



RHINO

ROBUST SEALING PROTECTION

ROBUST PRE-APPLIED
SEALING PROTECTING
FOR BELOW & ABOVE
GRADE APPLICATIONS

TECHNICAL FILE

Product Name: RHINO⁺

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1. General description of the product



RHINO⁺

Geomembrane Protection sheet for sealing systems

A strong and flexible polyethylene sheet that prevents blows, scratches and penetration of various materials into the sealing layers.

Double layered product, manufactured from PE smooth or textured sheet and lamination of geotechnical fabric according to customers request and specifications.

RHINO⁺ is made of 100% recycled materials.

Dimensions:

Thickness: 0.7 mm (20 mil) to 2.5 mm (100 mil)

Width: 600 mm (2 feet) to 2200 mm (7.2 feet)

Length according to customer request and needs.

GENERAL APPLICATIONS

Protection, isolation, separation in:

- Construction
- Renovation
- Buildings undergoing refurbishment
- Floor tiles
- Kitchen marble
- Faucets and fixtures before painting

PRODUCT FEATURES

- Waterproofing
- Flexibility
- Structural strength
- High resistance
- Low adhesion
- Easy to apply
- Easy to clean
- Low permeability to chemicals
- Can be cut and / or folded easily
- 100% recycled

TECHNICAL SPECIFICATIONS:

Sheet :

- Material: PE
- Chemical formula: (C₂H₄)_n
- CAS No.: 9010-79-1
- Description: Recycled PE sheet, may contain traces of other material

Laminated non-woven fabric:

- Material: PET
- Chemical formula: (C₁₀H₈O₄)_n
- CAS No.: 25038-59-9
- Description: Recycled PET fabric, may contain traces of other material.

Laminated non-woven fabric:

- Material: PP
- Chemical formula: (C₃H₆)_n
- CAS No.: 9003-07-0
- Description: Recycled PP fabric, may contain traces of other material I

REGULATORY COMPLIANCE:

Protective Sheets complies with the following directives, standards and regulations:

- REACH Directive*

* REACH Compliance is evidenced by written declaration from our suppliers; assuring that any potential trace contamination levels of these listed substances are below the maximums set forth in the EU Directives.



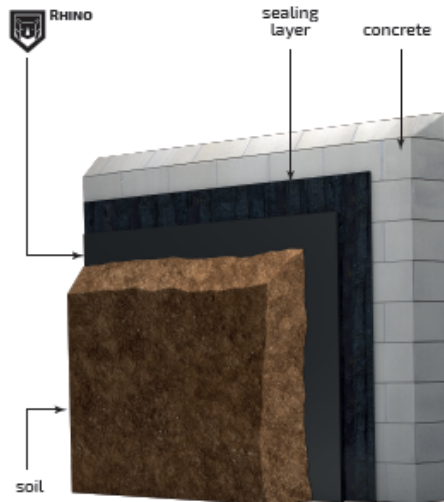
2. Drawings / Photos / Brochure



RHINO
ROBUST SEALING PROTECTION

ROBUST PRE-APPLIED SEALING PROTECTING FOR BELOW & ABOVE GRADE APPLICATIONS

Excellent impact and puncture resistance for the harshest and most demanding construction conditions



FUNCTIONALITY

- Lays out fast
- Easily cuts with scissors or utility knife to create a custom size that fits perfectly into any space
- Enable easy, fast and flat installation
- Easy to handle
- Technology
- Utilizes combined-fiber technology

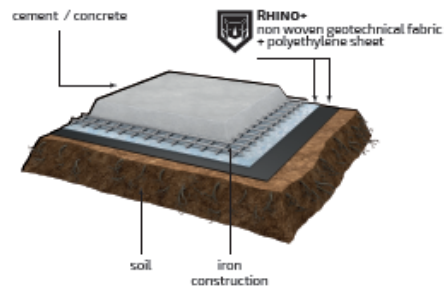


MAIN FEATURES

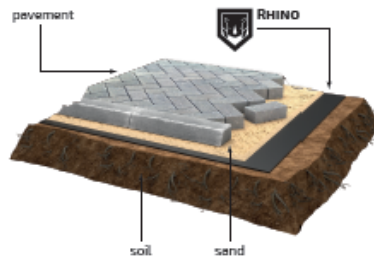
Protects surfaces from impacts, gouges, nicks and other damages

- Implacable adhesion with the concrete slab
- Excellent water migration prevention
- Utmost Physical Impact Resistance

CONCRETE ADHESION, WATER & GAS IMPERMEABILITY



STABILIZING SOIL AND CONTROLLING INVASIVE ROOTS & WEEDS



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f o in y



3. User Instructions and Warnings



Material Safety Data Sheet – RHINO⁺ geomembrane sheet

1. Identification of substance	
Trade name	RHINO ⁺ recycled two layers sheet (PE sheet & non-woven PP-PET sheet)
Manufacturer	K.B. Recycling industries Ltd.
2. Hazards Identification	
Information pertaining to particular dangers for man and environment	The molten product adheres to the skin and causes burns Spilled material may present a slipping hazard Possible production of electrostatic charging when used The working steams can irritate the eyes as well as the respiratory tract
Classification & Labeling	This product is not classified as hazardous according to EEC directives 67/548/EEC, 1999/45/EC This product is not classified as hazardous according to EC regulations 1907/2006/EC, 1272/2008/EC, and following amendments
3. Composition	
<i>PE Layer</i>	
Chemical Name	Polyethylene,
Chemical Formula	(C ₂ H ₄) _n
CAS No. Designation	9010-79-1
Description	Recycled polyethylene sheet
<i>Laminated fabric Layer</i>	
Chemical Name	1. Polypropylene 2. Polyethylene Terephthalate
Chemical Formula	1. (C ₃ H ₆) _n 2. (C ₁₀ H ₈ O ₄) _n
CAS No. Designation	1. 9003-07-0 2. 25038-59-9
4. First Aid Measures	
General information	The measures listed below apply to critical situations (Fire, incorrect process conditions) At room temperature the product is neither an irritant nor gives off hazardous vapors
After inhalation	In case of excessive inhalation of fumes, move person to fresh air. Call for medical help. Keep person warm, if necessary give mouth-to-mouth resuscitation, or artificial respiration
After skin contact	After contact with the molten product, cool rapidly with cold water, do not pull solidified product away from the skin. Seek immediate medical advice.
After eye contact	Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing	No specific measures to be taken if the product is swallowed, Get medical advice.
5. Firefighting measures	
Suitable extinguishing agents	Polyethylene is a flammable material, Keep away from heat sources, fires, sparks and other flammable materials. Keep away from welding, metal grinding and any others jobs that may cause flames or sparks. Water spray Foam Carbon dioxide Chemical powder



Special hazards caused by the Material and its products	In case of fire the material might release: Heavy dark smoke, Water (H ₂ O), carbon dioxide (CO ₂) or Carbon monoxide (CO) when lacking oxygen (O ₂) The formation of hydrocarbons and aldehydes are possible in the initial stages of a fire (especially between 400°C and 700°), these emissions are dangerous.
Protective equipment	breathing apparatus, fire suit
Additional information	Heat value: 12.2 kWh/kg
6. Accidental Release Measures	
Person-related safety	No special measures required – Keep away from children-choking hazard
Environmental protection	No special measures required
Measures for cleaning/collecting	Put into a container and provide a safe disposal.
Additional information	Recycle product or dispose properly
7. Handling and Storage	
safe handling	At room temperature no special requirements are necessary Lift and load safely, including fixation for prevention of falling or rolling during transportation
Storage	Store at ambient temperature and at atmospheric pressure in original packaging. Insure safe fixation for prevention of falling and rolling.
storerooms and containers	Protect from heat and fire. Store in a well-ventilated storage. Store under dry conditions.
8. Exposure Controls and Personal Protection	
General protective and hygienic measures	Do not eat or drink while working No smoking Provide system for collecting the vapors which are created during the working process
Breathing equipment	Welding should take place in open and well-ventilated areas. If appropriate ventilation is not available, use facemask when handling the molten product and while welding sheets using heat sources.
Skin protection	Heat resistant gloves
Eye protection	Safety glasses with side-shields
Body protection	Safety and non-slip boots or shoes
9. Physical and Chemical Properties	
Appearance	black plastic sheets
Melting Point	110-135°C (PE), 160-170 °C (PP), 250-260°C (PET) @ atmospheric pressure, sea level
Flash Point	> 315°C (PE), >330°C (PP), >350°C (PET)
Ignition temperature	> 315°C (PE), >330°C (PP), > 400°C (PET)
Decomposition temperature	> 315°C (PE), >330°C (PP), > 350°C (PET)
Danger of explosion	not explosive
Density	0.92-0.96 g/cm ³ (PE), 0.90-0.93 g/cm ³ (PP), 1.32-1.42 g/cm ³ (PET) @ 20°C
Solubility in water	Insoluble
10. Stability and Reactivity	
Thermal decomposition	The product is stable at normal handling- and storage conditions
Material to Avoid	Strong oxidizing agent
Dangerous reactions	No dangerous reactions known
Decomposition products	No hazardous decomposition products known at room temperature
11. Toxicological Information	
Acute toxicity	biologically inert



Primary irritant effect on the eye, skin and inhalation	Dust causes irritation to the eyes, skin and mucous membranes and may lead to toxic lung edemas
Sensitization	No sensitizing effect known
Additional toxicological information	When used and handled according to specifications, the product does not have any known harmful effects
12. Ecological Information	
Eco toxicity effects	No known eco-toxicological effects
Other information	The product is not biodegradable
13. Disposal Considerations	
Waste disposal	Disposal must be done according to local regulations Reuse possible
14. Transport Information	
Transport/Additional information	According to national and international guidelines, which regulate the road-, rail-, air- and sea-transport, this product is classified as not dangerous material
15. Regulatory Information	
EC regulations	The material is not a subject to classification according to EC lists
16. Other Information	
Further information	None
<p>This information presented herein is indicative and based on current level of information, knowledge and experience available, for the purpose of specifying the requirements regarding environment, health and safety in conjunction with the product. It is not to be interpreted as a warranty for specific product characteristics.</p> <p>K.B. Recycling Industries Ltd. takes no responsibility for inappropriate use, processing and handling by purchasers and users of the product.</p>	

Environmental operating conditions

Max. Ambient Temperature: 55°C

Maintenance and Repairs:

Contact distributor.

Transport and Storage

Transport and store the RHINO⁺ Sheets in the original package.

Store RHINO⁺ Sheets in a dry and sun protected room.

Application

RHINO⁺ Sheets can be used after reading the User Instructions and the introductory done by the distributor agent.

Warnings

1. Keep your work area in proper order.



Do not bring the materials near hot surfaces.

2. be aware of your surroundings.

Don't store the Protective Sheets in a moist or wet environment.

3. Store your Protective Sheets in an appropriate place.

Unused Protective Sheets should be stored in a dry location.

4. Use correctly the Protective Sheets

Don't use the Protective Sheets whose performance is not adequate for your work. Never use the Protective Sheets for purposes for which it was not designed.

5. Take care of your Protective Sheets

Keep the Protective Sheets clean for better and safer operation. Follow the user instructions and the notices. Repairs should only be carried out by a qualified person. Use only original materials.



4. Technical Data Sheet



Technical Data Sheet*

RHINO⁺ 1.0 (1 mm thickness PE layer)

Description and applications

A strong flexible geomembrane sheet for sealing and protection from mechanical damages and penetration into sealing systems. RHINO⁺ is made of 100% recycled materials.

The geomembrane sheet is composed of two-layers: a strong and flexible polyethylene sheet (**PE layer**) for sealing and protection and a PP or PET fabric (**fabric layer**) for strong attachment to concrete molding.

Technical properties:

PE layer:

Properties	Method	Typical value	Unit
Thickness	ASTM D-5199	0.95-1.1	mm
Density	ASTM D792	0.94-0.96	g/cm ³
Ash content	ISO3451-1	2	%
Tear resistance	ASTM D-1004	90-97	N
Tensile properties	ASTM D-6693		
Break elongation		191-435	%
Break strength		16-25	kN/m
Yield elongation		12	%
Yield strength		12	kN/m

Fabric layer pre lamination:

Properties	Method	Typical value	Unit
Thickness	ASTM D-5199	1.9-2.1	mm
Density	ASTM D 5261	180-220	g/cm ²
Tear resistance	ASTM D-1004	55-80	N
Tensile elongation (MD)	ASTM D-4632	125	%
Tensile elongation (CD)	ASTM D-4632	220	%
Tensile strength (MD)	ASTM D-4632	176	N
Tensile strength (CD)	ASTM D-4632	183	N
Breaking strength	ASTM D3786	1227	Kpa
Puncture resistance	ASTM D4833	176	N
C.B.R	DIN 54307	644	N
AOS	ASTM D4751	0.56	mm
Permittivity	ASTM D4491	1.45/(145)	S ⁻¹ / (l/m ² xs)

***Disclaimer:** The data included above relies on the data of the recycled products at their original form. Due to changes that may occur in their implementation processes, as well as additives consumption and/or the existence of other manipulations made by the end user, the actual material characteristics may be significantly diverse. It is the customer sole discretion to determine if the product is suitable for his applications and uses.



Technical Data Sheet*

RHINO⁺ 1.5 (1.5 mm thickness PE layer)

Description and applications

A strong flexible geomembrane sheet for sealing and protection from mechanical damages and penetration into sealing systems. RHINO⁺ is made of 100% recycled materials.

The geomembrane sheet is composed of two-layers: a strong and flexible polyethylene sheet (**PE layer**) for sealing and protection and a PP or PET fabric (**fabric layer**) for strong attachment to concrete molding.

Technical Properties:

PE layer:

Properties	Method	Typical value	Unit
Thickness	ASTM D-5199	1.4-1.6	mm
Density	ASTM D792	0.94-0.97	g/cm ³
Ash content	ISO3451-1	2	%
Tear resistance	ASTM D-1004	165-182	N
Tensile properties	ASTM D-6693		
Break elongation		365-580	%
Break strength		21-28	kN/m
Yield elongation		16	%
Yield strength		19	kN/m

Fabric layer pre lamination:

Properties	Method	Typical value	Unit
Thickness	ASTM D-5199	1.9-2.1	mm
Density	ASTM D 5261	180-220	g/cm ²
Tear resistance	ASTM D-1004	55-80	N
Tensile elongation (MD)	ASTM D-4632	125	%
Tensile elongation (CD)	ASTM D-4632	220	%
Tensile strength (MD)	ASTM D-4632	176	N
Tensile strength (CD)	ASTM D-4632	183	N
Breaking strength	ASTM D3786	1227	Kpa
Puncture resistance	ASTM D4833	176	N
C.B.R	DIN 54307	644	N
AOS	ASTM D4751	0.56	mm
Permittivity	ASTM D4491	1.45/(145)	S-1/ (l/m2xs)

***Disclaimer:** The data included above relies on the data of the recycled products at their original form. Due to changes that may occur in their implementation processes, as well as additives consumption and/or the existence of other manipulations made by the end user, the actual material characteristics may be significantly diverse. It is the customer sole discretion to determine if the product is suitable for his applications and uses.



5. Manufacturing Instructions for serial production



- Quality inspection of incoming material
- Production of RHINO⁺ sheets according to production process
- Dimension and properties tests of the final product according to specification (Quality Control of final product)
- Marking of the product (Traceability)
- Attaching the User Instructions
- RHINO⁺ Sheets packaging to assure safe handling and shipment



6. Marking on Product



Each roll is marked with the following data:

1. Material code
2. Batch Number
3. Year and Month of production
4. Manufacturer name or Trade Mark
5. Country of origin

Marks are clearly printed on an adhesive sticker.

Sample of Marking Label:

K.B. Recycling
Type: RHINO⁺
Sheet Dimensions:
Batch Number:
MFG. DATE: 09-2018
MADE IN ISRAEL



7. Declaration of environmental contribution



Declaration of environmental contribution

We hereby declare that RHINO⁺ product is made of 100% recycled post-consumer polyethylene extracted from domestic and agriculture waste streams. The laminated non-woven layers are made of different kinds of materials according to customer's request; it can be recycled or virgin, polypropylene or polyester. The recycled material content will be determined according to the laminate type and polyethylene layer thickness.



Yael Ghetta, Engineer

KB Recycling Industries LTD.

***This declaration refers only to RHINO⁺ product and not necessarily to their packaging.**