



NiloPlast 5 plastomeric are waterproofing membranes manufactured advanced an continuous calendaring process by saturating and coating a synthetic 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 membranes compound, the mechanical characteristics of NiloPlast 5 are established by the non-woven filament continuous spun-bond Polyester or Glassfiber mat which acts as the reinforcement that provides the membrane with its particular tensile strength, tear resistance, puncture resistance and elongation properties.

The upper surface of **NiloPlast 5** is covered with an anti-adhesive finish material while the lower surface is laminated with a thermo-fusible polyethylene film.

USES

NiloPlast 5 are multi-purpose membranes for roofing & waterproofing applications subjected to different mechanical stresses and moderate weathering conditions, in multi layer systems and can be used as a single layer in specific application.

NiloPlast 5 membranes are particularly recommended for the following applications.

- Roofing or re-roofing works for sloped and flat protected roofs.
- Waterproofing of underground structures
- Waterproofing of wet areas, mechanical rooms and terraces.

NiloPlast 5 MINERAL is used for exposed applications or as a capsheet in a multi-layer system.

NiloPlast 5 NiloPlast 5

Mineral

Smooth

APP Modified Bitumen Waterproofing Membranes

With Non-Woven Spun-Bond Polyester Or Glassfiber Reinforcement

MAJOR FEATURES

- Good UV Resistance
- Enhanced Resistance To Chemicals
- Excellent Mechanical Properties
- Enhanced Performance, under a wide range of temperature fluctuation, (from -5 °C to 150 °C)

SURFACE FINISH

The lower surface of **NiloPlast 5** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

Fine Sand
 Polyethylene Film
 MiloPlast 5 - S/E
 NiloPlast 5 - E/E
 Mineral Slate chips or Special Granules
 NiloPlast 5 MINERAL

APPLICATION

NiloPlast 5 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.

NiloPlast 5 can be applied to the substrate fully bonded, semi bonded or loose laid, and 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 info on application refer to BituNil application guide.

STORAGE & HANDLING

NiloPlast 5 rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

			Standard	Rolls/ Pallet						
Group 100	Group 105	Thickness *	Roll Size	Group 100	Group 105					
300	305	3mm	1M x 10M	28	28					
400	405	4mm	1M x 10M	23	23					
*Thickness toler	*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 toler	ance as per UEAt	c. Directives for Gr	oup 1000 and UE	Atc. ± 5% for 0	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.

APP Modified Bitumen Waterproofing Membranes

G: Glassfiber, GF: Low Weight, GP: Medium Weight.

P: Polyester, PP: Low Weight, PS: Medium Weight PX: (Medium/High) Weight, PY: High Weight, PZ: Heavy Duty.

NiloPlast 5 GF NiloPlast 5 PP NiloPlast 5 PS NiloPlast 5 PX NiloPlast 5 PY

NiloPlast 5 PZ

Busin			U-4	Took Mathead	Talanana			NiloP	last 5		
Prop	erties	Test	Unit	Test Method	Tolerance	GF	PP	PS	PX	PY	PZ
a	S	Thickness	mm	EN-1849-1	± 5%	4	4	4	4	4	4
Dimensional	Properties	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	-	-	-	-	-	-
sus	per	Determination Of Width	m	EN-1848-1	± 1%	1	1	1	1	1	1
<u><u> </u></u>	5.0	Determination Of Length	m	EN-1848-1	± 1%	10	10	10	10	10	10
		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10	± 10	± 10	± 10	± 10
	pound	Softening point (R&B)	°C	ASTM D- 36	Min.	150	150	150	150	150	150
Prop	erties	Compound Elongation	%	UNI 8202/8	± 15%	-	-	-	-	-	-
		Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	350	650	800	900	1000	1100
	es	Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	250	400	550	650	700	900
	properties	Elongation At Break - Longitudinal	%	EN-12311-1	±15(polyester only)	2	30	30	35	40	45
	do.	Elongation At Break - Transverse	%	EN-12311-1	±15(polyester only)	2	35	35	35	40	50
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	130	250	275	275	275	300
	Mechanical	Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	150	275	275	350	350	350
	Jan	Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450	550	600	625	750	800
	ect	Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	300	325	350	450	550	600
	Σ	Resistance to Static Loading	Kg	EN 12730 Method A	Min.	7	15	15	20	25	25
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	300	450	600	700	900	1100
	Thermal Properties	Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	100	100	100	100	100	100
		Flexability At Low Temprature ⁽¹⁾	°C	EN-1109	-	-10 To -5					
ies	Thermal ropertie	Dimensional Stability	%	EN-1107-1	Max.	±0.1	±0.5	±0.5	±0.5	±0.5	±0.5
ert	T Pro	Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed	Passed	Passed	Passed	Passed
- e		Water Impermeablility- Watertightness at High pressure ⁽²⁾	Кра	EN-1928 Method B	Min.	100	150	200	300	350	400
Membrane Properties		Water Absorption	%	ASTM D-5147	Max.	<1	< 1	<1	<1	< 1	<1
Lan		Vapour Permeability	μ	EN 1931	-	60000	60000	60000	60000	60000	60000
ďμ		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	-	Passed	Passed	Passed	Passed	Passed
Me		rangue resistance on cracks	500 cycles	0141 0202/10		-	-	-	Passed	Passed	Passed
	ties	Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	350	650	800	900	1000	1100
	per	Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	250	400	550	650	700	900
	Properties	Thermal Ageing in air (in oven 28 days at 70°C)	-	UNI 8202 /26	-	Passed	Passed	Passed	Passed	Passed	Passed
	Miscellaneous	Ageing Due To Atmospheric Agents (U.V Test weathering)	-	ASTM G 53 UNI 8202/29	-	Passed	Passed	Passed	Passed	Passed	Passed
	llan	Fatigue resistance at Joints	200 cycles	UNI 8202/32	-	-	Passed	Passed	Passed	Passed	Passed
	ce		500 cycles	5111 5252 52	-	-	-	-	Passed	Passed	Passed
	Μis	Fire Classification - External Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof					
		Reaction to fire	Class	EN 13501-1	-	Е	Е	E	Е	E	Е
		Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30	≤30	≤30	≤30	≤30
		Adhesion To Concrete (Torch Applied)	N/ 50mm	Pelage UEAtc	-	20	20	20	20	20	20
		Resistance to root pentration	-	EN-13948	-	NPD	NPD	NPD	NPD	NPD	NPD
		weight	kg/m2	-	-	3 to 6					
		Thickness	mm	-	-	2 to 5					
		Roll Length	М	-	-	10	10	10	10	10	10
Suppl	ly Data	Roll Width	М	-	-	1	1	1	1	1	1
3,17,17	,	Surface finish (E: Polyethylene film S: Sand SL:Slates GR: 0	Granule)								
		Upper Surface Finish	-	-	-	S or E or SL or GR					
		Lower Surface Finish	-	-	-	S or E	S or E	S or E	SorE	S or E	SorE

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.

Email: bitunil@bitunil.com

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 شركة السنيل للمسواد العسسازلسة ش.م.م

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Web Site: www.bitunil.com



APP

THE PRODUCT

NiloPlast 10 plastomeric are waterproofing membranes manufactured advanced an continuous calendaring process by saturating and coating a synthetic 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 membranes compound, the mechanical characteristics of NiloPlast 10 are established by non-woven the filament continuous spun-bond Polyester or Glassfiber mat which acts as the reinforcement that provides the membrane with its particular tensile strength, tear resistance, puncture resistance and elongation properties.

The upper surface of **NiloPlast 10** is covered with an anti-adhesive finish material while the lower surface is laminated with a thermo-fusible polyethylene film.

USES

NiloPlast 10 are multi-purpose membranes for roofing & waterproofing applications subjected to different mechanical stresses and Significant weathering conditions, in multi layer systems and can be used as a single layer in specific application.

NiloPlast 10 membranes are particularly recommended for the following applications.

- Roofing or re-roofing works for sloped and flat protected roofs.
- Waterproofing of underground structures
- Waterproofing of wet areas, mechanical rooms and terraces.

NiloPlast 10 MINERAL is used for exposed applications or as a capsheet in a multi-layer system.

NiloPlast 10 NiloPlast 10

Mineral

Rolls/ Pallet

Smooth

APP Modified Bitumen Waterproofing Membranes

With Non-Woven Spun-Bond Polyester Or Glassfiber Reinforcement

MAJOR FEATURES

- Good UV Resistance
- Enhanced Resistance To Chemicals
- Excellent Mechanical Properties
- Enhanced Performance, under a wide range of temperature fluctuation, (from -10 °C to 150 °C)

SURFACE FINISH

The lower surface of **NiloPlast 10** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

Fine Sand
 Polyethylene Film
 Mineral Slate chips or Special Granules
 NiloPlast 10 - S/E
 NiloPlast 10 - E/E
 NiloPlast 10 MINERAL

APPLICATION

NiloPlast 10 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. **NiloPlast 10** can be applied to the substrate fully bonded, semi bonded or loose laid, and 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 info on application refer to BituNil application guide.

STORAGE & HANDLING

NiloPlast 10 rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

			Standard						
Group 100	Group 105	Thickness *	Roll Size	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 toler	ance as per UEAt	c. Directives for Gr	oup 1000 and UE	Atc. ± 5% for 0	Froup 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.

APP Modified Bitumen Waterproofing Membranes

G:Glassfiber, GF: Low Weight, GP: Medium Weight

P: Polyester, PP: Low Weight, PS: Medium Weight PX: (Medium/High) Weight, PY: High Weight, PZ: Heavy Duty.

NiloPlast 10 GF NiloPlast 10 PP NiloPlast 10 PX NiloPlast 10 PX NiloPlast 10 PY NiloPlast 10 PZ

Duan	autia a	Took	l lui4	Took Makkad	Talavanaa	NiloPlast 10						
Prop	erties	Test	Unit	Test Method	Tolerance	GF	PP	PS	PX	PY	PZ	
<u>a</u>		Thickness	mm	EN-1849-1	± 5%	4	4	4	4	4	4	
Dimensional	Properties	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	-	-	-	-	-	-	
isus	per	Determination Of Width	m	EN-1848-1	± 1%	1	1	1	1	1	1	
ime	Pro	Determination Of Length	m	EN-1848-1	± 1%	10	10	10	10	10	10	
٥		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10	± 10	± 10	± 10	± 10	
	pound	Softening point (R&B)	°C	ASTM D- 36	Min.	150	150	150	150	150	150	
Prop	erties	Compound Elongation	%	UNI 8202/8	± 15%	-	-	-	-	-	-	
		Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	350	650	800	900	1000	1100	
	S	Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	250	400	550	650	700	900	
	properties	Elongation At Break - Longitudinal	%	EN-12311-1	±15(polyester only)	2	30	30	35	40	45	
	ed o	Elongation At Break - Transverse	%	EN-12311-1	±15(polyester only)	2	35	35	35	40	50	
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	130	250	275	275	275	300	
	Mechanical	Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	150	275	275	350	350	350	
	han	Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450	550	600	625	750	800	
	ect	Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	300	325	350	450	550	600	
	Σ	Resistance to Static Loading	Kg	EN 12730 Method A	Min.	7	15	15	20	25	25	
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	300	450	600	700	900	1100	
	w	Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	110	110	110	110	110	110	
	Thermal Properties	Flexability At Low Temprature ⁽¹⁾	°C	EN-1109	-	-15 To -10						
ies	Thermal ropertie	Dimensional Stability	%	EN-1107-1	Max.	±0.1	±0.5	±0.5	±0.5	±0.5	±0.5	
)ert	Pro	Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed	Passed	Passed	Passed	Passed	
Į o		Water Impermeablility- Watertightness at High pressure (2)	Kpa	EN-1928 Method B	Min.	100	150	200	300	350	400	
Membrane Properties		Water Absorption	%	ASTM D-5147	Max.	< 1	< 1	< 1	< 1	< 1	< 1	
ran		Vapour Permeability	μ	EN 1931	-	60000	60000	60000	60000	60000	60000	
g E		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	-	Passed	Passed	Passed	Passed	Passed	
Š	"	<u> </u>	500 cycles			-	-	-	Passed	Passed	Passed	
	ties	Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	350	650	800	900	1000	1100	
	ber	Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	250	400	550	650	700	900	
	Properties	Thermal Ageing in air (in oven 28 days at 70°C)	-	UNI 8202 /26	-	Passed	Passed	Passed	Passed	Passed	Passed	
	Miscellaneous	Ageing Due To Atmospheric Agents (U.V Test weathering)	-	ASTM G 53 UNI 8202/29	-	Passed	Passed	Passed	Passed	Passed	Passed	
	ane	•	200 cycles		-	-	Passed	Passed	Passed	Passed	Passed	
	e	Fatigue resistance at Joints	500 cycles	UNI 8202/32	-	-	-	-	Passed	Passed	Passed	
	/lis	Fire Classification - External Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof						
		Reaction to fire	Class	EN 13501-1	-	Е	Е	Е	Е	Е	Е	
		Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30	≤30	≤30	≤30	≤30	
		Adhesion To Concrete (Torch Applied)	N/ 50mm	Pelage UEAtc	-	20	20	20	20	20	20	
		Resistance to root pentration	-	EN-13948	-	NPD	NPD	NPD	NPD	NPD	NPD	
		weight	kg/m2	-	-	3 to 6						
		Thickness	mm	-	-	2 to 5						
		Roll Length	М	-	-	10	10	10	10	10	10	
Supp	ly Data	Roll Width	М	-	-	1	1	1	1	1	1	
Сирр	., .	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.

Email: bitunil@bitunil.com

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 شركة السنيل للمسواد العسسازلسة ش.م.م

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NiloPlast 15 plastomeric are waterproofing membranes manufactured advanced an continuous calendaring process by saturating and coating a synthetic 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 membranes compound, the mechanical characteristics of NiloPlast 15 are established by non-woven the filament continuous spun-bond Polyester or Glassfiber mat which acts as the reinforcement that provides the membrane with its particular tensile strength, tear resistance, puncture resistance and elongation properties.

The upper surface of **NiloPlast 15** is covered with an anti-adhesive finish material while the lower surface is laminated with a thermo-fusible polyethylene film.

USES

NiloPlast 15 are multi-purpose membranes for roofing & waterproofing applications subjected to different mechanical stresses and Critical weathering conditions, in multi layer systems and can be used as a single layer in specific application.

NiloPlast 15 membranes are particularly recommended for the following applications.

- Roofing or re-roofing works for sloped and flat protected roofs.
- Waterproofing of underground structures
- Waterproofing of wet areas, mechanical rooms and terraces.

NiloPlast 15 MINERAL is used for exposed applications or as a capsheet in a multi-layer system.

NiloPlast 15 NiloPlast 15

Mineral

Rolls/ Pallet

Smooth

APP Modified Bitumen Waterproofing Membranes

With Non-Woven Spun-Bond Polyester Or Glassfiber Reinforcement

MAJOR FEATURES

- Good UV Resistance
- Enhanced Resistance To Chemicals
- Excellent Mechanical Properties
- Enhanced Performance, under a wide range of temperature fluctuation, (from -15 °C to 150 °C)

SURFACE FINISH

The lower surface of **NiloPlast 15** is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

Fine Sand
 Polyethylene Film
 Mineral Slate chips or Special Granules
 NiloPlast 15 - S/E
 NiloPlast 15 - E/E
 Mineral Slate chips or Special Granules

APPLICATION

NiloPlast 15 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. **NiloPlast 15** can be applied to the substrate fully bonded, semi bonded or loose laid, and 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 info on application refer to BituNil application guide.

STORAGE & HANDLING

NiloPlast 15 rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

			Standard						
Group 100	Group 105	Thickness *	Roll Size	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 toler	ance as per UEAt	c. Directives for Gr	oup 1000 and UE	Atc. ± 5% for 0	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.

APP Modified Bitumen Waterproofing Membranes

G:Glassfiber, GF: Low Weight, GP: Medium Weight

P: Polyester, PP: Low Weight, PS: Medium Weight PX: (Medium/High) Weight, PY: High Weight, PZ: Heavy Duty.

NiloPlast 15 GP NiloPlast 15 PP NiloPlast 15 PS NiloPlast 15 PX NiloPlast 15 PY NiloPlast 15 PZ

Droportico	Test Unit Test Method	Tolerance	NiloPlast 15							
Properties	Test	Unit	rest Method	Tolerance	GP	PP	PS	PX	PY	PZ
<u>a</u> "	Thickness	mm	EN-1849-1	± 5%	4	4	4	4	4	4
ion	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	-	-	-	-	-	
ensi	Determination Of Width	m	EN-1848-1	± 1%	1	1	1	1	1	1
Dimensional Properties	Determination Of Length	m	EN-1848-1	± 1%	10	10	10	10	10	10
۵ ۳	Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10	± 10	± 10	± 10	± 10
Compound	Softening point (R&B)	°C	ASTM D- 36	Min.	150	150	150	150	150	150
Properties	Compound Elongation	%	UNI 8202/8	± 15%	-	-	-	-	-	-
	Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	400	650	800	900	1000	1100
Se	Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	300	400	550	650	700	900
properties	Elongation At Break - Longitudinal	%	EN-12311-1	±15(polyester only)	2	30	30	35	40	45
o De	Elongation At Break - Transverse	%	EN-12311-1	±15(polyester only)	2	35	35	35	40	50
ā	Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	140	250	275	275	275	300
Mechanical	Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	190	275	275	350	350	350
Jan	Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450	550	600	625	750	800
ect	Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	300	325	350	450	550	600
Σ	Resistance to Static Loading	Kg	EN 12730 Method A	Min.	7	15	15	20	25	25
	Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	300	450	600	700	900	1100
	Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	120	120	120	120	120	120
lar ties	Flexability At Low Temprature ⁽¹⁾	°C	EN-1109	-	-20 to -15	-20 to -15	-20 to -15	-20 to -15	-20 to -15	-20 to -15
erties Thermal Properties	Dimensional Stability	%	EN-1107-1	Max.	±0.1	±0.5	±0.5	±0.5	±0.5	±0.5
erties Thermal Properties	Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed	Passed	Passed	Passed	Passed
l op l	Water Impermeablility- Watertightness at High pressure (2)	Kpa	EN-1928 Method B	Min.	100	150	200	300	350	400
Membrane Properties There	Water Absorption	%	ASTM D-5147	Max.	< 1	< 1	< 1	< 1	< 1	< 1
La L	Vapour Permeability	μ	EN 1931	-	60000	60000	60000	60000	60000	60000
φ	Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	-	Passed	Passed	Passed	Passed	Passed
	rangue resistance on cracks	500 cycles	0141 0202710		-	-	-	Passed	Passed	Passed
ties	Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	400	650	800	900	1000	1100
per	Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	300	400	550	650	700	900
Properties	Thermal Ageing in air (in oven 28 days at 70°C)	-	UNI 8202 /26	-	Passed	Passed	Passed	Passed	Passed	Passed
sno	Ageing Due To Atmospheric Agents (II V Test weathering)	-	ASTM G 53	-	Passed	Passed	Passed	Passed	Passed	Passed
lane		200 cycles		-	-	Passed	Passed	Passed	Passed	Passed
Cel	i atique resistance at Joints	500 cycles	ONI 0202/32	-	-	-	-	Passed	Passed	Passed
Mis	Fire Classification - External Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof	F Roof	F Roof	F Roof	F Roof	F Roof
	Reaction to fire	Class	EN 13501-1	-	Е	Е	Е	Е	Е	Е
	Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30	≤30	≤30	≤30	≤30
	Adhesion To Concrete (Torch Applied)	N/ 50mm	Pelage UEAtc	-	20	20	20	20	20	20
	Resistance to root pentration	-	EN-13948	-	NPD	NPD	NPD	NPD	NPD	NPD
	weight	kg/m2	-	-	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
	Thickness	mm	-	-	2 to 5	2 to 5	2 to 5	2 to 5	2 to 5	2 to 5
	Roll Length	М	-	-	10	10	10	10	10	10
Supply Data	Roll Width	М	-	-	1	1	1	1	1	1
, J	Surface finish (E: Polyethylene film S: Sand SL:Slates GR:	Granule)								
	Upper Surface Finish	-	-	-				S or E or SL		
	Lower Surface Finish	-	-	-	or GR S or E	or GR S or E	or GR S or E	or GR S or E	or GR S or E	or GR S or E
Supply Data	(U.V Test weathering) Fatigue resistance at Joints Fire Classification - External Fire Performance Reaction to fire Adhesion Of Granules Adhesion To Concrete (Torch Applied) Resistance to root pentration weight Thickness Roll Length Roll Width Surface finish (E: Polyethylene film S: Sand SL:Slates GR: 4 Upper Surface Finish	500 cycles Class Class % N/ 50mm - kg/m2 mm M Granule)	UNI 8202/29 UNI 8202/32 EN 13501-5/ ENV 1187 EN 13501-1 EN-12039 Pelage UEAtc EN-13948	Max	- F Roof E ≤30 20 NPD 3 to 6 2 to 5 10 1 S or E or SL or GR	Passed	Passed	Passed Passed F Roof E ≤30 20 NPD 3 to 6 2 to 5 10 1 S or E or SL or GR	Passed Passed F Roof E ≤30 20 NPD 3 to 6 2 to 5 10 1 S or E or SL or GR	Par

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.

Email: bitunil@bitunil.com

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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NiloPlast 20 plastomeric are waterproofing membranes manufactured advanced an continuous calendaring process by saturating and coating a synthetic 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 membranes compound, the mechanical characteristics of NiloPlast 20 are established by the non-woven filament continuous spun-bond Polyester or Glassfiber mat which acts as the reinforcement that provides the membrane with its particular tensile strength, tear resistance, puncture resistance and elongation properties.

The upper surface of NiloPlast 20 is covered with an anti-adhesive finish material while the lower surface is laminated with thermo-fusible а polyethylene film.

USES

NiloPlast 20 multi-purpose are membranes for roofing waterproofing applications subjected to different mechanical stresses and Extreme weathering conditions, in multi layer systems and can be used а single layer in specific application.

20 NiloPlast membranes are particularly recommended for following applications.

- Roofing or re-roofing works for sloped and flat protected roofs.
- Waterproofing of underground structures
- Waterproofing of wet areas, mechanical rooms and terraces.

NiloPlast 20 MINERAL is used for exposed applications or as a capsheet in a multi-layer system.

NiloPlast 20 NiloPlast 20

Mineral

Smooth

APP Modified Bitumen Waterproofing Membranes

With Non-Woven Spun-Bond Polyester Or Glassfiber Reinforcement

MAJOR FEATURES

- **Good UV Resistance**
- **Enhanced Resistance To Chemicals**
- **Excellent Mechanical Properties**
- Enhanced Performance, under a wide range of temperature fluctuation, (from - 20 °C to 150 °C)

SURFACE FINISH

The lower surface of NiloPlast 20 is laminated with a Polyethylene film while the upper surface is covered with one of the following surface finish materials:

Fine Sand NiloPlast 20 - S/E Polyethylene Film NiloPlast 20 - E/E Mineral Slate chips or Special Granules NiloPlast 20 MINERAL

APPLICATION

NiloPlast 20 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. can be applied to the substrate fully bonded, semi bonded or loose laid, and 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 info on application refer to BituNil application guide.

STORAGE & HANDLING

NiloPlast 20 rolls should be kept in an upright position in a flat, properly ventilated and sheltered storage area.

STANDARD SUPPLY DATA & PALLETISING

			Standard	Rolls/	Pallet				
Group 100	Group 105	Thickness *	Roll Size	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 toler	ance as per UEAt	c. Directives for Gre	oup 1000 and UE	Atc. ± 5% for 0	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.

APP Modified Bitumen Waterproofing Membranes

G: Glassfiber, GF: Low Weight, GP: Medium Weight.

P: Polyester, PP: Low Weight, PS: Medium Weight PX: (Medium/High) Weight, PY: High Weight, PZ: Heavy Duty.

NiloPlast 20 GP NiloPlast 20 PP NiloPlast 20 PS NiloPlast 20 PX NiloPlast 20 PY NiloPlast 20 PZ

Dray	artiaa	Took	Unit	Took Mathad	Talavanaa			NiloPl	ast 20		
Prop	erties	Test	Unit	Test Method	Tolerance	GP	PP	PS	PX	PY	PZ
<u></u>		Thickness	mm	EN-1849-1	± 5%	4	4	4	4	4	4
Dimensional	Properties	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	-	-	-	-	-	-
Insi	per	Determination Of Width	m	EN-1848-1	± 1%	1	1	1	1	1	1
<u>ii</u>	ro	Determination Of Length	m	EN-1848-1	± 1%	10	10	10	10	10	10
٥		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10	± 10	± 10	± 10	± 10
Com	pound	Softening point (R&B)	°C	ASTM D- 36	Min.	150	150	150	150	150	150
Prop	erties	Compound Elongation	%	UNI 8202/8	± 15%	-	-	-	-	-	-
		Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	400	650	800	900	1000	1100
	ဖွ	Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	300	400	550	650	700	900
	properties	Elongation At Break - Longitudinal	%	EN-12311-1	±15(polyester only)	2	30	30	35	40	45
	odo	Elongation At Break - Transverse	%	EN-12311-1	±15(polyester only)	2	35	35	35	40	50
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	140	250	275	275	275	300
	Mechanical	Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	190	275	275	350	350	350
	ani	Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450	550	600	625	750	800
	ech	Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	300	325	350	450	550	600
	Ž	Resistance to Static Loading	Kg	EN 12730 Method A	Min.	7	15	15	20	25	25
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	300	450	600	700	900	1100
		Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	120	120	120	120	120	120
	ties	Flexability At Low Temprature ⁽¹⁾	°C	EN-1109	-	≤-20	≤-20	≤-20	≤-20	≤-20	≤-20
es	Thermal roperties	Dimensional Stability	%	EN-1107-1	Max.	±0.1	±0.5	±0.5	±0.5	±0.5	±0.5
Membrane Properties	Thermal Properties	Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed	Passed	Passed	Passed	Passed
op	- "	Water Impermeablility- Watertightness at High pressure (2)	Кра	EN-1928 Method B	Min.	100	150	200	300	350	400
еЪ		Water Absorption	%	ASTM D-5147	Max.	< 1	< 1	< 1	< 1	< 1	< 1
ran		Vapour Permeability	μ	EN 1931	-	60000	60000	60000	60000	60000	60000
ğμ		Estigue reciptance en eracke	200 cycles	UNI 8202/13	-	-	Passed	Passed	Passed	Passed	Passed
Me		Fatigue resistance on cracks	500 cycles	0141 0202/10		-	-	-	Passed	Passed	Passed
	ties	Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	400	650	800	900	1000	1100
	ber	Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	300	400	550	650	700	900
	Properties	Thermal Ageing in air (in oven 28 days at 70°C)	-	UNI 8202 /26	-	Passed	Passed	Passed	Passed	Passed	Passed
	Miscellaneous	Ageing Due To Atmospheric Agents (U.V Test weathering)	-	ASTM G 53 UNI 8202/29	-	Passed	Passed	Passed	Passed	Passed	Passed
	lan	Fatigue resistance at Joints	200 cycles	UNI 8202/32	-	-	Passed	Passed	Passed	Passed	Passed
	cel	, angue resistance at come	500 cycles	5111 5252752	-	-	-	-	Passed	Passed	Passed
	Σis	Fire Classification - External Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof					
		Reaction to fire	Class	EN 13501-1	-	Е	Е	Е	E	E	Е
		Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30	≤30	≤30	≤30	≤30
		Adhesion To Concrete (Torch Applied)	N/ 50mm	Pelage UEAtc	-	20	20	20	20	20	20
		Resistance to root pentration	-	EN-13948	-	NPD	NPD	NPD	NPD	NPD	NPD
		weight	kg/m2	-	-	3 to 6					
		Thickness	mm	-	-	2 to 5					
		Roll Length	М	-	-	10	10	10	10	10	10
Supp	y Data	Roll Width	М	-	-	1	1	1	1	1	1
		Surface finish (E: Polyethylene film S: Sand SL:Slates GR:	Granule)								
		Upper Surface Finish	-	-	-				S or E or SL		
		Lower Surface Finish	-	_	_	or GR S or E					
		LOWER SUITAGE FILIISH				301E	SUIE	SUIE	3 UI E	SUIE	SUIE

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Email: bitunil@bitunil.com

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

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NiloPlast plastomeric waterproofing membranes manufactured advanced an in continuous calendaring process by saturating and coating a synthetic 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 membranes compound, the mechanical characteristics of NiloPlast are established by the non-woven filament continuous spun-bond Polyester or Glassfiber mat which acts as the reinforcement that provides the membrane with its particular tensile strength, tear resistance, puncture resistance and elongation properties.

The upper surface of **NiloPlast** is covered with an anti-adhesive finish material while the lower surface is laminated with a thermo-fusible polyethylene film.

USES

NiloPlast are multi-purpose membranes for roofing & waterproofing applications subjected to different mechanical stresses and normal weathering conditions, in multi layer systems and can be used as a single layer in specific application.

NiloPlast membranes are particularly recommended for the following applications.

- Roofing or re-roofing works for sloped and flat protected roofs.
- Waterproofing of underground structures
- Waterproofing of wet areas, mechanical rooms and terraces.

NiloPlast MINERAL is used for exposed applications or as a capsheet in a multi-layer system.

NiloPlast Smooth NiloPlast Mineral

APP Modified Bitumen Waterproofing Membranes

With Non-Woven Spun-Bond Polyester Or Glassfiber Reinforcement

MAJOR FEATURES

- Good UV Resistance
- Enhanced Resistance To Chemicals
- Excellent Mechanical Properties
- Enhanced Performance, under a wide range of temperature fluctuation, (from 0 °C to 150 °C)

SURFACE FINISH

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

Fine Sand
 Polyethylene Film
 MiloPlast - S/E
 MiloPlast - E/E
 Mineral Slate chips or Special Granules
 NiloPlast MINERAL

APPLICATION

NiloPlast 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. **NiloPlast** can be applied to the substrate fully bonded, semi bonded or loose laid, and 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 info on application refer to BituNil application guide.

STORAGE & HANDLING

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

STANDARD SUPPLY DATA & PALLETISING

			Standard	Rolls/	Pallet					
Group 100	Group 105	Thickness *	Roll Size	Group 100	Group 105					
300	305	3mm	1M x 10M	28	28					
400	405	4mm	1M x 10M	23	23					
*Thickness tole	*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 toler	ance as per UEAt	c. Directives for Gre	oup 1000 and UE	Atc. ± 5% for 0	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.

APP Modified Bitumen Waterproofing Membranes

G:Glassfiber, GF: Low Weight, GP: Medium Weight

P: Polyester, PP: Low Weight, PS: Medium Weight PX: (Medium/High) Weight, PY: High Weight, PZ: Heavy Duty.

NiloPlast GF NiloPlast PP NiloPlast PX NiloPlast PX NiloPlast PY NiloPlast PZ

Pron	erties	Test	Unit	Test Method	Tolerance			Nilo	Plast		
гюр	CILICS	1651	Offic	rest Method	Tolerance	GF	PP	PS	PX	PY	PZ
a	"	Thickness	mm	EN-1849-1	± 5%	4	4	4	4	4	4
io	ties	Weight (Mass Per Unit Area)	kg/m ²	EN-1849-1	± 10%	-	-	-	-	-	-
Dimensional	Properties	Determination Of Width	m	EN-1848-1	± 1%	1	1	1	1	1	1
<u>ii</u>	Pro	Determination Of Length	m	EN-1848-1	± 1%	10	10	10	10	10	10
٥		Straightness (Ortometry)	mm	EN-1848-1	-	± 10	± 10	± 10	± 10	± 10	± 10
Com	pound	Softening point (R&B)	°C	ASTM D- 36	Min.	150	150	150	150	150	150
Prop	erties	Compound Elongation	%	UNI 8202/8	± 15%	-	-	-	-	-	-
		Tensile Strength - Longitudinal	N/50mm	EN-12311-1	± 20%	350	650	800	900	1000	1100
	S	Tensile Strength - Transverse	N/50mm	EN-12311-1	± 20%	250	400	550	650	700	900
	ij	Elongation At Break - Longitudinal	%	EN-12311-1	±15(polyester only)	2	30	30	35	40	45
	properties	Elongation At Break - Transverse	%	EN-12311-1	±15(polyester only)	2	35	35	35	40	50
		Tearing Strength - Longitudinal (Nail-Shank)	N	EN-12310-1	± 30%	125	200	250	250	250	250
	ica	Tearing Strength - Transverse(Nail-Shank)	N	EN-12310-1	± 30%	150	250	250	250	300	300
	ıan	Tensile Tear Resistance - Longitudinal	N	ASTM D- 5147 . D 4073	± 30%	450	550	600	625	750	800
	Mechanical	Tensile Tear Resistance - Transverse	N	ASTM D- 5147 . D 4073	± 30%	300	325	350	450	550	600
	Σ	Resistance to Static Loading	Kg	EN 12730 Method A	Min.	7	15	15	20	25	25
		Dynamic Puncturing (Impact Resistance)	mm	EN 12691 Method B	Min.	300	450	600	700	900	1100
		Flow Resistance At Elevated Temprature	°C	EN-1110	Min.	100	100	100	100	100	100
	Thermal Properties	Flexability At Low Temprature ⁽¹⁾	°C	EN-1109	-	-5 To 0					
es		Dimensional Stability	%	EN-1107-1	Max.	±0.1	±0.5	±0.5	±0.5	±0.5	±0.5
erti		Water Impermeablility- Watertightness at Low pressure	60 Kpa	EN-1928 Method A	-	Passed	Passed	Passed	Passed	Passed	Passed
rop		Water Impermeablility- Watertightness at High pressure (2)	Кра	EN-1928 Method B	Min.	100	150	200	300	350	400
Membrane Properties		Water Absorption	%	ASTM D-5147	Max.	< 1	< 1	< 1	< 1	< 1	< 1
ran		Vapour Permeability	μ	EN 1931	-	60000	60000	60000	60000	60000	60000
шp		Fatigue resistance on cracks	200 cycles	UNI 8202/13	-	-	Passed	Passed	Passed	Passed	Passed
Me		rangue resistance on cracks	500 cycles	0141 0202710		-	-	-	Passed	Passed	Passed
	ties	Shear Resistance Of joints - Longitudinal	N/50mm	EN-12317-1	± 20%	350	650	800	900	1000	1100
	ber	Shear Resistance Of joints - Transverse	N/50mm	EN-12317-1	± 20%	250	400	550	650	700	900
	Properties	Thermal Ageing in air (in oven 28 days at 70°C)	-	UNI 8202 /26	-	Passed	Passed	Passed	Passed	Passed	Passed
	Miscellaneous	Ageing Due To Atmospheric Agents (U.V Test weathering)	-	ASTM G 53 UNI 8202/29	-	Passed	Passed	Passed	Passed	Passed	Passed
	ane	, ,	200 cycles		-	-	Passed	Passed	Passed	Passed	Passed
	Se	Fatigue resistance at Joints	500 cycles	UNI 8202/32	-	-	-	-	Passed	Passed	Passed
	Nisc	Fire Classification - External Fire Performance	Class	EN 13501-5/ ENV 1187	-	F Roof					
	2	Reaction to fire	Class	EN 13501-1	-	Е	Е	Е	Е	Е	Е
		Adhesion Of Granules	%	EN-12039	Max.	≤30	≤30	≤30	≤30	≤30	≤30
		Adhesion To Concrete (Torch Applied)	N/ 50mm	Pelage UEAtc	-	20	20	20	20	20	20
		Resistance to root pentration	-	EN-13948	-	NPD	NPD	NPD	NPD	NPD	NPD
		weight	kg/m2	-	-	3 to 6					
		Thickness	mm	-	-	2 to 5					
		Roll Length	М	-	-	10	10	10	10	10	10
Quest	y Data	Roll Width	М	-	-	1	1	1	1	1	1
Suppi	y Data	Surface finish (E: Polyethylene film S: Sand SL:Slates GR: 0	Granule)								
		Upper Surface Finish		-	-	S or E or SL or GR					
		Lower Surface Finish	-		-	SorE	SorE	S or E	SorE	SorE	SorE
	_	LOWER SURFACE FINISH				UUL	UVIL	OUL	OVIL	UNIL	OOL

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