

**WE AT POLY RUBBER PRODUCTS HAVE DEVELOPED SPECIAL EPDM ROOF SHEETING COMPOUND "POLY FLEX™" L3955 & ADHESIVE COVER 3174 (UNDER TECHNICAL COLLABORATION WITH M/S. A. TAMBURINI & CO. - ITALY) WHICH CONFORMS TO THE "MINIMUM REQUIREMENTS FOR NON REINFORCED BLACK EPDM RUBBER SHEETS FOR USE IN ROOFING APPLICATION" AS LAID DOWN BY "THE RMA ROOFING COUNCIL" OF U.S.A.**

This single-ply black membrane is light weight & has exceptional long lasting elasticity permitting the material to withstand followings.

- Building movement.
- Expansion-Contraction of Building Surface.
- High Resistance to Ozone & UV rays & therefore called "Crackless Rubber"
- Low specific gravity - lightest among all rubbers.
- Widest Temperature range from - 40° To + 80°C.
- Excellent Steam, Water, Acid, Alkali Resistance

These sheets are mainly used for water proofing in Roof, Swimming Pools, Foundation of any civil construction, Soak pits for animal feed, Gobar gas plant, total prevention of subsoil water seepage in tanks, canals, etc. & even after 20 years EPDM Roofing Material maintains good properties & appearance.

## **MAIN ADVANTAGES OF POLY FLEX™ EPDM WATER PROOFING**

### **A. THE SUPERIOR PROPERTIES OF EPDM WATER ROOFING**

The life of any building is dependent on the designer recognising & considering all the factors relevant to its location, shapes, & function of the building. A reliable roofing is the most important part which decides the quality & ultimately the life of the building. An efficient roof sheeting should never allow even traces of water to pass through it at any given point & should maintain this characteristic over a long period of time. It should withstand slight movements of the structure, bad weather, chemicals degradation and mechanical stress & strains.

EPDM is the perfect solution which meets the stringent requirement of good water proofing roof sheet. In the long run it is more economical than traditional water proofing systems.

### **B. POLY FLEX™ EPDM SHEET HAS MORE WATER PROOFING POWER THAN CONVENTIONAL MATERIAL.**

EPDM sheet (with a thickness of 1.2 mm) is 22 times more than asphalt & 59 times more water proofing than PVC sheet.

**C. POLY FLEX™ EPDM SHEET WILL TAKE THE "MOVEMENT" OF THE STRUCTURE**

Since EPDM sheet can be stretched (approx. 300%), it will not tear, crack or split but will return to the original position, without damage to the membrane. The EPDM SHEET has an unflinching flexibility.

**D. POLY FLEX™ EPDM SHEET WITHSTANDS EXTREMES OF TEMPERATURE**

Because of serviceability over a wide range of temperature (-40° to + 80°c), EPDM sheet does not embrittle in freezing weather nor soften in hot weather.

**E. POLY FLEX™ EPDM SHEET MINIMAL EXTRA LOAD ON YOUR ROOF**

EPDM roof sheet is one of the lightest roof membrane materials (with a specific gravity of approx - 1.15 kg/m<sup>2</sup>). It is highly suitable for light weight structure & puts negligible extra load on roofs to be water proofed.

**F. POLY FLEX™ EPDM SHEET LASTS FOR MORE THAN 20 YEARS**

Presently in many countries, asphalt based coating is employed in many building to protect the roof from leaking. However, the life of such water proofing is limited & the coating is being replaced every 2 to 3 years. Because of exceptional water & weather resistance of EPDM, the roof sheets based on EPDM are known to last for more than 20 years.

**G. LITTLE OR NO MAINTENANCE IS REQUIRED FOR THE EPDM WATER PROOFING SHEET**

As the EPDM Rubber Sheet does not deteriorate due to weather, heat, sunlight & oxidation, virtually no maintenance is required for the roof.

**H. RESISTANT TO MOST OF THE ACIDIC & ALKALINE CONDITIONS FOR WIDE RANGE OF TEMPERATURE.**

As the EPDM rubber is highly saturated Polymer, it has better Chemical & Environmental resistance than other available Polymeric Materials. This can be used in Chemical Plants for their drainage & canal systems to avoid seepage through RCC/concrete work which otherwise can damage surrounding fields.

I. The following table shows the comparative properties of EPDM roof sheeting against other materials used for roof protection which indicates superiority of EPDM roof sheeting.

PROPERTY	<b>POLY FLEX™ MEMBRANE</b>	BRICK BAT COBA	BITUMEN/ COAL TAR BASED SYSTEM
1. Water Resistance	E	B	B
2. Water Repellent	E	D	D
3. U. V. Resistant	E	N.D.	D
4. Ozone Resistant	E	N.D.	C
5. Retention of Properties between Temperature -20° C To + 80° C	E	D	D
6. Acid / Alkali Resistant	E	D	D
7. Resistance to cold cracking	E	D	D
8. Light Weight	E	D	C
9. Ease of Installation Install on Existing roof	E	D	C
10. Performance in Under Ground Construction	E	B	D
11. Applicability for Water Canal / Reservoir	E	B	C
12. Ease for Repair - Maintenance	E	D	C
13. Bondeability with Various Substrate like Concrete, Wood & Asbestos	E	N.D.	C
14. Physical Properties like Tensile, Elongation etc.	E	D	D
15. Resistance to Building movement / Expansion / Contractions	E	D	D
16. Considering above over all Performance	E	B	C

**E** : Excellent    **B** : Good    **C** : Fair    **D** : Poor    **N.D.** : No Data / Not Applicable

## INSTALLATION

EPDM roof sheets can be factory assembled from smaller width sheets by hot vulcanising into their correct positions to form a continuous water proof surface. Alternatively, the sheets can be site welded together like those made in factory.

As EPDM is elastic & tear resistant at low temperature, the EPDM roof sheets can be manipulated over pipes & curves in any weather and fit properly around such projections. Also as EPDM is UV resistant, it needs no solar protection although normal measures may be taken to reduce thermal transfer through the roof structure, i.e. insulation.

The roof surface or substrate must be clean & free from debris, chippings or oily/greasy materials prior to the laying of EPDM roof sheet. If the surface is rough or uneven an appropriate board or sheet material should be used to provide a smooth surface.

### **POLY FLEX™ EPDM ROOF CAN BE FIXED IN TWO WAYS.**

- ***SPOT BONDING :***

For securing EPDM roof membrane by Spot Bonding method, we need to apply adhesives at regular intervals in addition to applying adhesives at the periphery of the roof / terrace.

Alternatively "ballasting" can also be done wherein one needs to load the membrane with ballasts - round shaped washed stone 20-40 mm in diameter.

The ballast weight should be calculated by taking in to consideration the design permissible loading capacity of roof.

- ***FULL BONDING :***


Full Bonding is appropriate when structures are too light or roofs are too steep for ballasting. In this method entire membrane is bonded to the substrate at all the points. The membrane can be bonded to smooth wood, concrete, steel, aluminium, rigid insulation, clean & free of oil, grease or other contaminants.

In this method, the main area of covering is bonded to its substrate with slow curing adhesive. The surface irregularities of the old roofs must be removed before applying the covering.

First the roof sheet is placed with in proper position, & adhesive is poured directly from the container or is applied with the brush or roller. The rubber sheet is than unrolled over the fresh adhesive layer & is roller worked until it is flat & free of wrinkles.

**So if you are looking for strong, Flexible Water Proof System or for any Water Proofing Consultations, kindly contact our Technical Department.**

## TECHNICAL SPECIFICATIONS


TECHNICAL CHARACTERISTICS OF <i>POLY FLEX™</i> EPDM MEMBRANE/ POND LINER GRADE " G "		SPECIFICATION : TC : SAB-778/12-02 DT. 19-12-02 IRMRA :		
PHYSICAL PROPERTY	ASTM/BS TEST METHOD	REQUIREMENT OF		<i>POLY FLEX™</i> RESULT
		RMA/ROOF COUNCIL-USA	ASTM STANDARD	
<b>COLOUR</b>	.....	Black	.....	Black
<b>THICKNESS</b>	-D 412/BS 903	1.016	1.016	1.1 TO 1.15
<b>TENSILE STRENGTH (MPa)</b>	-D412Die C/BS903 Part A2	9-Min	9-Min	9.90
<b>ELONGATION AT BREAK (%)</b>	D412/BS903 Part A2	300-Min	300-Min	450
<b>ANGULAR TEAR KN/m</b>	D 624 die C / BS903 part A3	26.27-Min	26.27-Min	37
<b>BRITTLENESS POINT max.°F (°C)</b>	D 2137	-49 (- 45)	-49 (- 45)	NO CRACK
<b>Linear Dimensional Change at 116°C for 16 hrs</b>	D 1204./.....	±2%	±1%	+0.3%
<b>Ozone Resistance /166 hrs./50 PPHM/ 40°C 50% Extension</b>	D1149/BS903 Part A43	NO CRACK	NO CRACK	NO CRACK
<b>HEAT AGEING (670 h @ 116°C)</b>	D-573/BS903 Part A10			
<b>Tensile</b>		6.0Mpa-Min	8.30Mpa-Min	11.2 Mpa
<b>Elongation at Break</b>		200% _Min	200%-Min	295%
<b>Angular Tear (kN/m)</b>		21.9-Min	21.9-Min	23
<b>Water Absorption at 70°C for 166 hrs.</b>	D-471./.....	+8% - 2%	+8% - 2%	+1.7%
<b>Factory Seam Strength (Seam Joint 50mm)</b>	D-816./.....	Sheet failure or 50 Lb/inch minimum	.....	Sheet failure at <b>24Kg./inch.</b>
<b>Flex Cracking</b>	...../BS903 Part A10	.....	.....	200000 Cycles No <b>Cracks</b>
<b>Hardness</b>	.....	.....	.....	63 ± 5°A
<b>Density gm/cm<sup>2</sup></b>	...../BS903 Part A1	.....	.....	1.2
<b>SIZE OF ROLL</b>	.....	.....	.....	L=25 - 30 MTR W=1 to 1.2 MTR

REF : D-4637/D-6134 & Tolerance as per UEAtc : MOAT No: 46-1988

The above values are taken from specimens made under reproducible laboratory conditions. However they may differ some what on actual production / supply due to vulcanization conditions at factory.

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## TECHNICAL SPECIFICATIONS

TECHNICAL CHARACTERISTICS OF <i>POLY FLEX™</i> EPDM MEMBRANE/ POND LINER GRADE " G " - COLOURED		SPECIFICATION : SAB:2394/07-03 DT.17-07-03 SAB:2394/08-03 DT.25-08-03		
PHYSICAL PROPERTY	ASTM/BS TEST METHOD	REQUIREMENT OF		<i>POLY FLEX™</i> RESULT
		RMA/ROOF COUNCIL-USA	ASTM STANDARD	
<b>COLOUR</b>	.....	Black	.....	COLOURED
<b>THICKNESS</b>	-D 412/BS 903	1.016	1.016	1.1 TO 1.15
<b>TENSILE STRENGTH (MPa)</b>	-D412Die C/BS903 Part A2	9-Min	9-Min	9.70
<b>ELONGATION AT BREAK (%)</b>	D412/BS903 Part A2	300-Min	300-Min	825
<b>ANGULAR TEAR kN/m</b>	D 624 die C / BS903 Part A3	26.27-Min	26.27-Min	26.9
<b>BRITTLENESS POINT max.°F (°C)</b>	D 2137	-49 (- 45)	-49 (- 45)	NO CRACK
<b>Linear Dimensional Change at 116°C for 16 hrs</b>	D 1204./.....	±2%	±1%	+0.3%
<b>Ozone Resistance /166 hrs./50 PPHM/40°C 50% Extension</b>	D1149/BS903 Part A43	NO CRACK	NO CRACK	NO CRACK
<b>HEAT AGEING (168 h @ 116°C)</b>	D-573/BS903 Part A10			
<b>Tensile</b>		6.0Mpa-Min	8.30Mpa-Min	8.50 Mpa
<b>Elongation at Break</b>		200%_Min	200%-Min	525%
<b>Angular Tear (kN/m)</b>		21.9-Min	21.9-Min	26
<b>Water Absorption at 70°C for 166 hrs.</b>	D-471/.....	+8% - 2%	+8% - 2%	+4.3%
<b>Factory Seam Strength (Seam Joint 50mm)</b>	D-816/.....	Sheet failure or 50 Lb/inch minimum	.....	Sheet failure at <b>24Kg./inch.</b>
<b>Hardness</b>	.....	.....	.....	63 ± 5°A
<b>Density gm/cm<sup>2</sup></b>	...../Bs903 Part A1	.....	.....	1.2
<b>SIZE OF ROLL</b>	.....	.....	.....	L=25 -- 30 MTR W=1 TO 1.2 MTR

REF : D-4637/D-6134 & Tolerance as per UEAtc : MOAT No: 46-1988


- We Stand "NO" Guarantee towards colour that may affect due to Weather Conditions.
- Colour Shade may vary from roll to roll or Batch to Batch due to Manufacturing Process.

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## TECHNICAL SPECIFICATIONS

TECHNICAL CHARACTERISTICS OF <i>POLY FLEX™</i> EPDM ROOFING - FDA MEMBRANE GRADE:FungiGARD™		SPECIFICATION :		
		SAB:2394/07-03 DT.17-07-03 SAB:2394/08-03 DT.25-08-03 TOXICITY TESTS : 24945 Dt. 25-08-03		
PHYSICAL PROPERTY	ASTM/BS TEST METHOD	REQUIREMENT OF		<i>POLY FLEX™</i> RESULT
		RMA/ROOF COUNCIL-USA	ASTM STANDARD	
<b>COLOUR</b>	.....	Black	.....	Black
<b>THICKNESS</b>	-D 412/BS 903	1.016	1.016	1.1 TO 1.15
<b>TENSILE STRENGTH (MPa)</b>	-D412Die C/BS903 Part A2	9-Min	9-Min	9.50
<b>ELONGATION AT BREAK (%)</b>	D412/BS903 Part A2	300-Min	300-Min	825
<b>ANGULAR TEAR kN/m</b>	D 624 die C / BS903 Part A3	26.27-Min	26.27-Min	26.9
<b>BRITTLENESS POINT</b> max.°F (°C)	D 2137	-49 (- 45)	-49 (- 45)	NO CRACK
<b>Linear Dimensional</b> Change at 116°C for 16 hrs	D 1204./.....	±2%	±1%	0.30 %
<b>Ozone Resistance</b> /166 hrs./ 50 PPHM/40°C 50% Extension	D1149/BS903 Part A43	NO CRACK	NO CRACK	NO CRACK
<b>HEAT AGEING</b> (168 h @ 116°C)	D-573/BS903 Part A10			
<b>Tensile</b>		6.0Mpa-Min	8.30Mpa-Min	8.50 Mpa
<b>Elongation at Break</b>		200%_Min	200%-Min	525%
<b>Angular Tear (kN/m)</b>		21.9-Min	21.9-Min	26
<b>Water Absorption</b> at 70°C for 166 hrs.	D-471/.....	+8% - 2%	+8% - 2%	+4.3%
<b>Factory Seam Strength</b> (Seam Joint 50mm)	D-816/.....	Sheet failure or 50 Lb/inch minimum	.....	Sheet failure at <b>24Kg./inch.</b>
<b>Hardness</b>	.....	.....	.....	63 ± 5°A
<b>Density gm/cm<sup>2</sup></b>	...../Bs903 Part A1	.....	.....	1.2
<b>SIZE OF ROLL</b>	.....	.....	.....	L=25 -- 30 MTR W=1 TO 1.2 MTR

REF : D-4637/D-6134 & Tolerance as per UEAtc : MOAT No: 46-1988

- **Ingredients used are permitted as per TITLE : 21 Part 177.2600-FDA-USA.**
- **We Stand "NO" Guarantee towards food contact use due to variable statutory applicable requirement of country of use. Purchaser/Buyer/End User to carry out required tests for food contact application as per applicable law of country.**

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