



APP

BITUTER FR Mineral

High Performance Fire Retardant APP Modified Bitumen Waterproofing Membrane

With Composite Polyester Reinforcement

THE PRODUCT

BITUTER FR Mineral is a self-protected plastomeric waterproofing membrane, manufactured in an advanced continuous calendaring process by saturating and coating a composite carrier with a waterproofing fire-retardant compound made of a special grade of bitumen, modified with APP polymers and special **FIRE RETARDING** chemical additives. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUTER FR Mineral** are established by the composite carrier made of non-woven Polyester armoured with Glassfiber filaments, which acts as the reinforcement that provides the membrane with the profound mechanical properties of the Polyester and the prominent dimensional stability of Glassfiber mats.

The upper surfaces of **BITUTER FR Mineral** is covered with colored mineral slate chips, with an 8cm slate free side margin for overlap welding, whereas the lower surface is laminated with a thermo-fusible polyethylene film.

USES

BITUTER FR Mineral can be used for special roofing and waterproofing applications with fire-retarding property requirements & subjected to significant mechanical stresses and weathering conditions.

BITUTER FR Mineral is used as a single layer or as a top layer in an exposed multi layer roofing system for the following roofing applications:

- Exposed roofing in civil, industrial, and military works.
- Exposed re-roofing jobs on compatible substrates.
- Under roofing clay tiles on pitched roofs where tiles are fixed with mortar
- Flashings for exposed up-stands in APP modified bitumen roofing systems.

MAJOR FEATURES

- **Enhanced Fire Retarding Properties:** shielding the roof from both spread of flames and fire penetration.
- **Enhanced Surface Characteristics:** where the mineral granule surfacing reduces the membrane's exposure to thermal stresses, extending its service life and decelerating its aging.
- **Good Resistance to Chemicals** and industrial environment when used without protection.
- **High U.V. Resistance**
- **Excellent Isotropic Mechanical Properties** represented by:
 - Good tensile strength, tear and puncture resistance.
 - Significant dimensional stability.
 - Ideal longitudinal & transverse elongation.
 - Distinguished resistance to mechanical stresses in exposed applications.
- **Superior Performance** under a wide range of temperature fluctuation, (from -10°C to 150°C)

SURFACE FINISH

The lower surface of **BITUTER FR Mineral** is laminated with a Polyethylene film while the upper surface is covered with one of the mineral slate chips or special granules, available in the following colors:

- Grey **BITUTER FR Mineral – GY**
- Green **BITUTER FR Mineral – GR**
- Red **BITUTER FR Mineral – R**
- white **BITUTER FR Mineral – W**

APPLICATION

BITUTER FR Mineral is usually applied by using a propane torch or a hot air generator as well as by mechanical fastening. It can also be applied using special adhesives in cold or hot applications. The substrate surface must be clean, dry, smooth, and free from any irregularities. According to the surface conditions, a coat of BituNil primer maybe required prior to the application of the membrane. **BITUTER FR Mineral** can be applied to the substrate fully bonded, semi bonded or mechanically fastened, and the method of adhesion to the substrate shall be decided according to the waterproofing system design. Side laps shall be 8 cm, while end laps shall be from 12-15 cm. Loose mineral slate chips can be used to treat overlaps for aesthetical requirements. For more info on application refer to BituNil application guide.

STORAGE & HANDLING

BITUTER FR Mineral rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

Group 1000	Group 1005	Weight*	Standard Roll size	Rolls/ Pallet	
				Group 1000	Group 1005
4000	4005	4.0 Kg/sqm	1M X 10M	30	30
4500	4505	4.5 Kg/sqm	1M X 10M	25	25
5000	5005	5.0 Kg/sqm	1M X 10M	23	25

*Weight tolerance as per UEAtc. Directives for Group 1000 and UEAtc. ± 5% for Group 1005

Fire Retardant APP Modified Bitumen Waterproofing Membrane

C: Composite Polyester Reinforcement

CP: Low Wt. CS: Medium Wt. CX: High Wt. CZ: Heavy Duty .

Properties	Test	Unit	Test Method	Tolerance	BITUTER FR CXM	
Dimensional Properties	Thickness	mm	EN-1849-1	± 5%	-	
	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	4.5	
	Determination Of Width	m	EN-1848-1	± 1%	1	
	Determination Of Length	m	EN-1848-1	± 1%	10	
	Straightness (Ortometry)	mm	EN-1848-1	-	± 10	
Compound Properties	Softening point (R&B)	° C	ASTM D- 36	Min.	150	
	Compound Elongation	%	UNI 8202/8	± 15%	-	
Membrane Properties	Mechanical properties	Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	1050
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	650
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	35
		Elongation At Break - Transverse	%	EN-12311-1	±15	40
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	275
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	350
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	850
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	450
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	25
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	1000
	Thermal Properties	Flow Resistance At Elevated Temperature	° C	EN-1110	Min.	120
		Flexibility At Low Temperature ⁽¹⁾	° C	EN-1109	-	-15 to -10
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeability- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeability- Watertightness at High pressure ⁽²⁾	Kpa	EN-1928 Method B	Min.	500
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1
		Vapour Permeability	μ	EN 1931	-	70000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed
			500 cycles		Passed	
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	1050
Shear Resistance Of joints - Transverse		N/50mm	EN-12317-1	± 20%	650	
Thermal Ageing in air (in oven 28 days at 70 °C)		-	UNI 8202 /26	-	Passed	
Ageing Due To Atmospheric Agents (U.V Test weathering)		-	ASTM G 53 UNI 8202/29	-	Passed	
Fatigue resistance at Joints		200 cycles	UNI 8202/32	-	Passed	
		500 cycles		Passed		
Fire Classification - External Fire Performance		Class	EN 13501-5/ ENV 1187	-	B Roof(t2)	
Reaction to fire		Class	EN 13501-1	-	E	
Adhesion Of Granules		%	EN-12039	Max.	≤30	
Adhesion To Concrete (Torch Applied)		N/ 50mm	Pelage UEAtc	-	20	
Resistance to root penetration		-	EN-13948	-	NPD	
Supply Data	weight	kg/m ²	-	-	3 to 6	
	Thickness	mm	-	-	2 to 5	
	Roll Length	M	-	-	10	
	Roll Width	M	-	-	1	
	Surface finish (E: Polyethylene film S: Sand SL:Slates GR: Granule)					
	Upper Surface Finish	-	-	-	-	SL or GR
	Lower Surface Finish	-	-	-	-	S or E

The declared average values represent the best performance achieved at the present state of our knowledge, BITUNIL S.A.E reserves the possibility to change, without warning, the technical characteristics in order to make the product more responding to the application requirements. The choice of the type of membrane for the kind of use is at the purchaser's discretion .

Distributor:

Tolerances for the above values if not mentioned are according to the UEAtc directives.

(1) Exact value depends on thickness of the product.

(2) Deviating from the standard method , The assessment is made in 1 Hour test 4mm or 4.5Kg/m² products.



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