MAK PHALT
Protecting Nation's Infrastructure
by M.K. PETRO PRODUCTS

MAK HYPERFLEX POLYUREA-H

[Fast setting, hybrid polyurea/polyurethane elastomeric waterproof coating]

Description :

Mak Hyperflex Polyurea-H is a spray-applied, 100% solids, flexible, two-component, rapid curing hybrid polyurea/ polyurethane system, designed as a waterproofing and protective coating.It combines the advantages of seamless coating with long life cycles and high durability.

Mak Hyperflex Polyurea-H consists of two main components. Mak Hyperflex Polyurea-H Part A ISO; Mak Hyperflex Polyurea-H Part B AMINE.

The system offers excellent surface properties and overall physical properties.

See Mak Hyperflex Polyurea-H Method Statement for application protocol and further details

USES:

Waterproof and protective coating for concrete and steel in a wide range of environmental conditions.

Typical applications include:

- Podium decks
- Roof gardens
- Green roofs
- Stadium stands
- Service roofs
- Cut and cover tunnels
- Waterproofing for Pre-Cast Structures

ADVANTAGES:

- UV stable
- Environment friendly – zero VOC
- Fast turn-around time.
- Excellent impact, abrasion and puncture resistance
- Seamless and monolithic, including field joints
- Enhances the durability of reinforced concrete
- Low permeability values
- Colour stable when coated with Nitoproof UVR Topcoat
- Fire rated when coated with Nitoproof UVR Topcoat
- Designed for service temperatures from -20OC to +80OC

***Under prolonged UV exposure only colour may fade but no effect on the performance parameter of the product.**

MAKPHALT
Protecting Nation's Infrastructure
by M.K. PETRO PRODUCTS

MAK HYPERFLEX POLYUREA-H

[Fast setting, hybrid polyurea/polyurethane elastomeric waterproof coating]

Technical Specification :

Typical Physical Properties @ 23°C	
Solids by volume	100%
Viscosity	A ISO 400-800 MPas
	B AMINE 400 -800 MPas
Density at 25oC, sprayed film	1.02 g/ml
Tensile Strength ASTM D412	>13 MPa + 10%
Tear Resistance ASTM D624C	50 Kn/m
Elongation ASTM D412	>450%
Shore A hardness ASTM D2240	80
Abrasion (1kg, CS10 wheels ASTM D4060)	1.3 mg/1000 cycles
Abrasion (1kg, CS17 wheels) DIN EN ISO 5470	19mg/1000 cycles
Abrasion (1kg, H22 wheels) ASTM D4060	117mg/1000 cycles
Service temperature range	-20oC to +80oC*
Resistance to Fire EN1501-1	Class E, d0
Chemical resistance	Spillates of mineral and hydraulic oils & fuels
	Sea water
	Dilute acids & alkalis in soils
Dynamic crack bridging of 0.5-3.2 mm.(Crack movement for 100000 cycles at 1HZ frequency @ 27+/- 2)	ASTM C 1305-08 : No evidence of cracking

MAK HYPERFLEX POLYUREA-H

[Fast setting, hybrid polyurea/polyurethane elastomeric waterproof coating]

Dynamic crack bridging after thermal shock 0.5-3.2 mm (Crack movement for 10000 cycles) (Temperature condition maintained during testing 45'c for 240 hours)	ASTM C 1305-08 : No evidence of cracking

Note: The typical physical properties given above are derived from testing in a controlled laboratory environment. Results derived from testing fi eld-applied samples may vary, dependent on actual site conditions.

Mak Hyperflex Polyurea-H subjected to Oxidation & Hydrolysis test as per B.4.2.3 of BS EN 13251:2016 & BS EN 13252:2016 passes durability test for service life up to 25 years.

CLARIFICATION OF PROPERTY VALUES:

The typical physical properties given above are derived from independent verified testing of Mak Hyperflex Polyurea-H spray-applied in accordance with the Mak Hyperflex Polyurea-H Method Statement with Probler P2 gun in controlled laboratory environment and tested after a minimum of 14 days cure.

Results derived from testing fi eld-applied samples may vary dependent on circumstances beyond our control such as the

type and condition of equipment utilised, static and dynamic working pressures, application temperatures and weather conditions, fi lm thickness, test and curing conditions and age of samples tested. A water sinking test must be carried out and a "pass" achieved (sample sinks in water) prior to spraying

SPECIFICATION:

Where mentioned in the contract drawings, the protective and waterproofing coating shall be Mak Hyperflex Polyurea-H, 100% solids, flexible, two-component, rapid curing hybrid polyurea / polyurethane coating system providing high corrosion resistance, abrasion and waterproofing resistance

MAK HYPERFLEX POLYUREA-H

[Fast setting, hybrid polyurea/polyurethane elastomeric waterproof coating]

Processing parameters

Block Temperature : +65oC to +75oC
Hose Temperature : +65oC to +75oC
Volume ratio : 1:1
Pressure : 120-150bar
Tack free Time : 15 seconds
Walkable : 10 minutes
Traffi cable (light duty) : 24 hours
Fully Serviceable : 2-3 days

Refer to Application section below and Mak Hyperflex Polyurea-H Method Statement for further detail.

Project Log

A Project Log should be maintained for each Mak Hyperflex Polyurea-H site application. For details of Project Log requirements refer to the Mak Hyperflex Polyurea-H Method Statement.

INSTRUCTIONS FOR USE :

- **Surface preparation**

All surfaces must be clean, dry and free from contamination. The surface 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 recommended filler prior to application of Primer.

- **Bare Steel**

All welding seams must have a surface fi nish 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)

- **Spray Equipment**

A high pressure spray proportioning machine/ spray gun for plural heated Mak Hyperflex Polyurea-H components such as those manufactured by WIWA or Graco should be used for this product. A list of appropriate equipment is provided in the Mak Hyperflex Polyurea-H Method Statement.

- **Colour Stable Fire Rated Topcoat**

If colour stability and/or high fire rating is required, a minimum 0.2mm film of Mak Hyperflex Polyurea-H.Topcoat of the appropriate colour should be applied. See product data sheet.

Mak Hyperflex Polyurea-H. Topcoat should be applied to the clean, dry Mak Hyperflex Polyurea-H surface typically 30 - 60 minutes after application of the Mak Hyperflex Polyurea-H, but within 48 hours. If >48 hours has elapsed since Mak Hyperflex Polyurea-H application, Mak Hyperflex Polyurea-H surface should be reactivated using a Makphalt Nitoprime 150 wipe and allowed to dry prior to application of Mak Hyperflex Polyurea-H.Topcoat

- **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 Mak Hyperflex Polyurea-H Method Statement.

Normal recommended minimum applied thickness of Mak Hyperflex Polyurea-H is 1.5mm, using cross-hatch spray pattern. Applied product can be walked on carefully after approximately 10 minutes; is light duty trafficable (e.g. light foot traffic) after approximately 24 hours, and fully serviceable after 2-3 days.

For temperatures below +5OC, longer cure times must be anticipated – contact Makphalt for further advice.

- **Limitations**

Do not proceed with application if atmospheric relative humidity is >85% or if the surface temperature is <3°C above the dew point.

- **Storage**

Mak Hyperflex Polyurea-H has a shelf life of 12 months if kept in a dry, air conditioned store between +5OC and +30OC in the original unopened containers. Any changes in colour have no negative eff ect on reactivity and physical properties of the coating.

- **Precautions**

For full information refer to appropriate Product Safety Data Sheet.

- **Flash Point**

Mak Hyperflex Polyurea-H and Primer 195 are non-fl ammable. Flash Point Mak Hyperflex Polyurea-H Equipment Cleaner: 44oC

- **Safety handling**

Avoid contact with eyes and skin. Wear suitable protective clothing, gloves and eye/face protection at all times. Ensure adequate ventilation and avoid inhalation of vapour and aerosol. Use supplied air hood.

M.K. PETRO PRODUCTS INDIA PVT. LTD
[AN ISO 9001 Certified Company]
Village Mujeri Road, Ballabhgarh,
Faridabad Ph: +91-9560096816
Toll-free: 1800-103-9664
Website: www.makphalt.com
Email: info@makphalt.com