PUDLO

Part of the DB Group

PRODUCT DATA SHEET

PUDLO Substructure Waterproofing Membrane – TS, TR & TF

DESCRIPTION

PUDLO TS, TR & TF are all TPO / FPA thermoplastic and flexible polypropylene alloy membranes which provide waterproofing protection to podium slabs and below-ground substructures. **PUDLO TS, TR & TF** membranes comply with CE marking requirements. All membranes are UV resistant. In addition to waterproof protection, **PUDLO TS, TR & TF** also provide protection against radon.

USES

For all aspects of waterproofing where a Grade 1 to Grade 3 environment is required as part of a single or dual system recommended in BS8102:2009. Each membrane serves its own purpose and is used in the following applications:

PUDLO TS– A standard loose lay waterproofing and radon protection membrane for podium / suspended slabs where exposed to foot traffic and roof gardens.

PUDLO TR – A reinforced loose lay membrane to provide waterproofing protection for podium / suspended slabs where exposed to foot traffic and roof gardens. Membrane is manufactured with a fibreglass reinforcing mat that makes it more stable.

PUDLO TF – A Fleece-backed, pre-applied membrane system for use in below ground substructure waterproofing. **PUDLO TF** is a fully bonded system which bonds straight to the concrete during its wet state. **PUDLO TF** is suitable for basement construction including swimming pools (externally), car parks, habitable spaces, lift pits, slabs, liner walls, capping beams and service penetrations.

BENEFITS

- **PUDLO TS, TR & TF** are easy to install.
- Heat welded system to provide robust waterproofing between each membrane overlap.
- **PUDLO TF** Membrane is fleece-backed to provide a fully bonded system between membrane and concrete.
- Can be installed by contractor (providing signed off by PUDLO) or by a PUDLO approved installer.
- **PUDLO TF** membrane can be installed in steel, contiguous or secant piled design.
- Radon barrier.
- BBA accredited.

PUDLO

Part of the DB Group

PRODUCT DATA SHEET

TECHNICAL DATA

PUDLO TS	EN Standards	Unit	Tolerance	Values	
Standard Thickness	1849-2	mm	(-5/+10%)	1.2	1.5
Density	1849-2	Kg/m^2	(-5/+10%)	1.08	1.35
Tensile Properties					
Tensile Strength L/T	12311-2	N/mm^2		16/15	
Elongation at Break L/T	12311-2	%		700/700	
Dimensional Stability	1107-2	%		<0.5	
Cold Flexibility	495/5	^{0}C		<-40(2)	
Tear Resistance L/T	12310/1	N		330/240	330/240
Water Vapour Permeability (resistance)	1931			90.000	
Resistance to Static Loading	12730/B	Kg		>25	
Resistance to Impact	12691/B	mm		>1000	
Hail Resistance	13583	m/s		>30(*)	
Water Tightness (60kPa)	1928			Absolute	
Joint Strength					
Tensile Strength	12317-2	N/cm		Compliant	
Peeling	12316-2	N/cm		>58	
Durability					
Resistance to Artificial UV Light	1297-5000 h			No surface damage / changes to cold flexibility as per EB 495/5	
Heat Aging in Area					
Change in Tensile Strength	12311-2	Δ%		-5	
Change in Elongation at Break	12311-2	Δ%		-5	
Mechanically Retained System	Pa			>5500	
Reaction to Fire	13501-1			Class E(3)	
Resistance to Algae and Micro-organisms	ISO 846 Lvl 2			Compliant	
Root Resistance	13948			Passes the test	
Contact with Drinking Water (DW)				Suitable	

Notes: (1) – Tolerances as per EN 13956 and / or UEAtc Directives.
(2) – Not tested at lover temperatures.
(3) – Based on Warringtonfiregent – Classification Report for roofs / roof coverings exposed to external fire Nr 13561B.
(*) – Not tested at higher speeds.

PUDLO

Part of the DB Group

PRODUCT DATA SHEET

PUDLO TR	EN Standards	Unit	Tolerance	Values	
Standard Thickness	1849-2	mm	(-5/+10%)	1.2	1.5
Density (*)	1849-2	Kg/m^2	(-5/+10%)	1.10	1.37
SRI – Solar Reflectance Index	ASTM E1980	%		102(*)	
Tensile Properties					
Tensile Strength L/T	12311-2	N/50mm		600/550	650/600
Elongation at Break L/T	12311-2	%		700/700	
Dimensional Stability	1107-2	%		<0.1	
Cold Flexibility	495/5	^{0}C		<-40(2)	
Tear Resistance L/T (*)	12310/1	N		390/290	450/400
Water Vapour Permeability (resistance)	1931			90.000	
Resistance to Static Loading (*)	12730/B	Kg		>25	
Resistance to Impact (*)	12691/B	mm		>1000	
Hail Resistance	13583	m/s		>30(**)	
Water Tightness (60kPa)	1928			Absolute	
Joint Strength					
Tensile Strength	12317-2	N/cm		Compliant	
Peeling	12316-2	N/cm		>58	
Durability					
Resistance to Artificial UV Light	1297-5000 h			No surface damage / changes to cold flexibility as per EB 495/5	
Heat Aging in Area					
Change in Tensile Strength	12311-2	Δ%		-5	
Change in Elongation at Break	12311-2	Δ%		-5	
Mechanically Retained System	Pa			>6000	
Reaction to Fire	13501-1			Class E	
Resistance to Algae and Micro-organisms	ISO 846 Lvl 2			Compliant	
Root Resistance	13948			Passes the test	

Notes: *(1) – Tolerances as per EN 13956 and / or UEAtc Directives*
(2) – Not tested at lover temperatures.
(*) – Reflecta white version.
(**) – Not tested at higher speeds.

PUDLO

Part of the DB Group

PRODUCT DATA SHEET

PUDLO TF	EN Standards	Unit	Tolerance	Values	
Standard Thickness	1849-2	mm	(-5/+10%)	1.2	1.5
Density (*)	1849-2	Kg/m^2	(-5/+10%)	1.27	1.53
Tensile Properties					
Tensile Strength L/T	12311-2	N/mm^2		16/15	
Elongation at Break L/T	12311-2	%		700/700	
Dimensional Stability	1107-2	%		<0.5	
Cold Flexibility	495/5	^{0}C		<-40(3)	
Tear Resistance L/T (*)	12310/1	N		450/400	650/600
Water Vapour Permeability (resistance)	1931			90.000	
Resistance to Static Loading (*)	12730/B	Kg		>25	
Resistance to Impact (*)	12691/B	mm		>1000	
Hail Resistance	13583	m/s		>30(3)	
Water Tightness (60kPa)	1928			Absolute	
Joint Strength					
Tensile Strength	12317-2	N/cm		Compliant	
Peeling	12316-2	N/cm		>58	
Durability					
Resistance to Artificial UV Light	1297-5000 h			No surface damage / changes to cold flexibility as per EB 495/5	
Heat Aging in Area					
Change in Tensile Strength	12311-2	Δ%		-5	
Change in Elongation at Break	12311-2	Δ%		-5	
Mechanically Retained System	Pa			>5000	
Reaction to Fire	13501-1			Class F	
Resistance to Algae and Micro-organisms	ISO 846 Lvl 2			Compliant	
Root Resistance	13948			Passes the test	

Notes: (1) – Values indicated refer to membrane without nonwoven polyester fabric backing, except for the values marked with an asterisk, that refer to finished product. Tolerances as per EN 13956 and / or UEAtc Directives.

(2) – Not tested at lover temperatures.

(*) – Not tested at higher speeds.

Membrane Production Measurements			
Thickness (*)	mm	1.2	1.5
Width	m	2.10	2.10
Length (*)	m	25	25
Colour	Grey / Black		

PUDLO

Part of the DB Group

PRODUCT DATA SHEET

APPLICATION

PUDLO TS, TR & TF membranes are sealed through a hot air gun on the overlapping joints. No adhesives or other materials of any kind are required. Please refer to **PUDLO TS TR & TF Membrane Installation Guide** for instructions on how to install these materials.

LIMITATIONS

- **PUDLO TS, TR & TF** are not intended for movement joints. Movement joints should be installed and designed by 3rd party specialist contractor for waterproofing
- For reinforced concrete thicknesses please contact **PUDLO** with your technical requirements

ANCILLARY PRODUCTS

- **Surestop BWB / Surestop SWB (sealing construction joints)**
- **Surestop Adhesive**
- **Surestop SM**
- **Surestop Voidformer**
- **Surestop Steel Cage Mesh**
- **PS Tie Bolt Hole Tube**
- **Heat weld appliances and ancillaries**

PACKAGING

Refer to technical data.

HEALTH & SAFETY

PUDLO TS, TR & TF rolls are heavy and may need mechanical lifting. Please refer to MSDS for more information.

STORAGE

PUDLO TS, TR & TF should be kept in dry conditions.

FIRE

Please refer to **PUDLO TS, TR & TF** MSDS for information.

For further information on accessories that are used with **PUDLO TS, TR & TF** please contact **PUDLO** Head Office on 01954 780687 or email sales@pudlo.com

DB Group