injury or even death caused by targeted attacks with explosives. Coatings are used for both buildings and vehicles. Looking at the anatomy of an explosion, major cause of destruction is from the massive pressure that blows apart a structure. By forming a strong Liquid Armour "skin" that holds the structure together and reduce fragmentation, the blast is less likely to cause severe damage.

Fuel and oil storage tank interiors generally also need protection against corrosion. Without proper lining, the contents of these tanks tend to corrode the steel walls. Additionally, proper tank lining preserves the quality of the oil or fuel against rust or contamination. Linings also are crucial because they increase tank life and help avoid highly cost-intensive replacements.

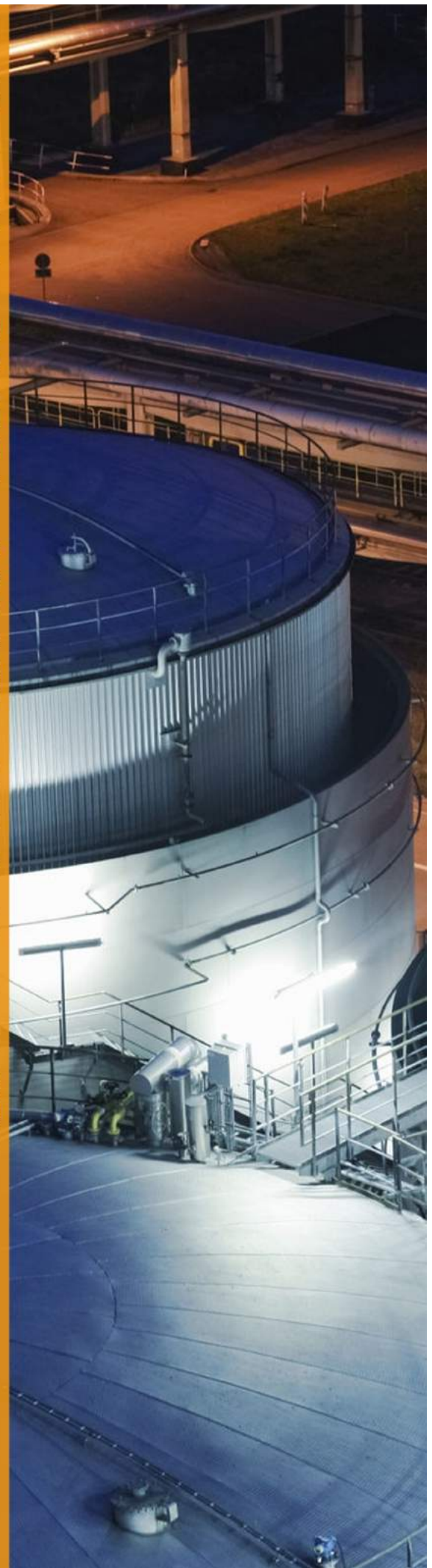
Liquid Armour coating can also be used in combination with other additives for specific properties, resulting in the ultimate protection. Our spray-applied durable coatings and linings help in deflecting the energy from ballistic and explosive blasts. The encapsulating and protective nature of Liquid Armour Coating results in reinforcing concrete, masonry and steel structures allowing them to stay intact.

For military and police force protection, Liquid Armour has the best solution for: Tactical wheeled vehicle protection, CARC compatible systems, Enhanced vehicle armor for trucks, heavy artillery, Fuel trucks, Marine and safe boat surfaces, and so on.

The Liquid Armour coatings are 100% solids (zero VOC) spray-applied coatings and linings that are environmentally responsible.

Liquid Armour professional storage tank coating application includes:

- Identifying conditions and selection of appropriate coatings
- Control of moisture and temperature during application and curing
- Manage safety hazards involved in coating and maintain work safety practices
- Ensure all requirements are being met
- Confirm that no thin or uncoated areas are left for a service life of 10-to-20 years





BLAST RESISTANT WALLPAPERS

While total protection from bomb blasts and explosions is not possible, there are steps we can take to mitigate the extent or even likelihood of damage. In more obvious situations, Blast-resistant wallpapers have long been used and an increase in blast-type attacks or events has created a need for higher levels of protection in a wider range of applications.

Blast resistant wallpaper by Liquid Armour are protecting lives worldwide against terrorist attacks or accidental explosions. Available in a stick-on format, these Blast Resistant wallpapers can be applied to any wall or panel to significantly improve its resistance to shockwaves and shrapnel.

Liquid Armour based Blast resistant wallpapers provide the ability to quickly increase a structure's resistance to explosion in case of imminent threat. Compared to typical armouring which could take a few days to weeks to be applied, these wallpapers can be applied in a significantly shorter amount of time which can prove to be a serious advantage.

Liquid Armour blast resistant wallpaper are designed to protect occupants from flying debris, especially glass shards – the leading cause of injury in a blast. Based on patented Energy Absorbing Technology, it enables all components of blast resistant wallpaper to absorb the energy released from the explosion.

Blast Mitigation Attributes

- Deflects energy of blasts while keeping structures intact
- High flexibility eliminates or reduces shrapnel and other collateral damage
- Adheres to a variety of surfaces including concrete, steel, aluminum, fiberglass, and more
- Adjustable thickness depending on level of protection required
- Conforms to any shape



STANAG 4569 LEVEL 3

Protecting against modern threats has led to a runaway scenario. More heavy, costly and complex armours are used to defeat the threat, increasing weight and diminishing performance of the platform. Our STANAG 4569 Level 3 Certified LIQUID ARMOUR® solution reduces weight without reducing protection. The Super nano polymer has a density nearly identical to water. Size and weight are reduced, resulting in improved platform performance.

Our innovative Liquid Armour® can be designed to your unique dimensions and shapes, enhancing protection, reducing gaps where protection could break down from traditional add-on armours.

Talk to our experts today about your specific needs. Liquid Armour connects people and knowledge to create innovations that sustainably improve protection, saves weight and at a price that is competitive with monolithic steel armour.

Liquid Armour® is focused on the Defence, Safety and Security sectors, creating innovations that save lives, weight and cost.





HARD SHELL

Find out how we can exceed your expectations

✉ info@liquidarmour.com

🌐 www.liquidarmour.com

📱 [liquidarmour](#)