SMARTCARE

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Smartcare Polyurea PW

Elastomeric seamless Polyurea for potable water applications

Description

SmartCare Polyurea PW is an instant curing, spray applied, Pure Polyurea elastomeric seamless waterproofing and flexible protective membrane that exhibits excellent impact and tear strength. It will not crack or peel even under the harshest conditions and requires no maintenance to maintain its integrity and physical features.

It is specially formulated and is designed for use in potable water applications up to 85°C ambient temperatures.

Uses

Anti-Corrosion, waterproofing and protective coating for

- Potable water reservoirs, storage tanks, canals and via-ducts.
- Rainwater storage tanks
- Fish breeding tanks.
- Desalination plants.
- Water bottling and cleaning plants

Characteristics

- Potable Water Approval
- Spray applied Seamless application to any thickness in one application.
- Fast reactivity and tack free times - from 10 seconds.
- Fast return to service time – within 48 hours.
- Long life-cycle - significant whole of life cycle savings
- Excellent adhesion on concrete, steel, aluminum, fiberglass, wood, foam etc.
- No sensitivity to humidity or moisture during the spraying and curing processes.
- High impact and abrasion resistance,
- Maintains flexibility and does not become brittle over a wide temperature range.
- Very good tensile and structural strength - High elongation at break.
- 100 % solids, VOC-free, no solvents.
- Does not contain catalysts.
- UV, chlorine and saltwater resistant.
- Suitable for exposed applications under water
- Can be applied across multiple substrates in the same application process
- Remains flexible under a wide range of climatic conditions

Coverage

Theoretical coverage @ 1.5-2.0 liters per m2 (1.5 – 2.0 mm thick) depending on the specification.

WRAS APPROVED PRODUCT

Packing

Smartcare Polyurea PW is supplied in 40 or 525 kg sets

Technical Data

Mixing ratio of Comp. A to Comp. B	1 : 1 by volume
Material consumption [kg/m2/1mm]	Approx. 1 - 1.2
Dry film thickness range [mm] For project specific DFT recommendations consult with manufacturer.	Steel Minimum: 1 Maximum: indefinite
	Concrete Minimum: 2 Maximum: indefinite
Tack Free-Time at 20°C [sec.]	10 - 20
Over coat cycle [h]	0 – 12 (without any further pre-treatment)
Curing/loading after	Walkable: 5 mins Mechanical: 1 hr Chemical: 12 hrs
Temperature range for application (ambient) [°C]	-10 - +50
Temperature range for application (substrate) [°C]	-10 - +50
Material Temperature (Preconditioning) [°C]	30 - 40
Material Temperature (Spraying) [°C]	65 - 75
Maximal relative air humidity for application [%]	98
Pay attention to the dew point limit	Substrate to be 3C greater than Dew point.

Physical Properties

Chemical Base	100% Pure Polyurea technology
VOC-content DIN EN ISO 11890-1 / ASTM D-1259	0%
Solids content DIN EN 827 / ASTM D- 2697	100%
Viscosity [mPa*s] @ 25° C DIN EN ISO 2884-2 / ASTM D-4878	Comp. A: 500 – 700 Comp B: 350 – 700
Density [g/cm³] @ 20° C DIN EN ISO 2811-2 / ASTM D-1217	Comp. A: 1,11 ± 0,02 Comp. B: 0,98 ± 0,02
Density [g/cm³] EN ISO 1183 / ASTM D- 792	1,02 ± 0,02
Tensile strength [MPa] ISO 37-2005 / ASTM D- 638	≥ 24

Modul [MPa] IISO 37-2005 / ASTM D-638	100% Elongation: ≥ 10 300% Elongation: ≥ 15

PHYSICAL PROPERTIES	DATA	
Elongation at break [%]	ISO 37-2005 / ASTM D-638	≥ 410
Hardness [Shore D]	ISO 868-2003 / ASTM D-2240	45 ± 5
Rebound resilience [%]	ISO 4662 / ASTM	≥ 39
Tear growth resistance[N/mm]	ISO 34-1 method A	≥ 40
Volume abrasion [mm3]	DIN ISO 4649	≤ 185
Taber Abrasion [mg]	ASTM D-4060	< 15 (Wheel CS17 / 1.000g / 1000 Cycles) < 135 (Wheel H18 / 1.000g / 1000 Cycles)
Peel off strength [N/mm]	ISO 813 / ASTM	Concrete: ≥ 4 Steel: ≥ 8
Pull off strength [MPa]	DIN EN ISO 4624 / ASTM D-4541	Concrete: ≥ 1,5 Steel: ≥ 6
Min. Process temp. [°C]	ASTM D-2485	Dry: -40
Max. Process temp. [°C]	ASTM D-2485	Wet: 90 Dry: 120 Peak temperature dry: 160
Potable water approval	BS 6920	WRAS (UK) up to 85°C
Storage conditions [°C]	DIN EN 12701	10 – 30 (in closed original drums, stored at dry and well-ventilated place; beware of freezing)
Shelf life	-	Approximately 12 months
Antibacterial Activity	BS ISO 22196	2,2 : Result „good“ (99,0-99,9%) – (Bacteria: S.aureus) 2,4 : Result „good“ (99,0-99,9%) – (Bacteria: E.coli)

* SmartCare Polyurea PW is an aromatic based system and can display colour shift under UV light. This colour shift will not negatively affect the products physical performance.

Application Method/Tools

Application Notes:

- SmartCare Polyurea PW can only be applied using high pressure heated plural component spray equipment by trained and approved applicators.
- In ambient temperatures below 15°C chemical drums should be pre-heated using band heaters to 30 – 40°C.
- The B-side component should be thoroughly power stirred prior to the commencement of spraying and periodically during the spraying process to ensure there is no settling out of the B-side chemical components.
- The Pigment is always mixed into the B-side using a power stirrer.
- Both the A-side and B-side drums should be fitted with desiccant dryers.
- Compressed air supply should be supplied via an air dryer.
- Primary heaters should be set at between 65-75°C. Adjustments can be made on-site based on environmental conditions, mixing module size and application circumstances.
- Hose heaters should be set at 70C. Adjustments can be made on-site based on environmental conditions, mixing module size and application circumstances.
- Special note for the application of SmartCare Polyurea PW in potable water tanks, reservoirs and similar constructions:
- Following the application of SmartCare Polyurea PW the lining should be left for a minimum of 48 hours after which a thorough high-pressure water wash down should be undertaken. Remove the wash water prior to filling with Potable water.

Surface Preparation

All surfaces must be clean, dry and free from contamination. Metal surfaces must be assessed and treated in accordance with ISO 8504.

Concrete

Dry abrasive blasting, wet abrasive blasting, vacuum-assisted abrasive blasting, and centrifugal shot blasting, as described in ASTM D4259, may be used to remove contaminants, laitance, and weak concrete, to expose blow holes, and to produce a sound concrete surface with adequate profile and surface porosity. All blow holes

and minor surface imperfections shall be filled with Apcoflor Epoxy Putty filler prior to application of Primer.

Bare Steel

All welding seams must have a surface finish which ensures that the quality of the paint system will be maintained in all respects. Holes in welding seams, undercuts, cracks, etc. must be avoided. If found, they must be remedied by welding and/or grinding. All weld spatters must be removed. All sharp edges must be removed or rounded off in such a way that the specified film thickness can be built- up on all surfaces. The radius of the rounding must be minimum 2 mm.

The steel must be of first class quality and must not have been allowed to rust more than corresponding to grade B of ISO 8501-1:2007. Any laminations must be removed.

Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85µm, Ry5) (ISO 8503-2).

Priming

Following correct preparation, the substrate must be primed. For sound, dry concrete and at ambient/substrate temperatures of ≥10ºC, prime using Apcoflor MFP 140 Primer clear. If this condition or concrete substrate condition is not met (see Limitations), Consult Asian Paints Berger SmartCare technical team for advice. For steel surfaces Primer application and for other surfaces consult Asian Paints Berger SmartCare technical team for advice.

For concrete, suggested application rate is 0.25kg per m2; for steel substrates, a suggested rate of 0.15kg per m2. A broadcast of fire-dried sand is recommended for optimum adhesion properties, to give additional mechanical key.

The primer shall be allowed to become touch-dry prior to application of SmartCare Polyurea PW. The primer should not be allowed to come into direct contact with clean drinking water.

Application

The client/ main contractor must be satisfied that the applicator has suitable equipment and expertise, and will follow the procedures detailed in this datasheet and in the SmartCare Polyurea PW Method Statement.

Do not dilute SmartCare Polyurea PW, Apcoflor MFP 140 primer clear or Asian Paints Berger Primer for Steel under any circumstances.

Normal recommended minimum applied thickness of SmartCare Polyurea PW is 1.5mm, using cross-hatch spray pattern. For field/day joints for applications >12 hours after the previous Polyurea coating application, a SmartCare Tie Bond PU wipe is required, and allowed to dry prior to fresh Polyurea application.

SmartCare Tie Bond PU should not be allowed to come into direct contact with clean drinking water.

Use appropriate non-solvent chemical for the flushing of equipment.

In the case of prolonged product storage prior to use, thoroughly mix the amine component with a drum mixer until a homogenous mixture and colour is obtained

Limitations

- Do not proceed with application if atmospheric relative humidity is >85% or if the surface temperature is <3ºC above the dew point.
- Concrete substrate must have achieved at least 75% of its design strength. Concrete relative humidity must be ≤75%. Do not proceed with application if the substrate temperature is, or is anticipated to be, <+5°C during the application.
- For work in exposed areas, do not proceed with application if precipitation is imminent.
- If in doubt, contact Asian Paints Berger SmartCare technical team for advice.
- Primer should not be allowed to come into direct contact with clean drinking water.
- It should be noted that SmartCare Polyurea PW is an aromatic Polyurea; therefore, as with all aromatics, over a period of time significant colour change will occur if exposed to UV rays. This will not cause any negative effect on the physical properties of the product.

Technical Support

Asian Paints Berger team offers a comprehensive technical support service to specifiers, end users and contractors for on-site technical assistance and dedicated specification assistance.

Disposal Considerations

Cured SmartCare Polyurea PW, cured Apcoflor MFP 140 primer clear, cured recommended Steel Primer from Asian Paints Berger can be disposed of without restriction. The uncured Part A and Part B components should be disposed of according to local environmental laws and ordinances.

“Drip free” containers should be disposed of according to local environmental laws and ordinances.

Refer to safety data sheets for all relevant information.

VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control and different test methods.

Health And Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet

Safety And Handling

- All applicators of SmartCare Polyurea PW should be trained and approved by the manufacturer.
- Spray applicators should wear appropriate PPE including approved breathing equipment, eye wear, Nylex or similar light weight spray suit and appropriate covered footwear.
- Store chemical drums in a cool dry environment. Avoid storing chemicals for long periods in direct sunlight.
- Do not store chemicals next to food stuffs.

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