

# Geobent



## From Past to ▲ Present Geoplas!

Founded by Sadık Şerefođlu in 1990, Geoplas is an outstanding establishment that manufactures all geosynthetic products under a single roof with its worldwide product diversity. Our company, serving in Ankara Başkent Organized Industrial Zone, started to operate in the mining sector in the first quarter of 2017 and is making progress day by day in extracting and processing bentonite from its mineral deposits as well as manufacturing natural sodium bentonite-based finished products. Our company, which produces sodium bentonite clay under the Geoplas brand; contributes to the manufacturing of technical bentonite powder used in

the drilling and casting industry. In our company's production facilities products used in the construction industry including PVC-HDPE-LLDPE geomembranes, geotextiles, sensible walking surface products, geosynthetic clay liner, drainage plate, water retaining tapes, geogrid, geocell, geonet, rock shield, safety fence, roofing underlayment are manufactured and facilities also serve the livestock sector, footwear sector, carpet and home furniture sector by producing auxiliary materials. Our basic mission is to provide solution partnerships to public institutions and private sector brands and to contribute to production.

Our company, which manufactures its products and makes field applications, also provides consultancy services during the use / application phases of the products. Keeping up with the changing technology with the R&D unit established in 2007, Geoplas manufactures at world standards in the geosynthetic sector. In the country, our company offers solution partnerships with a wide range of products to DSI, TCDD, Municipalities, Mining and Energy companies in many projects. Aiming to be a world leader in its field, our company organized an International Geosynthetic Seminar in Ankara in 2012.

With the participation of American Association of geosynthetic and managers, many institutions and academics from Europe and public institutions and universities from Turkey, this huge seminar led the way for the growth and development of the industry. Geoplas, a global brand, exports to Eastern Europe, Central Asia, North Africa and the Middle East countries. Our company, which contributes economically to the country, also takes special care to be environmentally friendly. The philosophy of "not walking on the best way, but being the best on the way we walk" lies behind our success.

Geoplas

Geoclay

Geocarpet

Kunplas







## ▲ Our Services as Geoplas

- Engineering supported solutions
- Preparation of product and application details specific to your project
- Technical training programs
- Existing Geoplas warranty system
- Leadership in research and development services

Our institutional technical center not only develops R&D services, but also provides quality wire product and service support to meet your expectations.

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## ▲ Geobent

It is a waterproofing geo-composition joined with a special needling method by placing natural sodium bentonite granules between braided and non-braided geotextile.

Non-braided geotextile fibers coming out of the braided geotextile surface with high strength are penetrated into the fresh concrete mortar and establish a perfect mechanical bond. Thus, the movement of water between the concrete surface integrated and the material is prevented.

The sodium bentonite granules between the braided geotextile, which acts as a carrier, and the non-braided geotextile, which has a protective feature, create a homogeneous distribution, and show an equal hydraulic performance at every point.

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## ▲ Operating Principle

When sodium bentonite granules meet with water, it can swell up to 20-24 times its volume. With the pressure force to be applied on the material during the swelling, the desired impermeability value is reached. The non-permeable gel barrier formed in this way provides a complete impermeability. The granules, which remain active throughout the life of the building, prevent the formation of weak points by bridging the settlement cracks that occur over time. Geobent is a live and active waterproofing system unlike passive membranes. It provides an excellent performance for both vertical and horizontal applications in parts of the buildings that are below the ground level.

## ▲ Operation Conditions

Since Geobent is a pressure-based material, it will provide the desired performance with a minimum of 15 cm concrete layer or a filler mass that can create equal pressure with this layer. If groundwater contains strong acids and high levels of alkaline ions, water samples taken from the field should be examined by us in our laboratories for product compatibility testing. In salt water or acid-base environments, the desired impermeability value is reached with the polymer reinforcement suitable for the material.

Geobent does not require any different surface preparation. For applications without using lean concrete, a compression process that will provide 85% saturation curve on the stabilized layer will be sufficient. It can be laid directly on the ground after compacting. It can be applied on wet ground.

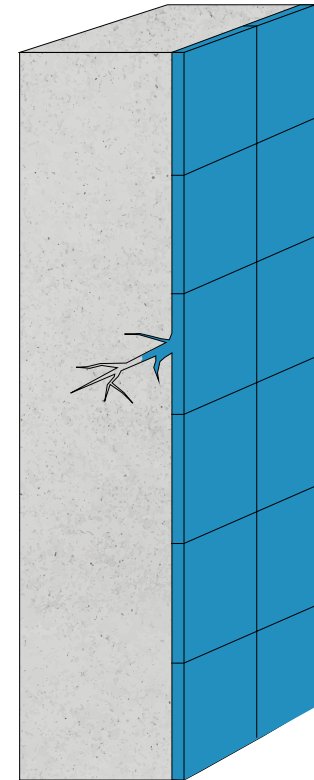
Geobent can be easily applied to difficult details such as pile heads, lining surfaces, anchors, horizontal-vertical intersection points and connection gaps, as it is a flexible material. Bentonite paste is applied around the drilled parts of the material.



# Advantages

Geobent offers cost and application advantages.

- It does not require any special equipment during application.
- It is laid on the ground without the need for primers and adhesives.
- Does not require protection concrete. After the geobent is laid, iron reinforcements are laid directly on it.
- If the saturation curve value of 85% is provided on the ground it can be laid on soil surface without the need for lean concrete.
- If applied vertically, it can be applied to a hard surface or mold surface by fixing with a nail. It can be easily cut and finished in corners and turns.
- It can be used with drinking water.
- It does not need a protection plate in fence applications.
- It does not require any welding or seaming effort.
- It provides an extra advantage with respect to time cost as it accelerates the application.
- Not affected by freeze-thaw cycles.
- It can be applied in all weather conditions, even when the ground is wet or there is active rain.



## Geosynthetic Clay Liner

Our company produces the raw materials it needs within its own structure with the Sodium Bentonite Mine Management that it started since 2006.

CHARACTERISTICS OF GEOTEXTILE LAYER (NON-BRAIDED)								
Test Method		Unit	Values					Tolerance
Mass per Unit Area	EN ISO ISO9864 (EN965)	gr/m <sup>2</sup>	200*					-10%
CHARACTERISTICS OF GEOTEXTILE LAYER (BRAIDED)								
Mass per Unit Area	EN ISO ISO9864 (EN965)	gr/m <sup>2</sup>	100*					-10%
CHARACTERISTICS OF SODIUM BENTONITE POWDER								
Raw Material		Sodium Bentonite Powder						
Mass per Unit Area	EN 14196	gr/m <sup>2</sup>	3200*	4200*	5200*	5700*	6200*	-10%
Swell Index	ASTM-D 5890	ml/2gr	24					-10%
Fluid Loss	ASTM-D 5891	ml	18					+10%
Water Content	DIN1812/ISO 11465 (5hrs, 1050C)	%	10					-
CHARACTERISTICS OF GEOSYNTHETIC CLAY LINER								
Raw Material		Sodium Bentonite Powder /Non-Braided Geotextile / Braided Geotextile						
Mass per Unit Area	EN 14196	gr/m <sup>2</sup>	3500*	4500*	5500*	6000*	6500*	-10%
Thickness	EN ISO9863-1 (EN964-1)	mm	4,0	5,0	6,0	6,5	7,0	-10%
Tensile Strength (ID/IDD)***	EN ISO10319	kN/m	11/11					-10%
Elongation at break (ID/IDD)***	EN ISO10319	%	20/20					-10%
Puncture Resistant	EN ISO12236	N	1800					
Flux Index	ASTM-D 5887/ DIN18130	(m <sup>3</sup> /m <sup>2</sup> /s)	<9*10 <sup>-9</sup>	<7*10 <sup>-9</sup>	<5*10 <sup>-9</sup>	<4*10 <sup>-9</sup>	<3*10 <sup>-9</sup>	+10%
Permeability /K Value	ASTM-D 5887	m/s	<3*10 <sup>-11</sup>	<2,5*10 <sup>-11</sup>	<2*10 <sup>-11</sup>	<1,75*10 <sup>-11</sup>	<1,5*10 <sup>-11</sup>	+10%
Peeling Resistance	ASTM-D6496	N/m	360					-10%
Roll Dimensions (min)	-	m	5*40					-10%



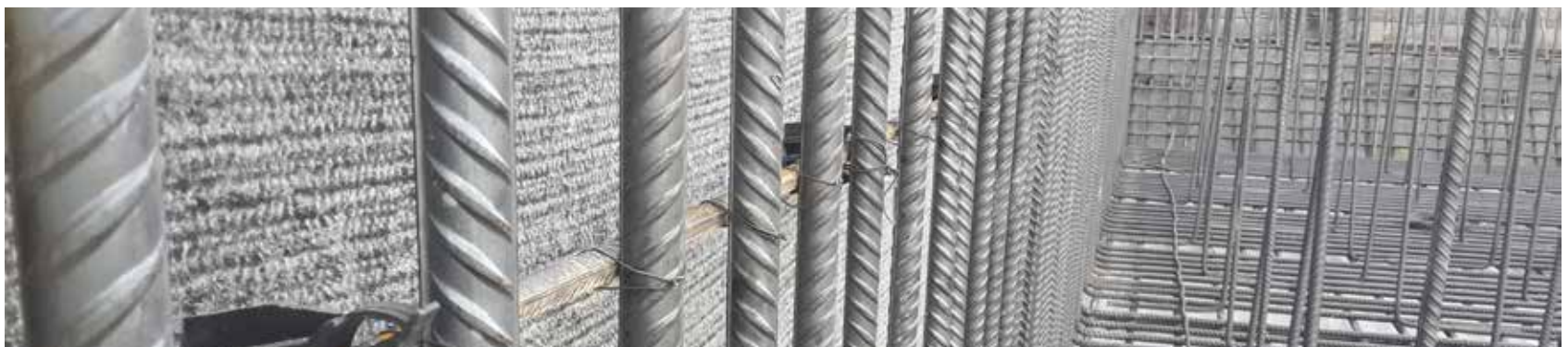
# ▲ Auxiliary Products

**Sodium Bentonite Powder:** For horizontal applications, it is sodium bentonite in the form of polymer-reinforced granular or powder sprinkled on the joints and chamfers of the rolls. It is used to ensure the integrity of the insulation and is sent to the field in 25 kg packages.

**Bentonite Based Paste:** It is the formula of sodium bentonite powder that is made into mastic with the help of water. It is an auxiliary material used in the weak points of the structure, pile head details, vertical applications (fence, elevator shaft), in the joints of the rolls and anchorage heads.

**Pressure Bar:** It is used in encasement surface, material finishing areas, locking details.

**Concrete Nail:** It is a thick body steel nail used to fix the geobent in vertical applications.





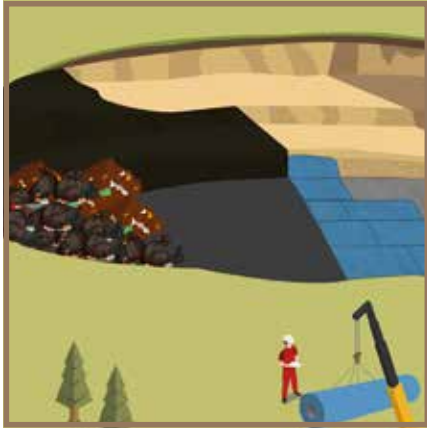
1. Lower Parts of Railway Platforms



2. Dam, Pond and Pool Applications



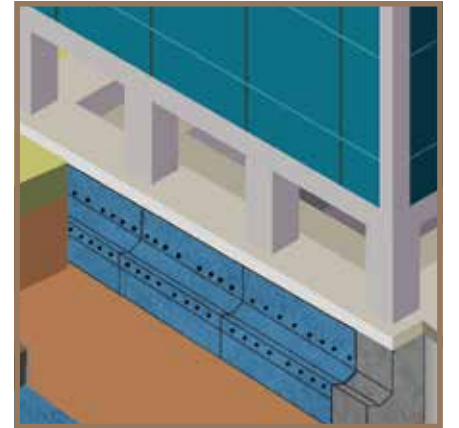
3. Roof and Terrace Applications



4. Regular Waste Collection and Landfill Sites

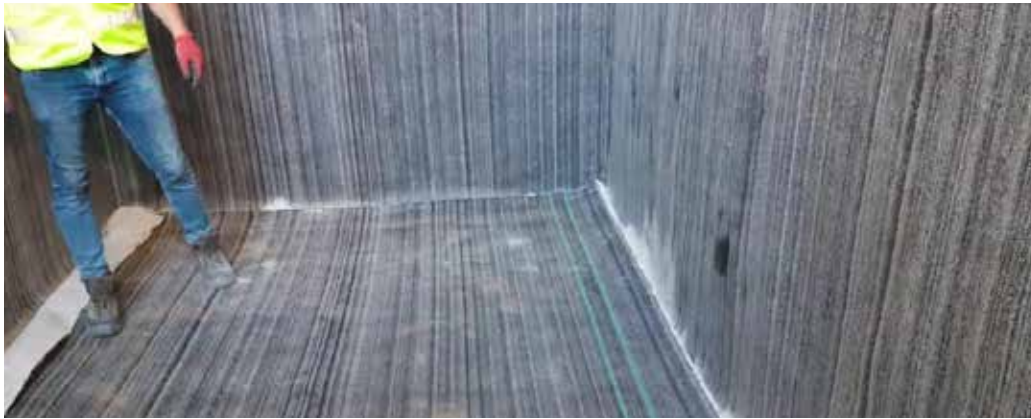


5. Lining, Deep and Pile Foundation Applications



6. Foundation Tanking Applications

## Application Details



The material should be unloaded to the field with the help of the heavy equipment and the belts on the rolls and kept in a suitable area.

Geobent is applied on lean concrete or compacted ground, in such a way that the non-braided geotextile (white) part touches the ground, and the braided geotextile (gray) part touches the foundation concrete.

Joints of the rolls are laid overlapping at least 10-15 cm, with sodium bentonite powder poured between them. If necessary, the shadows of the roller joints can be fixed with nails.

In vertical applications, roll joint directions should be determined by considering the concrete casting direction. During concrete pouring, concrete penetration between the joint areas should be prevented. In addition, geobent is a system that does not require vertical protective plate application and is fixed to the surface with concrete nails.

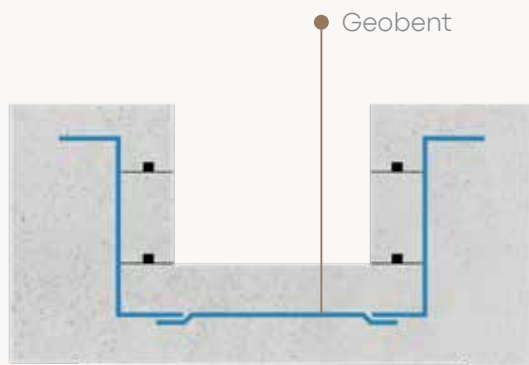


During the application, large gaps, tie-rod holes, anchors and pile heads in the structure should be filled with repair mortar. Material endpoints should be fixed with pressure bars and supported with bentonite paste. Thanks to the adhesion of the geobent to the concrete, the fixing process becomes easier.

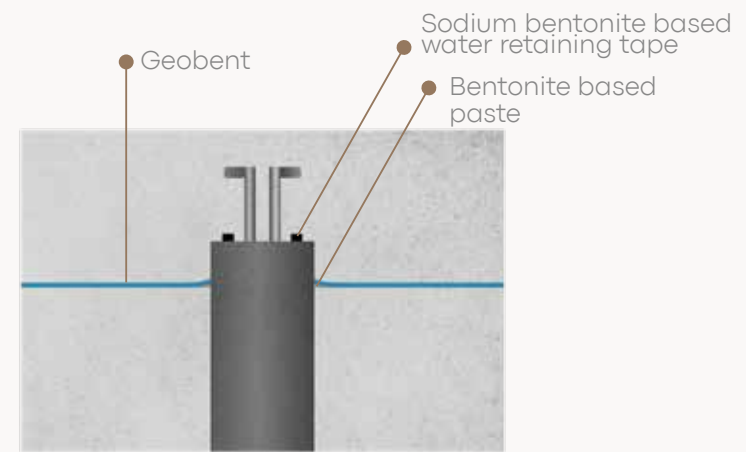


# Technical Details

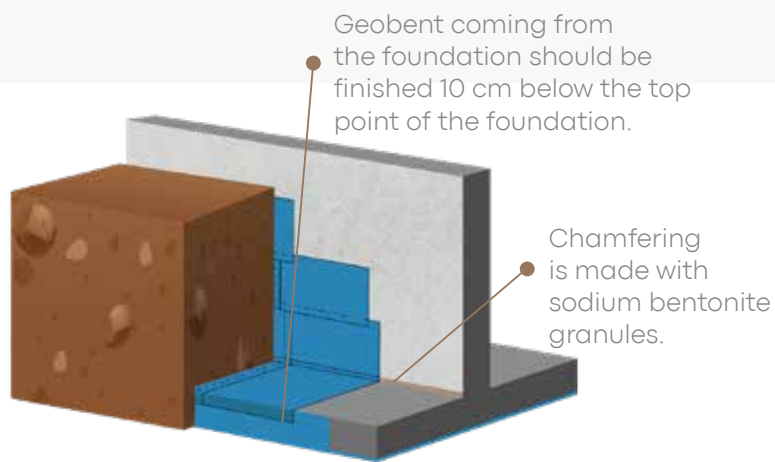
The application details are designed as in the visuals in order to guide you with technical drawings. We support you in the fields with our supervisor service.



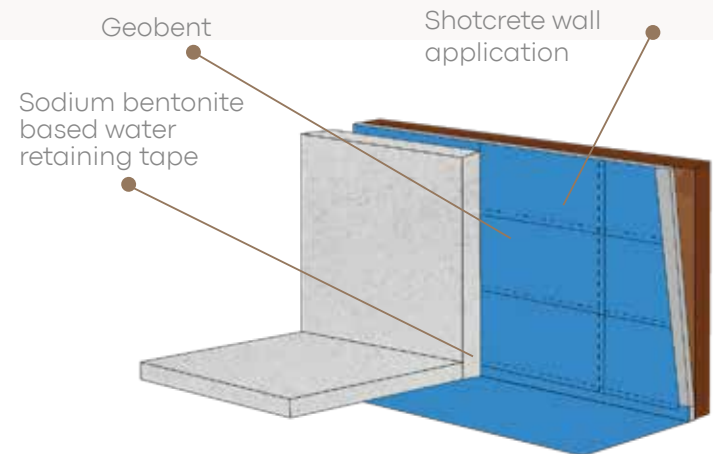
01 Elevator Shaft



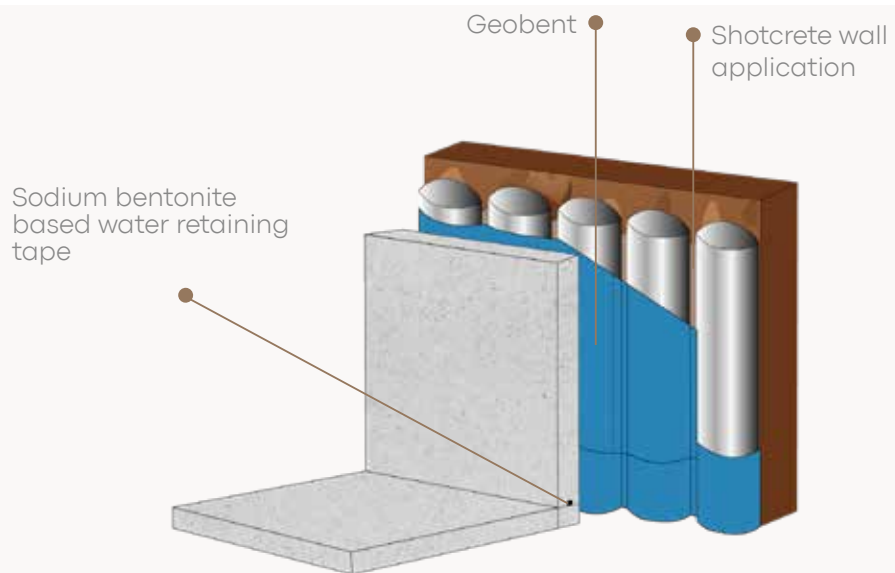
02 Pile Head Detail



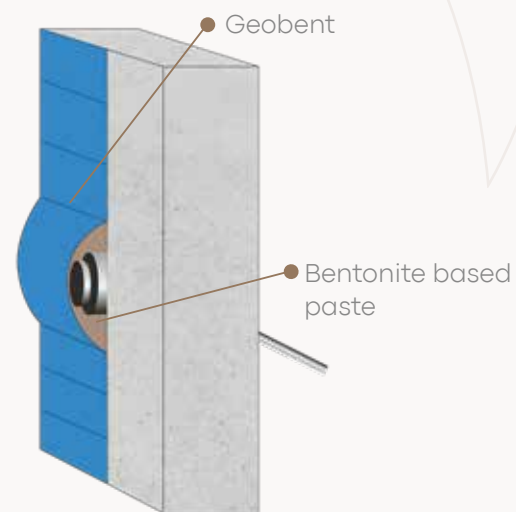
03 Fence Wall Application Detail



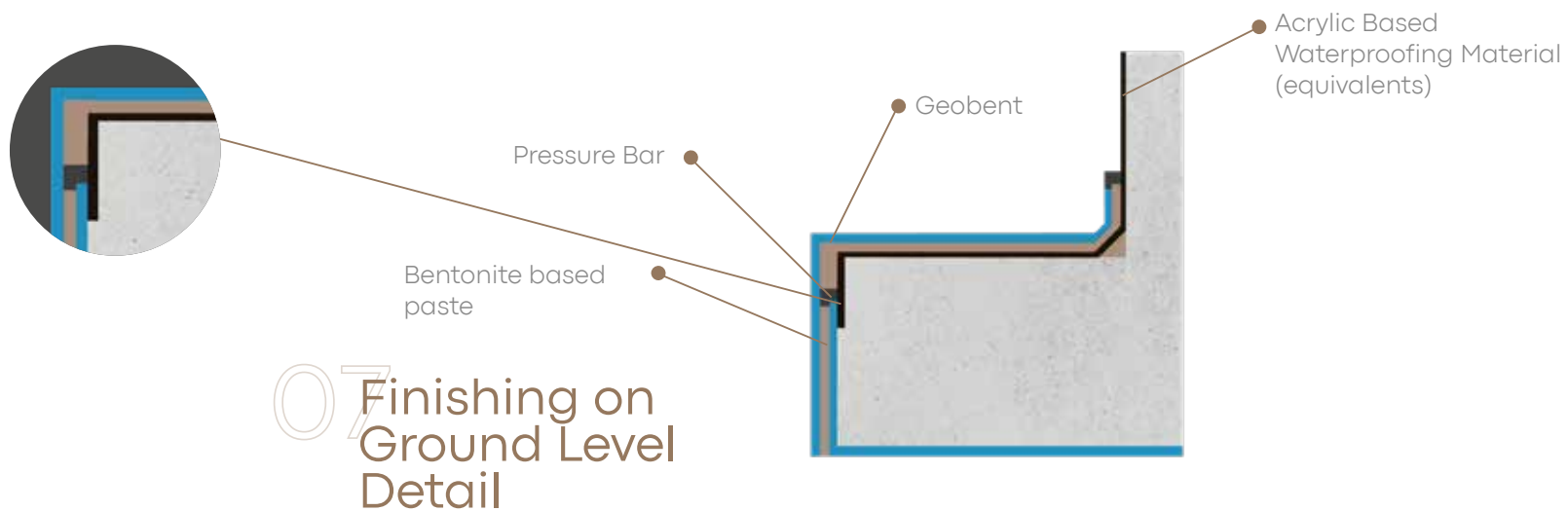
04 Geobent Application Over Shotcrete



05 Application on Piles



04 Anchor Head Detail



07 Finishing on Ground Level Detail



▲ Puncture Resistant  
Waterproofing Geocomposite





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