

- 1. Description** RK2 is a geocomposite made of a geonet drainage core with a needlepunched nonwoven geotextile bonded on both sides.
- 2. Applications** Used in existing trackbed to increase hydrological transmissivity. The filtration and drainage geocomposite was developed to address existing track bed formation installations that have a significantly reduced natural ground drainage capability.
- 3. Features** Bi-planar geonet manufactured from extruded HDPE. Its properties and composition provide long term resistance to mechanical and chemical degradation, even when used in aggressive conditions. RK2 uses our RK1 needlepunched nonwoven geotextile which is specified by Engineers due to its proven ability to function in the most demanding conditions – especially important under dynamic loading beneath track ballast. Extensive testing demonstrated RK1's class leading robustness and long service life under dynamic loading. This is due to its high puncture resistance, high elongation at break, excellent filtration and durability characteristics.



	Test Standard	Unit	Mean Values
4. Mechanical Properties – Composite			
Static puncture (CBR)	EN ISO 12236	kN	7
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	30
Tensile elongation (MD/CMD)		%	70
Shear strength	EN ISO 13426-2	kN	1.4
5. Filter Properties – Protection Geotextile			
Apparent opening size	EN ISO 12956	µm	60
Water permeability V_{H50}	EN ISO 11058	l/(m ² ·s)	85
6. Physical Properties – Protection Geotextile			
Thickness @ 2kPa (Nominal)	EN ISO 9863-1	mm	4.0
Carbon black content			1% active carbon black
Standard colour			Black
Polymer			100% virgin polypropylene
Construction			Needlepunched
7. Physical Properties – Geonet			
Core material			High density polyethylene
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	4
Thickness	EN ISO 9863-1	mm	3.4
8. Hydraulic Properties – Composite			
In plane flow capacity $i = 1$ @ 20kPa	EN ISO 12958	l/(m·s)	0.026
$i = 1$ @ 200kPa			0.014
$i = 1$ @ 300kPa			0.007

- a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples. Mean values are subject to tolerances based on 95% confidence limits as published on the product CE declaration of performance.
- b) Nominal Value (indicates an average manufacturing norm and not a controlled performance parameter).
- c) MD: Machine Direction (longitudinal to the roll).
- d) CMD: Cross Machine Direction (across the roll).
- e) Tensile testing is performed using extensometers.
- f) In plane flow capacity tested using soft/soft platens.

	Test Standard	Values
9. Durability – Composite		
Weathering 50 MJ/m ² (1 month)	EN ISO 12224	>90% Retained Strength
Microbiological resistance	EN ISO 12225	No loss in strength
Resistance to acids & alkalis	EN ISO 14030	No loss in strength
Oxidation at 112 days (100 years)	EN ISO 13438	>90% Retained Strength

- 10. Needle Detection** During manufacture, the protection geotextile passes close to three sets of magnets which remove metal particles up to 12g and >2mm. Just before the roll up, the geotextile passes through an electronic metal detection field. Audio and visual alarms indicate if metal particles are detected. Rolls are sent to stock if they pass through the field without an alarm event or, in the case of an alarm event, the operator inspects the suspect area, locates any metal particles and removes them. If unsuccessful, or if any doubt remains as to the presence of metal particles, then the roll goes to the re-inspection facility.

- 11. Testing** All materials are tested every 6000m² in an UKAS accredited ISO 17025 laboratory to all mechanical properties prior to release.

- 12. Storage** The geocomposites are supplied in packaging designed to protect the product from damage during handling, storage and degradation as a result of UV exposure. The product should be kept in appropriate packaging until such time that it is required for installation. The product is clearly and indelibly marked with the product name along the edge of the roll at regular intervals no greater than 5m. The packaging is labelled clearly to identify the product supplied in accordance with EN ISO 10320: Geotextile and Geotextile related products – Identification on site. Use slings where provided. Product weights are given on roll tickets. Use equipment appropriate to weight and dimension. Store and handle in accordance with good occupational hygiene and safety practice.

	Unit	Values
13. Dimensions		
Standard roll length	m	25
Standard roll width	m	3.9
Approximate roll weight	Kg	125