

PRODUCT DESCRIPTION

RUFECO 2000B, 3000B and 4000B are membranes consisting of a very flexible, linear low-density polyethylene (LLDPE). LLDPE provides high elongation, tremendous tear resistance and bursting strength. A minimum carbon black content of 2.0% provides excellent protection from UV rays and harsh weather conditions. They do not contain plasticizers which can migrate to the surface, causing premature aging. Manufactured from virgin resins, **RUFECO 2000B, 3000B and 4000B** are designed to provide a high quality yet economical geomembrane.

PRODUCT USE

RUFECO 2000B, 3000B and 4000B are used in applications that require excellent outdoor longevity and chemical resistance. These are very flexible materials that will conform to uneven surfaces. Rufco 3000B meets or exceeds ASTM E-1745, Class "A" standard as an underslab vapor retarder.

SIZE & PACKAGING

RUFECO 2000B is available in 50,000 square foot panels and **RUFECO 3000B** in up to 33,000 square foot panels. **RUFECO 4000B** is available in up to 25,000 square foot panels. All panels are accordion folded and tightly rolled onto a heavy duty core for ease of handling and time saving installation.



Holding Pond



Large Factory Welded Panel

PRODUCT	PART NUMBER
RUFECO 2000B	2000B
RUFECO 3000B	3000B
RUFECO 4000B	4000B

COMMON APPLICATIONS

- Decorative Ponds
- Pond/Canal Liners
- Outdoor Covers
- Fire Ponds
- Remediation Liners
- Cargo Covers
- Vapor Retarders
- Brine Ponds
- Oil Field Pit Liners
- Silage Covers
- Mine Tailing Ponds
- Interim Landfill Caps
- Waste Water Ponds
- Golf Course Pond Liners
- Farm Ponds
- Leachate Collection Ponds

Properties	Test Method	RUF ^{CO} 2000B		RUF ^{CO} 3000B		RUF ^{CO} 4000B	
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages
Thickness mils (mm)	ASTM D 5199	20.0 (0.50)	21.0 (0.53)	30.0 (0.75)	31.2 (0.78)	40.0 (1.00)	41.5 (1.04)
Density g/cm ³	ASTM D792 or ASTM D1505	0.939 Max.		0.939 Max.		0.939 Max.	
Tensile Strength lbf/in. width (N/mm width)	ASTM D638/D6693 1. Tensile Strength at Break 2. % Elongation at Break	76 (13) 800	104 (18) 875	114 (20) 800	144 (24) 875	152 (27) 800	185 (32) 875
Hydrostatic Resistance psi (kPa)	ASTM D751 (814)	118 (841)	122 (1206)	175 (1241)	180 (1586)	230 (1724)	250
Puncture Resistance lbf (N)	ASTM D4833 (130)	30 (195)	44 (200)	45 (270)	60 (270)	60 (334)	75
Tear Resistance lbf (N)	ASTM D1004 (49)	11 (62)	14 (71)	16 (89)	20 (98)	22 (120)	27
Volatile Loss Method A	ASTM 1203		<1%		<1%		<1%
Resistance to Soil Burial (% change maximum in original value)	ASTM D3083 1. Tensile Strength at Yield 2. Tensile Strength at Break 3. Elongation at Yield 4. Elongation at Break 5. Modulus of Elasticity		±10%		±10%		±10%
Low Temp, Impact Failure Temp F (C)	ASTM D746	(< -70)	< -94	(< -70)	< -94	(< -70)	< -94
Dimensional Stability % Change	ASTM D1204		< 2		< 2		< 2
Environmental Stress Crack Resistance Hours to failure	ASTM D5397 Appendix A		> 400		> 400		> 400
Carbon Black %	ASTM D1603 or D4218	2.0	2.5	2.0	2.5	2.0	2.5
Perms grains/ft ² /hr/in. Hg (grams/m ² /day/mm Hg)	ASTM E96 Method A 73° F, 50% RH		0.045 (0.030)		0.029 (0.019)		0.022 (0.014)
FACTORY SEAM REQUIREMENTS							
Bonded Seam Strength lbf/in. width (N/cm width)	ASTM D4545 Mod.*	40 (70)	45 (79)	60 (105)	68 (119)	75 (131)	80 (140)
Seam Peel Adhesion lbf/in. width (N/cm width)	ASTM D4545 Mod.*	30 (53)	36 (63)	45 (79)	53 (93)	60 (105)	69 (121)

Nominal Weight /Thousand Square Feet: RUF^{CO} 2000B - 105 lbs., RUF^{CO} 3000B - 157 lbs., RUF^{CO} 4000B - 210 lbs.

* Raven Industries performs seam testing at 12" per minute.

Rufco 3000B meets or exceeds ASTM E-1745, Class "A" standard for water vapor retarders used in contact with soil or granular fill under concrete slabs.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. NO WARRANTIES ARE MADE AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.

RAVEN

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ISO 9001:2000 CERTIFIED
MANAGEMENT SYSTEM