OCEAN GLOBAL™

GEOSYNTHETIC CLAY LINERS

Fast to install.
Certified to perform.

BUILDING
SUSTAINABLE
INFRASTRUCTURE
THROUGH
INNOVATION

sales@oceangeosynthetics.com

About Us

Who We Are

Founded in 1998 and headquartered in New Delhi, Ocean Global is a leading provider of eco-consious engineering and advanced geosynthetic solutions. We specialize in tackling soil-related challenges with innovation, durable and sustainable products.

What We Do

With over two decades of experience, we deliver advanced geosynthetic solutions backed by strong manufacturing, seamless service and the latest technology.

Our Vision and Mission

We aim to build smarter and greener infrastructure for a cleaner tomorrow—offering reliable, tailored solutions that exceed expectations.

What We Offer

We have dedicated units to handle production and quality control, We also pride ourselves on having an exclusive research and development wing.

Certifications & Compliance

- ISO 9001 : 2015
- ASTM & BIS Standard Testing
- In-house QA/QC Labs

Facilities

Manufacturing Plant: Jhajjar, Haryana, India (strategic proximity to Delhi)

Warehouse: Mundka, New Delhi, India

Sectors We Serve

Ocean Global products are deployed across the most demanding industries. From government infrastructure to environmental engineering, our geosynthetics ensure safety, stability and sustainability for critical projects worldwide. Trusted by industry leaders and public agencies alike, our solutions deliver long-term performance and protection in every sector we serve.

Roads & Highways
Separation, filtration and reinforcement systems

Environmental Protection
Land rehabilitation, erosion control

Railways
Subgrade stabilization, slope protection, drainage layers

Ports & Aviation
Ground improvement, spill containment

Waste Management
Landfill liners, waste water treatment, leachate barriers

Urban Infrastructure
Waterproofing, landscaping

Hydro & Irrigation
Reservoir linings, gabion retaining structure, dewatering tubes

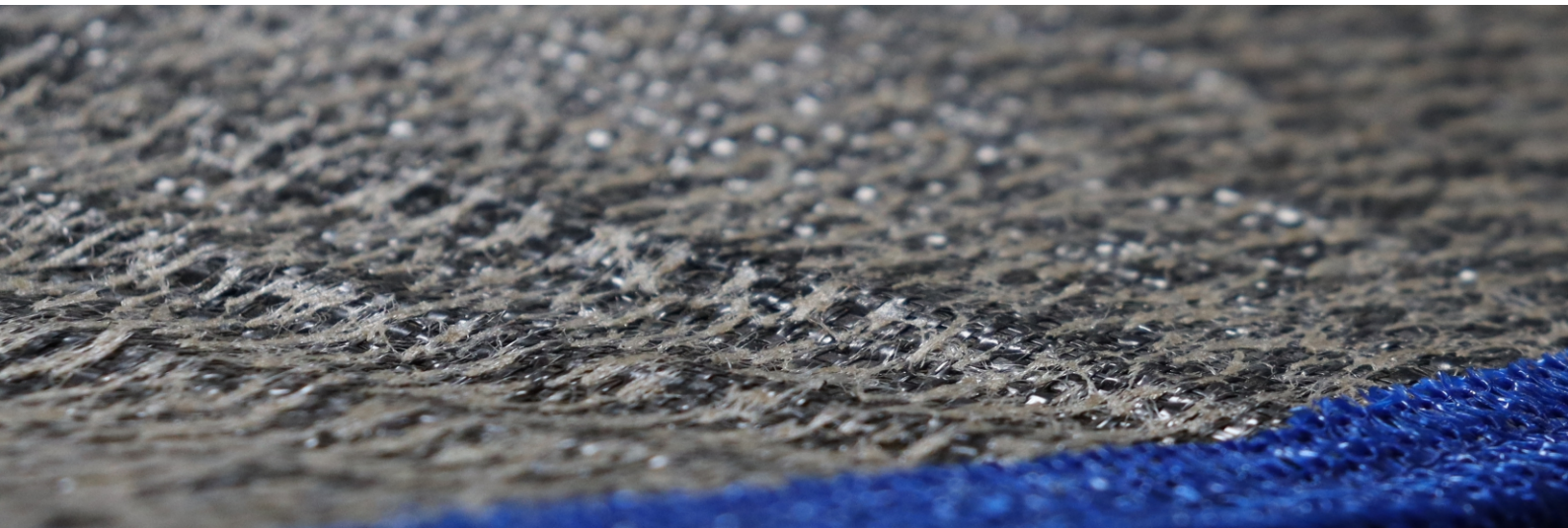
Defence & Border Roads
Reinforced access, mountain engineering

Agriculture
Pond lining, biofloc system, water storage tank

Oil & Gas
Drill sumps, containment berms, oil & gas storage tanks

Ground Engineering & Tunneling
Slope protection & landslide prevention, waterproofing, basal reinforcement

Power & Mining
Dust suppression lining, erosion protection



Geosynthetic Clay Liners

A Geosynthetic Clay Liner (GCL) is a factory-fabricated hydraulic barrier that encapsulates high-quality sodium bentonite between a grey woven carrier and a white nonwoven cover, needle punched and thermally locked to deliver high internal shear strength. When confined and hydrated, the bentonite swells and forms an ultra-low permeability, self-sealing layer that joins at overlaps and seals around small punctures, often matching or exceeding the performance of thick compacted clay at a fraction of the thickness.

Functional Capabilities and Use Cases

Hydraulic Barrier & Seepage Control

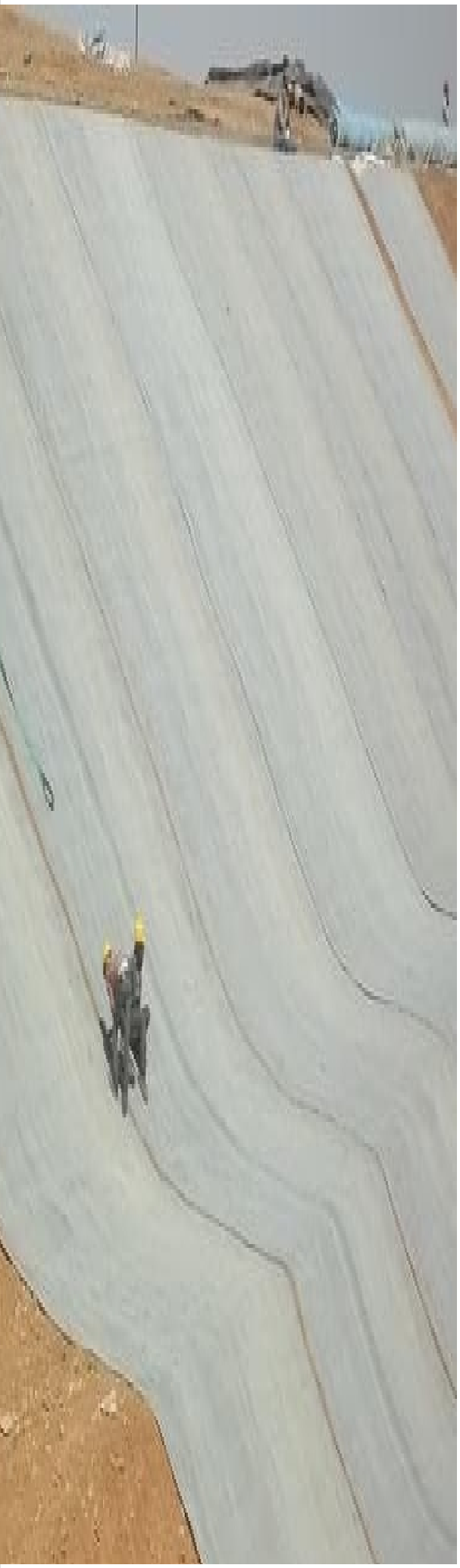
Delivers very low permeability when hydrated, limiting seepage and protecting subgrade and groundwater.

Applications: Landfill basal liners and caps, canals and reservoirs, aquifer protection, industrial and wastewater lagoons

Seals Edges & Small Holes

Swelling bentonite fills voids and seals overlaps and small punctures or penetrations, reducing leak risk.

Applications: Pipe sleeves and penetrations, terminations, repairs and detail zones



Landfills & Tailing Ponds

Placed beneath HDPE geomembranes, GCL provides a redundant clay layer with rapid installation and dependable interface performance.

Applications: Landfills, heap leach pads, tailings storage, secondary containment berms

Steep Slope Stability

Needle punched and thermally locked reinforcement provides high internal shear strength for secure placement on slopes.

Applications: Landfill side slopes, canal embankments, bund walls, lined spillways

Resilience to Weather Cycles

Delivers consistent performance through freezing and thawing and through wet and dry cycles, reducing cracking compared with compacted clay.

Applications: Final covers in cold or arid climates, seasonal ponds, exposed staging prior to cover

Vertical Cutoff & Groundwater Control

Installed in trenches to block lateral migration of contaminated groundwater or seepage.

Applications: Brownfield remediation, facility perimeters, interception trenches near canals

Gas and Vapor Control

With geomembrane supported systems, the composite reduces gas and vapor transmission for improved environmental control.

Applications: Landfill caps with gas management, VOC containment

Ocean Clay Liners

Technical Specifications of Ocean GCL

PROPERTIES	UNIT	TEST METHOD	5 MM	6 MM	7 MM
CAP NONWOVEN PP MASS PER UNIT AREA	GSM	EN ISO 9864 /EN965	200	200	220
CARRIER WOVEN PP MASS PER UNIT AREA	GSM	EN ISO 9864 /EN965	125	125	110
MONTMORILLONITE CONTENT	%	XRD ANALYSIS	85	85	-
SWELL INDEX	ML/2G	ASTM D5890	25	25	24
FLUID LOSS	ML	ASTM D5891	17	17	<18
WATER CONTENT	&	-	-	-	8-10
BENTONITE MASS PER UNIT AREA (12% MOISTURE)	GSM	EN 14196 /EN965	4000	4000	3670
BENTONITE MASS PER UNIT AREA (0% MOISTURE)	GSM	EN 14196	3520	3520	-
GCL MASS PER UNIT AREA (12% MOISTURE)	GSM	EN 14196/ ASTM D5993	4325	4325	4000
HYDRAULIC CONDUCTIVITY (K20)	M/S CM/S	ASTM D5887	$2x10^{-11}$	$2x10^{-11}$	$2x10^{-11}$
INDEX FLUX (Q)	$(M^3/M^2)/S$	ASTM D5887	$5x10^{-9}$	$5x10^{-9}$	$1x10^{-8}$
TENSILE STRENGTH MD (TMAX)	KN/M	ASTM D6768 /D4595	12	12	12
TENSILE STRENGTH CMD (TMAX)	KN/M	ASTM D6768 /D4595	12	12	12
ELONGATION BREAK	%	ASTM D4595	-	-	10.0/6.0
STRAIN AT MAX LOAD MD/CMD	%	ASTM D6768	30	30	-
STATIC PUNCTURE STRENGTH (FP)	KN	EN ISO 12236	2.2	2.2	-
INTERNAL SHEAR STRENGTH	KPA	ASTM D6243	24	24	-
PEEL STRENGTH - MD	N/10CM OR N/M	ASTM D6496	65	65	≥360
THICKNESS	MM	EN ISO 9863- /EN-964-1	5	6	6.0
THICKNESS (MIN AVG.)	MM	-	-	-	7.0
ROLL DIMENSIONS (H x L)	M	-	40x5.1	40x5.1	5.15x40

Parameters can be modified to meet unique project requirements. Conditions apply.

Installation Guidelines

Successful GCL performance depends upon proper installation. Prepare a firm and smooth subgrade, keep materials clean and dry and handle rolls with care to avoid tension or damage. Overlap, seal and anchor according to design so that seams remain watertight and slopes stay stable. Cover promptly with fine and stone-free soil, protect against equipment stress and carry out thorough inspection and repair as needed. Follow the step-by-step sequence and use the specified tools to achieve reliable, consistent results that meet design intent and long-term performance goals.

1. Subgrade Preparation

Grade and compact to a smooth, firm surface. Remove stones >25 mm, roots, debris and water. Fix soft spots, proof-roll as needed and cut anchor trenches (typ. 300 × 300 mm).

Use: Motor grader or bulldozer, smooth-drum roller, excavator or trencher, string line and measuring tape, shovels and rakes, hand tamper

2. Unrolling and Placement

Keep rolls dry, lift with spreader/roll bar. Unroll GCL with nonwoven up; lay flat, no wrinkles/bridging; ballast with sandbags as per instructions of engineers at site.

Use: Forklift or telehandler, spreader/roll bar with slings and tag lines, hook knives for trimming, sandbags

3. Overlapping

Clean seams. Side laps 300 mm, end laps 600 mm, shingled downhill. Apply bentonite powder ranging from 0.25–0.5 kg/m.

Use: Soft broom or brush, portable blower or clean rags, calibrated scoop and buckets for bentonite, trowel or spatula, seam roller or tamping bar

4. Roll Placement and Soil Contact

Set the GCL into the top anchor trench with a little slack. Backfill the trench and compact it in thin layers. On steep slopes, add extra anchors or sandbags. At pipes, walls or edges, tuck the liner into a small groove and seal the edge with bentonite paste if required.

Use: Excavator or trencher, shovels, hand tamper, measuring tape, trowel and paste

5. Protection and Cover

If composite, add cushion geotextile and install geomembrane promptly. Cover ASAP with fine, stone-free soil (300 mm); push forward and avoid turning on exposed GCL.

Use: Cushion geotextile rolls, low-ground-pressure dozer or excavator, spreader box, moisture meter, grade stakes or thickness checks.

6. Quality Control and Inspection

Verify overlaps, bentonite rate and trench size/compaction. Patch damage with GCL extending 300 mm beyond; dust edges with bentonite.

Use: Measuring tape, nuclear density gauge, pre-cut GCL patches, trowel, tarps, sandbags

Esteemed Clientele

Ocean Global is proud to be the trusted partner of leading organizations across infrastructure, engineering and environmental sectors. Our geosynthetic solutions are relied upon by industry leaders and government agencies for critical projects throughout India and internationally.

GLOBAL TECH ENVIRO
EXPERTS PVT. LTD.

राष्ट्रीय केमिकल्स एण्ड फर्टिलाइज़र्स लिमिटेड
Rashtriya Chemicals and Fertilizers Limited

SADGURU
Interior Products

Blogs

Explore our knowledge center to discover how innovative solutions are shaping the future of construction and environmental management.

What is a Geosynthetics Clay Liner?

Geosynthetics clay liner systems are pneumatic barriers manufactured with a variety of low-density materials and supporting geotextile and geomembranes. All of these materials cohere to chemical adhesives and mechanical processes like expulsion.

Geosynthetics clay liners are principally used for waste management and containment. There are several environmental laws intended by regulating agencies that require any potentially harmful seepage to be confined and disposed of properly – or else, these hazardous materials could be the reason for major environmental and health issues. However there are many containment methods available, geosynthetics clay liners offer great benefits in terms of fast installation, permanence, and cost-effectiveness.

Read more:
https://oceangeosynthetics.com/what-is-a-geosynthetics-clay-liner/

Geosynthetic Clay Liner vs. Compacted Clay

Geosynthetics have gained widespread popularity in civil, geotechnical, environmental, coastal, and hydraulic engineering projects owing to their versatility and cost-effectiveness. Of note, over the past decade or so, Geosynthetic Clay Liners have replaced compacted clay liners in various applications, especially in terms of hydraulic performance and ease of installation. The Ocean Geosynthetics, prefabricated geosynthetic clay liners, find immense uses as cover systems, composite liners, protection barriers, storage tanks, canal liners, pond liners and more.

Read more:

https://oceangeosynthetics.com/geosynthetic-clay-liner-vs-compacted-clay/

Geosynthetic Clay Liners in Landfill Engineering

Landfill engineering is quite underrated, with landfills referred to as “dumps.” A critical component of a well-conceived waste management plan, landfills are, in reality, highly engineered facilities. In particular, the design and management of MSW or municipal solid waste landfills carry environmental significance. The site, design, construction, and operation of landfills require stringent compliance with government and environmental guidelines. Each landfill engineering project is unique and comes with many design and operational considerations. Erosion, sedimentation, storm water management, leachate management are some common considerations.

Read more:

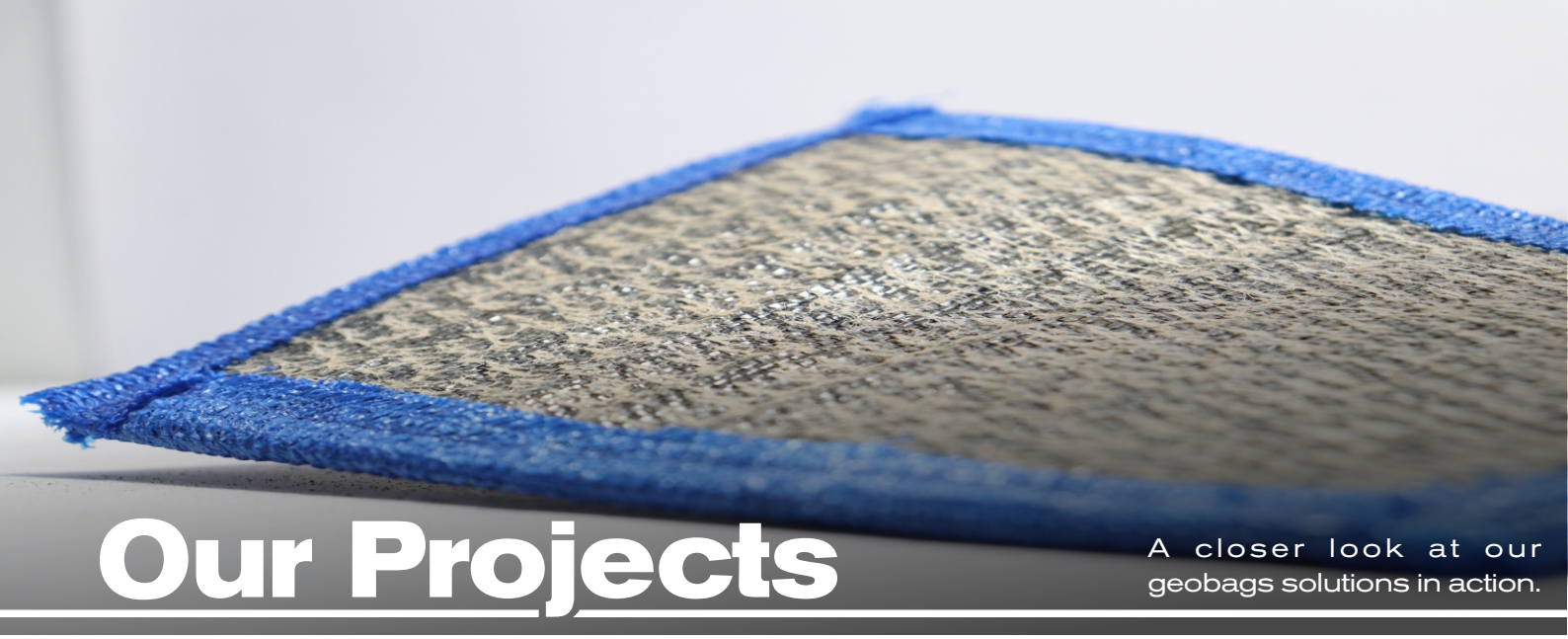
https://oceangeosynthetics.com/geosynthetic-clay-liners-or-gcls-in-landfill-engineering/

Geosynthetic Clay Liner for Ponds

Are prefabricated bentonite clay liners better than traditional liners for ponds? Definitely yes. We often refer to the bentonite liners as active liners as there is an actual process that makes the liner waterproof. A natural sealant, bentonite swells when it comes in contact with water, forming a low permeability clay liner. As such, on its own, bentonite is just clay. Passive liners, on the other hand, do not need any process to get them activated to perform the function of waterproofing, such as RPE liners.

Read more:

https://oceangeosynthetics.com/geosynthetic-clay-liner-for-ponds/#perks-of-prefabricated-bentonite-clay-liner



Our Projects

A closer look at our geobags solutions in action.

GCL Installation for a Sanitary Landfill Project.

Other Product Lines

Discover more geosynthetic solutions from Ocean Global.

Geomembranes

Geotextiles

Gabion Boxes

Geogrid

Geocomposite Materials

Geobags

Geocells

GCCM

Geopipes

Erosion Control Mats

Drainage Cells

Dimple Drain Boards

Geotubes

Rockfall Protection Barriers

Anti - Hail Netting

Let's Connect

Reach out to our team for expert advice, product solutions or to discuss your next project. Whether you need product samples, technical advice or a full-scale design and delivery solution, we are committed to supporting your project's success at every stage.

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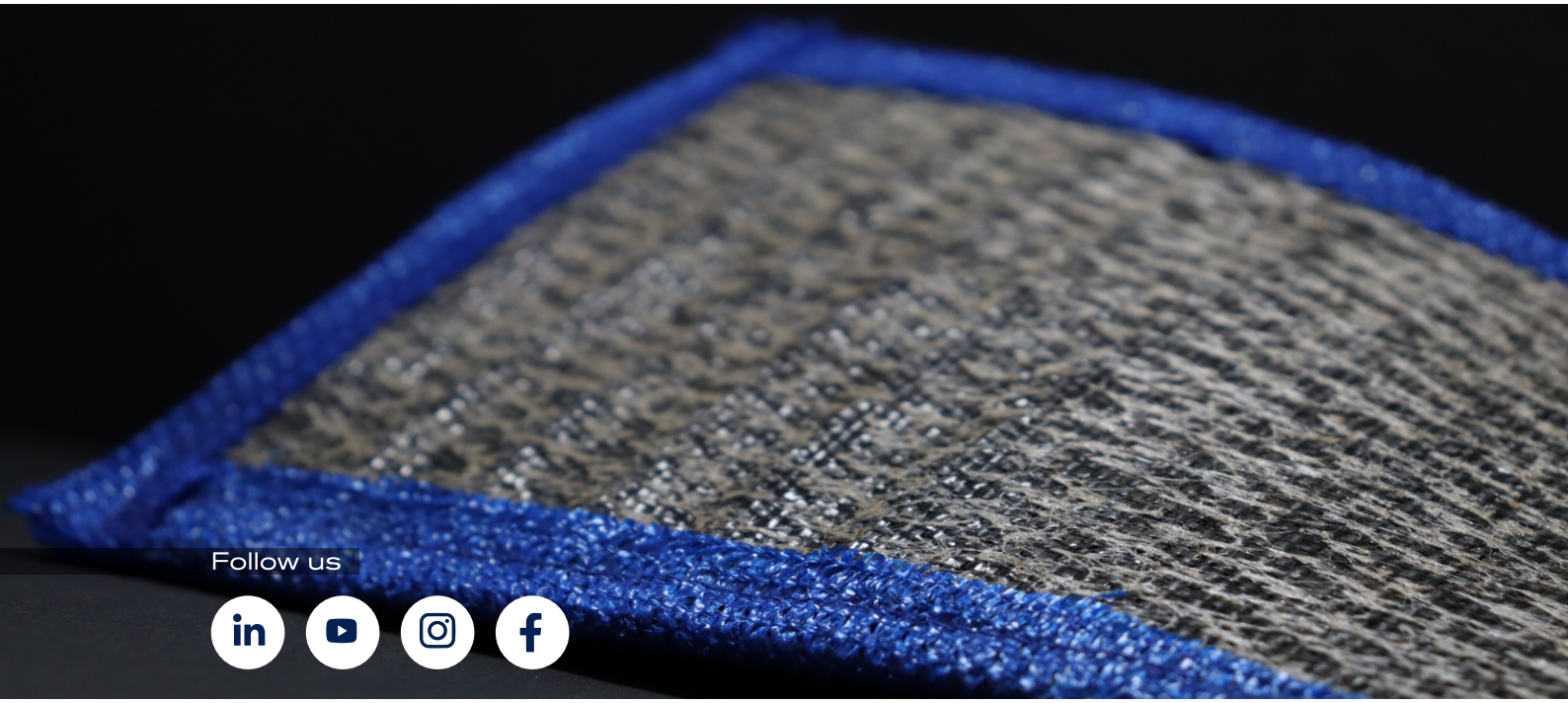

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