

WHITECHEM POLYUREA HB 1010



Hybrid Polyurea Based, Waterproofing and Coating Material

1- PRODUCT DESCRIPTION

WHITECHEM POLYUREA HB 1010 is a two component, solvent free, UV resistant, hybrid polyurea system. It is applied with high pressure and heated special spray machines. As a result of the reaction, a membrane with excellent mechanical and chemical resistance properties is formed on the applied surface. Thanks to these properties, it can be used on all kinds of surfaces for waterproofing purposes.

2- PRODUCT FEATURES

- Economic polyurea system
- Two-component, aromatic, UV resistant
- 100% solids content
- VOC free, odorless
- Fast curing and servicing
- Seamless
- Application of desired thickness
- Applicable on all surfaces with suitable primer
- Can be used on horizontal and vertical surfaces
- Resistant to perforation by plant roots
- Water vapor permeability
- Excellent flexibility and crack bridging
- Excellent weather resistance

3- APPLICATION AREAS

- General waterproofing applications (roof, terrace, balcony etc.)
- Under floor applications of ceramic, screed concrete and other floor coverings
- Roads, bridges and tunnels
- Thermal insulation applications (PU foam, EPS, XPS etc.)
- Foundation and curtain concrete

4- APPLICATION CONDITIONS

- The surface must be strong and of sufficient strength. Application should not be made on

low screed concrete. The lowest compressive strength for the surface should be 2,5 MPa and the lowest bond strength should be 1,5 MPa

- The concrete should be allowed to dry for at least 28 days before application on fresh concrete
- The surface and ambient temperature should be at least 5 °C and not more than 35 °C.
- The humidity in the air should be at most 85%.
- Moisture ration on the surface should be maximum %4 for surfaces applied standard epoxy primer (**WHITECHEM PRIMER S80**, maximum %6 for surfaces applied moisture tolerant epoxy primer (**WHITECHEM PRIMER 80**) and %7 for for surfaces applied water based epoxy primer (**WHITECHEM PRIMER W80**).
- Attention should be paid to condensation on the surface. Application should not be made early in the morning. The surface temperature should be at least 3 °C higher than the dew point.
- Do not apply on frozen, melting surfaces or on surfaces where rain is expected within 6-8 hours.
- The above conditions apply to both primer and polyurea application.

5- SURFACE PREPARATION

- The application surface should be clean and dry, the elements that prevent adhesion should be cleaned from the surface. Do not wash to clean the surface.
- If necessary, the surface should be wiped off with suitable wiping machines to remove the weak concrete on the concrete surface to open the eyelets and openings. The glazed top

layer of ceramic surfaces should be roughened. Dust happened after wiping should be removed from the surface by brush or vacuum cleaners.

- Dilatations on the surface should be insulated with the appropriate polyurethane based filler material (**WHITECHEM PU DF 25**) and dilatation tape.
- Any fractures, gaps and segregations on the surface must be repaired with suitable epoxy (**WHITECHEM EP MORTAR 310**) or cement based repair mortars.
- Corner chamfers should be supported with appropriate repair mortar or chamfer tape.
- The application surface should be cut on the screed concrete in large places. Cutted joints must be filled with polyurethane or polyurea based sealant (**WHITECHEM WP 35 - WHITECHEM POLYUREA JH 1070 / JH 1080**).
- Sanding and polishing should be done according to the standards for corrosive areas in metal surface coatings. The joints on the cleaned metal surface should be covered with polyurethane based sealant (**WHITECHEM WP 35**), flexible tape or steel paste.
- As a result of these processes, dust and debris on the surface should be removed from the surface for the last time.

6- PRIMER APPLICATION

If the surface moisture is less than 4% on absorbent surfaces (concrete, wood etc.), it is recommended to use a low viscosity primer (**WHITECHEM PRIMER 90 - WHITECHEM PRIMER E80**) for the first coat primer application. This application will reduce the amount of epoxy primer to be applied on the second layer and the number of eyelet holes on the surface in polyurea application.

- After the impregnation primer application, one can choose between **WHITECHEM**

PRIMER S80, WHITECHEM PRIMER 80 or WHITECHEM PRIMER W80 according to surface moisture.

- If the surface moisture is above 4%, the moisture tolerant primer (**WHITECHEM PRIMER 80**) or **WHITECHEM PRIMER W80** should be used instead of first layer primer.
- For metal surfaces, choose **WHITECHEM PRIMER M80**.
- For non-absorbent surfaces (ceramic, glass or metal), choose **WHITECHEM PRIMER S80, WHITECHEM PRIMER 80 or WHITECHEM PRIMER W80**.
- To obtain a homogeneous primer mixture, the primer should be mixed with an electric mixer for 3-4 minutes, low speed (~ 300 - 400 rpm) or with suitable equipment. Do not mix at high speed for a long time to prevent air bubbles.
- The prepared primer mixture is applied to the surface by brush, roller or airless spraying machines.
- When the primer is still wet, it is recommended to spray 0.3-0.7 mm of silica sand on the surface to increase the adhesion of the polyurethane to the surface.
- Before applying **WHITECHEM POLYUREA HB 1010**, make sure that the primed surface is sufficiently dry. The primed surface should not be too wet or completely dry. It is sufficient to leave a feeling of adhesion in your hand.
- Foreign bodies adhering to the primer surface and quartz sand, which is highly sprinkled, should be cleaned by brush or vacuum before application.

7 – POLYUREA APPLICATION

• Preparation of Components :

Before starting the application, the component B (amine resin) must be mixed in the barrel for at least 30 minutes until a homogenous color is obtained. The mixing process must continue during application. It is

important that the temperature of components A and B be in the range of 25-30 °C before application. The components should not be diluted in any way.

- **Spray Machine Settings:**

The polyurea is applied to floors with a spraying machine operating at high pressure and temperature. Machine settings must be checked continuously during application.

| Parameters | Datas |
|---|-------------|
| A Component (MDI Prepolymer) Temperature | 70-71 °C |
| B Component (Amine Resin) Temperature | 67-68 °C |
| Hose Temperature | 67-68 °C |
| Machine Pressure | 140-180 bar |

- After all preparations are finished, the polyurea is applied by spraying on the surface with a minimum thickness of 2 mm for two layers
- **Mixing Ratio:**
It should be checked continuously whether the mixing ratio is correct or not with looking at machine pressure bar hours.

| Mixing Ratio | Unit | Datas |
|--------------|--------|-----------|
| A / B | Volume | 100 / 100 |
| | Weight | 112 / 100 |

8 – TOP COAT APPLICATION

- When applied **WHITECHEM POLYUREA HB 1010** product is exposed to direct sunlight, color change can be observed after a certain period of time. However, this does not affect the physical properties and performance of the product.
- When color stability is desired, aliphatic top coat is applied. Aliphatic polyurethane paint, aliphatic polyurea system or polyaspartic polyurea system may be preferred as the top coat application. The final coat should be applied within 0 - 12 hours after the application of the main coat.

9 – CONSUMPTION

| Product | Consumption |
|-----------------------------------|--|
| WHITECHEM PRIMER | 300 - 500 g/m ² |
| 0,3-0,7 mm Quartz Sand | 1,0 - 1,5 kg/m ² |
| WHITECHEM POLYUREA HB 1010 | 2,0 - 2,2 g/m ² (for 2 mm) |

* Consumption in the table is theoretical. Consumption may vary according to surface permeability, weather conditions, and the technique of application.

10 - TECHNICAL FEATURES

Component Properties

| | Unit | Method | A Component | B Component |
|---------------------------|-------|-------------|--------------------|--------------------|
| Chemical Structure | - | - | MDI Prepolymer | Amine Resin |
| Physical Condition | - | - | Liquid | Liquid |
| Density (25 ° C) | gr/ml | ASTM D 1217 | 1,11 ± 0,03 | 1,02 ± 0,02 |
| Viscosity (25 ° C) | cps | ASTM D 4878 | 700 - 800 | 300 - 600 |
| Solid Content | % | ASTM D 2697 | 100 | 100 |
| VOC Content | % | ASTM D 1259 | 0 | 0 |
| Color | - | - | Transparent Yellow | Desired RAL colors |

Reaction Parameters

| | Unit | Method | Datas |
|----------------|--------|--------|---------|
| Gel time | Saniye | - | 5 - 10 |
| Tack Free Time | Saniye | - | 15 - 30 |

Finished Product Features

| Test Name | Unit | Method | Datas |
|--|------------------------------------|---------------|----------------------------|
| Final Product Structure | - | - | Solid Elastomeric Membrane |
| Tensile Strength | MPa | ASTM D 638 | ≥ 13 |
| Module | MPa | ASTM D 638 | %100 elongation ≥ 5 |
| Repeat Coating Time | hour | - | 0 - 12 |
| Elongation | % | ASTM D 638 | ≥ 300 |
| Shore D | - | ASTM D 2240 | 33 - 38 |
| Shore A | - | ASTM D 2240 | 85 - 90 |
| Tear Resistance | N/mm | ASTM D 624 | ≥ 25 |
| Taber Abrasion Resistance | mg | EN ISO 5470-1 | < 240 (H22, 1000 cycle) |
| Impact Resistance | - | EN ISO 6272-1 | Class III |
| Adhesion Strength | N/mm ² | ASTM D 4541 | Concrete: ≥ 3 Steel: ≥ 6 |
| Capillary Water Permeability and Water Transfer Rate | kg/m ² h ^{0,5} | EN 1062-3 | 0,012 |
| UV Resistance Test | - | ASTM G53 | no cracking and swelling |

Chemical Resistances Per ASTM D543 For Immersion In Fluids Methods:

| Chemical Name | Result | Chemical Name | Result |
|---------------------------|--------|------------------------------|--------|
| Sulfuric Acid (10%) | 4 | Sodyum hidroksit (10%) | 5 |
| Sulfuric Acid (20%) | 4 | Sodium Hydroxide (20%) | 5 |
| Sulfuric Acid (30%) | 1 | Sodium Hydroxide (50%) | 4 |
| Hydrochloric Acid (10%) | 4 | Drinking Water (1mg/L chlor) | 4 |
| Hydrochloric Acid (20%) | 2 | Chlorine Pool Water | 4 |
| Nitric Acid (10%) | 1 | Vinegar (5%) | 5 |
| Acetic Acid (10%) | 3 | Hydrogen Peroxide (3%) | 2 |
| Chromic Acid | 1 | Mineral Oil | 5 |
| Hydrofluoric Acid (10%) | 1 | Hidrolik yağ | 4 |
| Phosphoric Acid (10%) | 5 | Hydraulic Oil | 4 |
| Phosphoric Acid (20%) | 5 | Toluene | 2 |
| Gasoline | 2 | Methanol | 2 |
| Ammonium Hydroxide (10%) | 5 | Ethanol (10%) | 5 |
| Ammonium Hydroxide (20%) | 5 | Acetone | 2 |
| Potasyum hidroksit (10%) | 5 | MEK | 2 |
| Potassium Hydroxide (20%) | 3 | Xylene | 2 |

* These tests were done by dipping into chemicals for 6 months.

* 5: RESISTANT 4: RESISTANT. ONLY COLOR CHANGE 3. SWELLING

2: CONDITIONS (SHORT-TERM DISCRIMINATION) 1: NOT RECOMMENDED

11 - PACKAGING

225 kg drum (A - MDI Prepolymer)
200 kg drum (B - Amine Resin)

12 - SHELF LIFE AND STORAGE CONDITIONS

- Polyurea components are moisture sensitive. Therefore, in original, unopened and undamaged packages, it is suitable for 9 months from date of production when stored correctly between +10 °C and +30 °C.
- Products should be stored in dry and places where not having direct sunlight.

13 – CLEANING

- Clean all tools and application equipment with suitable cleaner solvent immediately after use. Hardened / cured material can only be cleaned by mechanical methods.

14 - WARNING AND SUGGESTIONS

- **WHITECHEM POLYUREA HB 1010 B** component contains corrosive polyamines and component A isocyanates. Follow the instructions in MSDS form before or after use or when a problem is encountered.
- Personal protective equipment and full face mask with appropriate filter should be used during application.
- There must be sufficient air circulation in the application area.
- Give empty barrels to authorised hazardous waste collector companies.