APP BITUBOND Mineral

Heavy Duty APP Modified Bitumen Waterproofing Membranes.
With Composite Polyester Reinforcement

THE PRODUCT

BITUBOND Mineral are self-protected plastomeric waterproofing membranes, manufactured in an advanced continuous calendaring process by saturating and coating a composite carrier with a waterproofing compound made of a special grade of bitumen, modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUBOND 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 **BITUBOND 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

BITUBOND Mineral can be used for heavy duty roofing and waterproofing applications with high dimensional stability requirements & subjected to extreme weathering conditions.
BITUBOND Mineral is used as a top layer in an exposed multi layer roofing system where there is a need to satisfy specific aesthetical requirements and/or for exposed systems for the following roofing applications:

- Exposed roofing in civil, industrial, and military works where the roof finish needs to blend harmoniously with the surrounding environment.
- 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 Surface Characteristics:** where the slate chips 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 -20◦C to 150◦C)
- **Fire Retarding Properties.**

SURFACE FINISH

The lower surface of **BITUBOND 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 **BITUBOND Mineral** – GY
- Green **BITUBOND Mineral** – GR
- Red **BITUBOND Mineral** – R
- white **BITUBOND Mineral** – W

APPLICATION

BITUBOND 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. **BITUBOND 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

BITUBOND 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
5000	5005	5.0 Kg/sqm	1M X 10M	23	25
5500	5505	5.5 Kg/sqm	1M X 8 M	23	25
6000	-	6.0 Kg/sqm	1M X 5 M	33	-

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

BITUBOND
Mineral

BITUBOND 15 Mineral
BITUBOND 20 Mineral

APP Modified Bitumen Waterproofing Membranes

C: Composite Polyester Reinforcement
CP: Low Wt. CS: Medium Wt. CX: High Wt. CZ: Heavy Duty .

Properties		Test	Unit	Test Method	Tolerance	BITUBOND 15 CZM	BITUBOND 20 CZM
Dimensional Properties		Thickness	mm	EN-1849-1	± 5%	-	-
		Weight (Mass Per Unit Area)	kg/m^2	EN-1849-1	± 10%	5	5
		Determination Of Width	m	EN-1848-1	± 1%	1	1
		Determination Of Length	m	EN-1848-1	± 1%	10	10
		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10
Compound Properties		Softening point (R&B)	°C	ASTM D- 36	Min.	150	150
		Compound Elongation	%	UNI 8202/8	± 15%	-	-
Membrane Properties	Mechanical properties	Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	1200	1200
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	1100	1100
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	40	40
		Elongation At Break - Transverse	%	EN-12311-1	±15	45	45
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	300	300
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	400	400
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	950	950
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	600	600
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	30	30
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	1200	1200
	Thermal Properties	Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	120	130
		Flexability At Low Temprature(1)	°C	EN-1109	-	-15 TO -20	≤-20
		Dimensional Stability	%	EN-1107-1	Max.	±0.3	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed
		Water Impermeablility- Watertightness at High pressure(2)	Kpa	EN-1928 Method B	Min.	800	800
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1	< 1
		Vapour Permeability	μ	EN 1931	-	80000	80000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed	Passed
			500 cycles			Passed	Passed
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	1200	1200
		Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	1100	1100
		Thermal Ageing in air *(in oven 28 days at 70 °C)*	-	UNI 8202 /26	-	Passed	Passed
		Ageing Due To Atmospheric Agents *(U.V Test weathering)*	-	ASTM G 53 UNI 8202/29	-	Passed	Passed
		Fatigue resistance at Joints	200 cycles	UNI 8202/32	-	Passed	Passed
			500 cycles		-	Passed	Passed
		Fire Classification - Extemal Fire Performance	Class	EN 13501-5/ ENV 1187	-	B Roof(t2)	B Roof(t2)
		Reaction to fire	Class	EN 13501-1	-	E	E
		Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30
		Adhesion To Concrete (*Torch Applied*)	N/ 50mm	Pelage UEAtc	-	20	20
		Resistance to root pentration	-	EN-13948	-	NPD	NPD
Supply Data		weight	kg/m2	-	-	5 to 6	5 to 6
		Thickness	mm	-	-	4 to 5	4 to 5
		Roll Length	M	-	-	10	10
		Roll Width	M	-	-	1	1
		Surface finish (E: Polyethylene film S: Sand SL:Slates GR: Granule)					
		Upper Surface Finish	-	-	-	SL or GR	SL or GR
		Lower Surface Finish	-	-	-	S or E	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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APP BITUBOND Smooth

Heavy Duty APP Modified Bitumen Waterproofing Membranes
With Composite Polyester Reinforcement

THE PRODUCT

BITUBOND are Plastomeric waterproofing membranes manufactured in an advanced continuous calendaring process by saturating and coating a heavy duty composite carrier with a waterproofing compound made of a special grade of bitumen, which is modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUBOND** are established by the composite carrier made of non-woven Polyester armoured with fiberglass 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 mat.
The upper surface of **BITUBOND** is covered with an anti-adhesive finish material while the lower face is laminated with a thermo-fusible polyethylene film.

USES

BITUBOND can be used for heavy duty waterproofing applications with high dimensional stability requirements and subjected to extreme weathering conditions.

BITUBOND membranes are particularly recommended in single or multi-layer systems for the following applications:

- Roofing works for protected roofs, subject to high mechanical stresses.
- Waterproofing of foundations & underground structures with critical site conditions.
- Civil engineering applications such as hydraulic works, parking decks, bridges, viaducts, tunnels, waste dumps, etc.
- Waterproofing of substrates where high vapor impermeability is required.

MAJOR FEATURE

- **Exceptional Dimensional Stability**: The heavy duty composite reinforcement provides the membrane with superior dimensional stability properties when exposed to high temperature during both production process and application in the field.
- **Excellent Resistance to Chemicals & U.V.**: the superior quality bitumen compound used in **BITUBOND** makes it resistant to the attack by acids, salts and basic solutions usually found in the soil and rainwater.
- **Superior Isotropic Mechanical Properties**: presented by:
  - Good tensile strength, tear and puncture resistance.
  - Significant dimensional stability.
  - Ideal longitudinal & transverse elongation.
- **Enormous Resistance** to impact loads, tear and puncture.
- **Superior Performance** under a wide range of temperature fluctuation, (from -20◦C to 150◦C)

SURFACE FINISH

The lower surface of **BITUBOND** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

- Fine Sand **BITUBOND** – S/E
- Polyethylene Film **BITUBOND** – E/E
- Mineral Slate Chips or Special Granules
  (refer to **BITUBOND Mineral** separate TDS)

APPLICATION

BITUBOND 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. **BITUBOND** can be applied to the substrate fully bonded, semi bonded or loose laid. The method of adhesion to the substrate shall be decided according to the waterproofing system design. Side laps should be from 8-10 cm, while end laps should be from 12-15 cm. For more information on application refer to BituNil application guide.

STORAGE & HANDLING

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

SUPPLY DATA & PALLETISING

Group 100	Group 105	Thickness *	Standard Roll Size	Rolls/ Pallet	
				Group 100	Group 105
200	205	2mm	1M x 10M	28	28
300	305	3mm	1M x 10M	28	28
400	405	4mm	1M x 10M	23	23
500	505	5mm	1M x 8 M	23	23

*Thickness tolerance as per UEAtc. Directives for Group 100 and UEAtc. ± 5% for Group 105

BITUBOND
Smooth

BITUBOND 15
BITUBOND 20

APP Modified Bitumen Waterproofing Membranes

C: Composite Polyester Reinforcement
CP: Low Wt. CS: Medium Wt. CX: High Wt. CZ: Heavy Duty .

Properties		Test	Unit	Test Method	Tolerance	BITUBOND 15 CZ	BITUBOND 20 CZ
Dimensional Properties		Thickness	mm	EN-1849-1	± 5%	4	4
		Weight (Mass Per Unit Area)	kg/m^2	EN-1849-1	± 10%	-	-
		Determination Of Width	m	EN-1848-1	± 1%	1	1
		Determination Of Length	m	EN-1848-1	± 1%	10	10
		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10
Compound Properties		Softening point (R&B)	° C	ASTM D- 36	Min.	150	150
		Compound Elongation	%	UNI 8202/8	± 15%	-	-
Membrane Properties	Mechanical properties	Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	1200	1200
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	1100	1100
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	40	40
		Elongation At Break - Transverse	%	EN-12311-1	±15	45	45
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	300	300
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	400	400
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	950	950
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	600	600
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	30	30
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	1200	1200
	Thermal Properties	Flow Resistance At Elevated Temprature	° C	EN-1110	Min.	120	130
		Flexability At Low Temprature(1)	° C	EN-1109	-	-15 TO -20	≤-20
		Dimensional Stability	%	EN-1107-1	Max.	±0.3	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed
		Water Impermeablility- Watertightness at High pressure(2)	Kpa	EN-1928 Method B	Min.	800	800
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1	< 1
		Vapour Permeability	μ	EN 1931	-	80000	80000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed	Passed
			500 cycles			Passed	Passed
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	1200	1200
		Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	1100	1100
		Thermal Ageing in air (*in oven 28 days at 70°C*)	-	UNI 8202 /26	-	Passed	Passed
		Ageing Due To Atmospheric Agents (*U.V Test weathering*)	-	ASTM G 53 UNI 8202/29	-	Passed	Passed
		Fatigue resistance at Joints	200 cycles	UNI 8202/32	-	Passed	Passed
			500 cycles		-	Passed	Passed
		Fire Classification - Extemal Fire Performance	Class	EN 13501-5/ ENV 1187	-	B Roof(t2)	B Roof(t2)
		Reaction to fire	Class	EN 13501-1	-	E	E
		Adhesion Of Granules	%	EN-12039	Max.	-	-
		Adhesion To Concrete (*Torch Applied*)	N/ 50mm	Pelage UEAtc	-	20	20
		Resistance to root pentration	-	EN-13948	-	NPD	NPD
Supply Data		weight	kg/m2	-	-	3 to 6	3 to 6
		Thickness	mm	-	-	2 to 5	2 to 5
		Roll Length	M	-	-	10	10
		Roll Width	M	-	-	1	1
		Surface finish (E: Polyethylene film S: Sand SL:Slates GR: Granule)					
		Upper Surface Finish	-	-	-	S or E	S or E
		Lower Surface Finish	-	-	-	S or E	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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APP BITUGUARD Smooth
BITUGUARD Mineral

APP Modified Bitumen Waterproofing Membrane
With Composite Polyester Reinforcement

THE PRODUCT
BITUGUARD is a Plastomeric waterproofing membrane manufactured in an advanced continuous calendaring process by saturating and coating a heavy duty composite carrier with a waterproofing compound made of a special grade of bitumen, which is modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUGUARD** are established by the composite carrier made of non-woven Polyester armoured with fiberglass 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 mat.
The upper surface of **BITUGUARD** is covered with an anti-adhesive finish material while the lower face is laminated with a thermo-fusible polyethylene film.

USES
BITUGUARD can be used for roofing & waterproofing applications with high dimensional stability requirements and subjected to normal mechanical stresses & weathering conditions.

BITUGUARD is a multipurpose waterproofing membrane particularly recommended in single or multi-layer systems for the following applications:
- Flat and sloped ballasted roofs.
- Underground structures waterproofing.
- Re-roofing works.
- Wet areas and mechanical rooms waterproofing.

BITUGUARD MINERAL is used for exposed applications or as a cap-sheet in a multi-layer system.

MAJOR FEATURE
- **High Dimensional Stability** provided by the composite reinforcement
- **Chemical Resistance** to basic solutions found in the soil and rain water.
- **Good Performance** under a wide range of temperature fluctuation, (from 0 ◦C to 150◦C)

SURFACE FINISH
The lower surface of **BITUGUARD** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

- Fine Sand — **BITUGUARD** – S/E
- Polyethylene Film — **BITUGUARD** – E/E
- Mineral Slate Chips or Special Granules — **BITUGUARD Mineral**

APPLICATION
BITUGUARD 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. **BITUGUARD** can be applied to the substrate fully bonded, semi bonded or loose laid, The method of adhesion to the substrate shall be decided according to the waterproofing system design. Side laps should be from 8-10 cm, while end laps should be from 12-15 cm. For more information on application refer to BituNil application guide.

STORAGE & HANDLING
BITUGUARD rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

Group 100	Group 105	Thickness *	Standard Roll Size	Rolls/ Pallet	
				Group 100	Group 105
300	305	3mm	1M x 10M	28	28
400	405	4mm	1M x 10M	23	23
*Thickness tolerance as per UEAtc. Directives for Group 100 and UEAtc. ± 5% for Group 105.					
Group 1000	Group 1005	Weight **	Standard Roll Size	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.					

Loading Capacity: 20 pallets / Container
The above quantities are indicative only and may be subject to changes in order to comply with transport limitations according to the final destination of the product.

BituNil membranes are made of non-polluting substances, therefore are safe products during production, application and use.

BITUGUARD

BITUGUARD Smooth
BITUGUARD Mineral

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	BITUGUARD CP
Dimensional Properties		Thickness	mm	EN-1849-1	± 5%	4
		Weight (Mass Per Unit Area)	kg/m^2	EN-1849-1	± 10%	-
		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%	500
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	300
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	25
		Elongation At Break - Transverse	%	EN-12311-1	±15	30
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	150
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	200
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	250
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	15
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	450
	Thermal Properties	Flow Resistance At Elevated Temprature	° C	EN-1110	Min.	100
		Flexability At Low Temprature(1)	° C	EN-1109	-	-5 to 0
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeablility- Watertightness at High pressure(2)	Kpa	EN-1928 Method B	Min.	100
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1
		Vapour Permeability	μ	EN 1931	-	40000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed
			500 cycles			Passed
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	500
		Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	300
		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 - Extemal Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof
		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 pentration	-	EN-13948	-	NPD
Supply Data		weight	kg/m2	-	-	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	-	-	-	S or E or 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 .

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APP BITUPLAST Mineral

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With Composite Polyester Reinforcement.

THE PRODUCT

BITUPLAST 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 compound made of a special grade of bitumen, modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUPLAST 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 **BITUPLAST 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

BITUPLAST Mineral can be used for roofing and waterproofing applications with high dimensional stability requirements & subjected to considerable mechanical stresses and weathering conditions.
BITUPLAST Mineral is used as a top layer in an exposed multi layer roofing system where there is a need to satisfy specific aesthetical requirements and/or for exposed systems for the following roofing applications:

- Exposed roofing in civil, industrial, and military works where the roof finish needs to blend harmoniously with the surrounding environment.
- 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 Surface Characteristics:** where the slate chips surfacing reduces the membrane's exposure to thermal stresses, extending its service life and decelerating its aging.
- **Enhanced Resistance to chemicals** and industrial environment when used without protection.
- **High U.V. Resistance**
- **Enhanced 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.
- **Good Performance** under a wide range of temperature fluctuation, (from -5◦C to 150◦C)
- **Fire Retarding Properties.**

SURFACE FINISH

The lower surface of **BITUPLAST 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 **BITUPLAST Mineral** – GY
- Green **BITUPLAST Mineral** – GR
- Red **BITUPLAST Mineral** – R
- white **BITUPLAST Mineral** – W

APPLICATION

BITUPLAST 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. **BITUPLAST 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

BITUPLAST 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
3000	3005	3.0 Kg/sqm	1M X 10M	39	39
3500	3505	3.5 Kg/sqm	1M X 10M	30	33
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

BITUPLAST
Mineral

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	BITUPLAST CSM
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%	900
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	550
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	30
		Elongation At Break - Transverse	%	EN-12311-1	±15	35
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	200
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	250
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	800
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	400
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	20
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	600
	Thermal Properties	Flow Resistance At Elevated Temprature	° C	EN-1110	Min.	110
		Flexability At Low Temprature(1)	° C	EN-1109	-	-10 to - 5
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeablility- Watertightness at High pressure(2)	Kpa	EN-1928 Method B	Min.	300
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1
		Vapour Permeability	μ	EN 1931	-	40000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed
			500 cycles			Passed
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	900
		Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	550
		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 - Extemal Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof
		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 pentration	-	EN-13948	-	NPD
Supply Data		weight	kg/m2	-	-	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.

Nile Waterproofing Material Co. S.A.E
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Plant: ASPPC Industrial complex - Merghem - Alexandria

Web Site: www.Bitunil.com **Email: bitunil@bitunil.com**

APP BITUPLAST Smooth

APP Modified Bitumen Waterproofing Membrane
With Composite Polyester Reinforcement.

THE PRODUCT

BITUPLAST is a Plastomeric waterproofing membrane manufactured in an advanced continuous calendaring process by saturating and coating a heavy duty composite carrier with a waterproofing compound made of a special grade of bitumen, which is modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUPLAST** are established by the composite carrier made of non-woven Polyester armoured with fiberglass 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 mat.
The upper surface of **BITUPLAST** is covered with an anti-adhesive finish material while the lower face is laminated with a thermo-fusible polyethylene film.

USES

BITUPLAST can be used for roofing & waterproofing applications with high dimensional stability requirements and subjected to considerable mechanical stresses & weathering conditions.

BITUPLAST is a multi purpose waterproofing membrane particularly recommended in single or multi-layer systems for the following applications:

- Flat and sloped ballasted roofs.
- Underground structures waterproofing.
- Re-roofing works.
- Wet areas and mechanical rooms waterproofing.

MAJOR FEATURE

- **Enhanced Isotropic Mechanical Properties** presented by:
  - Good tensile strength, tear and puncture resistance.
  - Significant dimensional stability.
  - Ideal longitudinal & transverse elongation.
- **Chemical Resistance** to basic solutions found in the soil and rain water.
- **Good Performance** under a wide range of temperature fluctuation, (from -5◦C to 150◦C)

SURFACE FINISH

The lower surface of **BITUPLAST** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

- Fine Sand **BITUPLAST – S/E**
- Polyethylene Film **BITUPLAST – E/E**
- Mineral Slate Chips or Special Granules
  (Refer to **BITUPLAST Mineral** separate TDS)

APPLICATION

BITUPLAST 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. **BITUPLAST** can be applied to the substrate fully bonded, semi bonded or loose laid, The method of adhesion to the substrate shall be decided according to the waterproofing system design. Side laps should be from 8-10 cm, while end laps should be from 12-15 cm. For more information on application refer to BituNil application guide.

STORAGE & HANDLING

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

SUPPLY DATA & PALLETISING

Group 100	Group 105	Thickness *	Standard Roll Size	Rolls/ Pallet	
				Group 100	Group 105
200	205	2mm	1M x 10M	28	28
300	305	3mm	1M x 10M	28	28
400	405	4mm	1M x 10M	23	23
500	505	5mm	1M x 8 M	23	23

*Thickness tolerance as per UEAtc. Directives for Group 100 and UEAtc. ± 5% for Group 105

Loading Capacity: 20 pallets / Container
The above quantities are indicative only and may be subject to changes in order to comply with transport limitations according to the final destination of the product.

BituNil membranes are made of non-polluting substances, therefore are safe products during production, application and use.

BITUPLAST

Smooth

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	BITUPLAST CS
Dimensional Properties		Thickness	mm	EN-1849-1	± 5%	4
		Weight (Mass Per Unit Area)	kg/m^2	EN-1849-1	± 10%	-
		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%	900
		Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	550
		Elongation At Break - Longitudinal	%	EN-12311-1	±15	30
		Elongation At Break - Transverse	%	EN-12311-1	±15	35
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	200
		Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	250
		Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	800
		Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	400
		Resistance to Static Loading	Kg	EN 12730 Method A	Min.	20
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	600
	Thermal Properties	Flow Resistance At Elevated Temprature	° C	EN-1110	Min.	110
		Flexability At Low Temprature(1)	° C	EN-1109	-	-10 to - 5
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeablility- Watertightness at High pressure(2)	Kpa	EN-1928 Method B	Min.	300
	Miscellaneous Properties	Water Absorption	%	ASTM D-5147	Max.	< 1
		Vapour Permeability	μ	EN 1931	-	40000
		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	Passed
			500 cycles			Passed
		Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	900
		Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	550
		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 - Extemal Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof
		Reaction to fire	Class	EN 13501-1	-	E
		Adhesion Of Granules	%	EN-12039	Max.	-
		Adhesion To Concrete (*Torch Applied*)	N/ 50mm	Pelage UEAtc	-	20
		Resistance to root pentration	-	EN-13948	-	NPD
Supply Data		weight	kg/m2	-	-	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	-	-	-	S or E
		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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APP BITUTER Mineral

APP Modified Bitumen Waterproofing Membrane
With Composite Polyester Reinforcement

THE PRODUCT

BITUTER 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 compound made of a special grade of bitumen, modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUTER 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 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 Mineral can be used for roofing and waterproofing applications with high dimensional stability requirements & subjected to significant mechanical stresses and weathering conditions.

BITUTER Mineral is used as a top layer in an exposed multi layer roofing system where there is a need to satisfy specific aesthetical requirements and/or for exposed systems for the following roofing applications:

- Exposed roofing in civil, industrial, and military works where the roof finish needs to blend harmoniously with the surrounding environment.
- 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 Surface Characteristics:** where the slate chips surfacing reduce 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)
- **Fire Retarding Properties.**

SURFACE FINISH

The lower surface of **BITUTER 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 Mineral** – GY
- Green **BITUTER Mineral** – GR
- Red **BITUTER Mineral** – R
- white **BITUTER Mineral** – W

APPLICATION

BITUTER 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 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 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
3000	3005	3.0 Kg/sqm	1M X 10M	39	39
3500	3505	3.5 Kg/sqm	1M X 10M	30	33
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

BITUTER

Mineral

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 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 Temprature	° C	EN-1110	Min.	120
		Flexability At Low Temprature(1)	° C	EN-1109	-	-15 to -10
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeablility- 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 - Extemal 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 pentration	-	EN-13948	-	NPD
Supply Data		weight	kg/m2	-	-	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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APP BITUTER Smooth

APP Modified Bitumen Waterproofing Membrane
With Composite Polyester Reinforcement

THE PRODUCT

BITUTER is a Plastomeric waterproofing membrane manufactured in an advanced continuous calendaring process by saturating and coating a heavy duty composite carrier with a waterproofing compound made of a special grade of bitumen, which is modified with APP polymers. While the APP polymers enhance the thermal, mechanical, and aging properties of the membrane compound, the mechanical characteristics of **BITUTER** are established by the composite carrier made of non-woven Polyester armoured with fiberglass 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 mat.
The upper surface of **BITUTER** is covered with an anti-adhesive finish material while the lower face is laminated with a thermo-fusible polyethylene film.

USES

BITUTER can be used for roofing & waterproofing applications with high dimensional stability requirements and subjected to significant mechanical stresses & weathering conditions.

BITUTER waterproofing membrane is particularly recommended in single or multi-layer systems for the following applications:

- Roofing works for flat or sloped protected roofs.
- Waterproofing of foundations & underground structures with critical site conditions.
- Civil engineering applications such as hydraulic works, parking decks, bridges, viaducts, tunnels, waste dumps, etc.
- Waterproofing of substrates where high vapor impermeability is required.

MAJOR FEATURE

- **Substantial Dimensional Stability**: The robust composite reinforcement provides the membrane with superior dimensional stability properties when exposed to high temperature during both production process and application in the field.
- **Enhanced Resistance to Chemicals**: the premium quality bitumen compound used in **BITUTER** makes it resistant to the attack by acids, salts and basic solutions usually found in the soil and rainwater.
- **Good isotropic Mechanical Properties**: presented by:
  - Good tensile strength, tear and puncture resistance.
  - Significant dimensional stability.
  - Ideal longitudinal & transverse elongation.
- **High U.V. Resistance.**
- **Superior Performance** under a wide range of temperature fluctuation, (from -10◦C to 150◦C)

SURFACE FINISH

The lower surface of **BITUTER** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

- Fine Sand **BITUTER** – S/E
- Polyethylene Film **BITUTER** – E/E
- Mineral Slate Chips or Special Granules
  (refer to BITUTER Mineral separate TDS)

APPLICATION

BITUTER 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** can be applied to the substrate fully bonded, semi bonded or loose laid, The method of adhesion to the substrate shall be decided according to the waterproofing system design. Side laps should be from 8-10 cm, while end laps should be from 12-15 cm. For more information on application refer to BituNil application guide.

STORAGE & HANDLING

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

SUPPLY DATA & PALLETISING

Group 100	Group 105	Thickness *	Standard Roll Size	Rolls/ Pallet	
				Group 100	Group 105
200	205	2mm	1M x 10M	28	28
300	305	3mm	1M x 10M	28	28
400	405	4mm	1M x 10M	23	23
500	505	5mm	1M x 8 M	23	23

*Thickness tolerance as per UEAtc. Directives for Group 100 and UEAtc. ± 5% for Group 105

BITUTER

Smooth

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 CX
Dimensional Properties		Thickness	mm	EN-1849-1	± 5%	4
		Weight (Mass Per Unit Area)	kg/m^2	EN-1849-1	± 10%	-
		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 Temprature	° C	EN-1110	Min.	120
		Flexability At Low Temprature(1)	° C	EN-1109	-	-15 to -10
		Dimensional Stability	%	EN-1107-1	Max.	±0.3
		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed
		Water Impermeablility- 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 - Extemal 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.	-
		Adhesion To Concrete (*Torch Applied*)	N/ 50mm	Pelage UEAtc	-	20
		Resistance to root pentration	-	EN-13948	-	NPD
Supply Data		weight	kg/m2	-	-	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	-	-	-	S or E
		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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