# POLYUREA

## and polyurea-polyurethane systems

Polychem Systems

Polychem Systems

# Polyurea systems for special tasks

Our products:

**PUREX AM**
polyurea system

**PUREX HB-RN**
polyurea hybrid

**PUREX ASP**
aliphatic coating

**PRIMER ZN**
priming agent for metal coatings

**PUR PRIMER C**
priming agent for concrete coatings

**PUREX NG 0428 NS HG**
closed-cell foam

**PUREX NG 0440 NS**
closed-cell foam

CE

PN-EN 1504-2

PZH

ISO 14001 9001

Most common use:

**Steel protection system**

- PUREX ASP — UV protection
- PUREX AM — protective coating
- PRIMER ZN — priming layer
- STEEL — substrate

**Roof thermoinsulation and waterproofing system**

- PUREX ASP — UV protection
- PUREX AM — protective coating
- PUREX NG 0440 NS — thermoinsulation

**Concrete protection system**

- PUREX ASP — UV protection
- PUREX AM — protective coating
- PUR PRIMER C — priming layer
- CONCRETE — substrate

**Foundation thermoinsulation and waterproofing system**

- PUREX HB-RN — protective coating
- PUREX NG 0428 NS HG — thermoinsulation

## PUREX AM i PUREX HB-RN systems

| PUREX AM | Name | PUREX HB-RN |
|---|---|---|
| Two-component polyurea aromatic raw material system for the production of waterproofing and anti-corrosion coatings. | Type | Solvent-free, hybrid two-component coating system combining the properties of polyurea and polyurethane. |
| Pure polyurea that allows seamless coatings to be applied to various surfaces such as concrete, metal, wood or polyurethane spray foam. It protects substrates against water, chemical agents and mechanical damage. | General description | Used as a system for protecting surfaces against mechanical, weather and chemical factors. It can be used to secure the surface of concrete, metals, plywood, geotextiles or plastics. The hardness of the finished coating is lower than that of polyurea. |
| A high pressure unit suitable for coatings is required for the processing. | Processing method | With the right conditions, it is possible to use a two-component high pressure unit, which is used in foam processing. |
| The coating changes colour when exposed to UV light. An aliphatic PUREX ASP layer should be applied to maintain stable colour. | UV resistance | The coating changes colour when exposed to UV light. An aliphatic PUREX ASP layer should be applied to maintain stable colour. |
| - Hygienic approval for contact of the coating with drinking water<br>- CE marking<br>- Declaration of Performance No. PL-1/P/2017 in accordance with EN 1504-2 under system 2+ and system 3 with regard to reaction to fire | Certificates | - CE marking<br>- Declaration of Performance No. PL-2/P/2018 in accordance with EN 1504-2 under system 4 and system 3 with regard to reaction to fire |
| - As a coating for the surfaces of tanks, wastewater treatment plants, sewers, gutters, piping components, concrete tanks (especially for storing liquids).<br>- Protection of surfaces of aboveground and underground steel tanks.<br>- Coating of floors exposed to diluted lyes and acids and diluted cleaning agents.<br>- Protection of foundations, roofs, cellars, balconies, terraces, ponds, swimming pools.<br>- For surfaces exposed to corrosion and mechanical damage.<br>- Protection of PUREX NG 0440 type polyurethane roofing systems. | Use | - Coating for concrete surfaces.<br>- Protection of foundations, roofs, cellars, balconies, terraces, ponds, swimming pools.<br>- Protection of surfaces exposed to corrosion and mechanical damage.<br>- Protection of PUREX NG 0440 type polyurethane roofing systems. |

## Basic technical properties

| | PUREX AM | PUREX HB-RN |
|---|---|---|
| Density of the applied coating [g/dm³] | ~1100 | ~1050 |
| Theoretical consumption | Approx. 1.1 kg/m² at 1 mm thickness | Approx. 1.1 kg/m² at 1 mm thickness |
| Elongation at break acc. to EN ISO 527 [%] | >400 | >350 |
| Tensile strength acc. to EN ISO 527 [MPa] | >20,5 | >17 |
| Shore D hardness in acc. to EN 868 | min. 40 | min. 35 |
| Tear strength acc. to EN ISO 34-1 (Method B) [N/mm] | >68 | >40 |
| Glass transition temperature acc. to EN ISO 11357-2 | -47,3°C | – |
| Coating adhesion to concrete surface acc. to EN 1542 | A - cohesive damage | A - cohesive damage |

For their **highest quality** all products are created with care

### Personal protection

Personal protective equipment must be used during insulation work: clothing, goggles, gloves and protective masks. When using high-pressure equipment to apply two-component materials by spraying, all workers should wear double-filter respirator.

## Technical properties
acc. to EN 1504-2

| PUREX AM | | |
|---|---|---|
| Carbon dioxide permeability acc. to EN 1062-6:2006 | | >50 m |
| Water vapour permeability acc. to EN ISO 7783:2012 | | Klasa III |
| Abrasion resistance (Taber test) acc. to EN ISO 5470-1:2001 [mg] | | <3000 |
| Capillary absorption and water permeability acc. to EN 13687-1:2008 [kg/m2h0.5] | | w<0,1 |
| Thermal compatibility acc. to EN 1062-7:2005 Method A [MPa] | | 3,1 |
| Crack bridging acc. to EN 1062-7:2005 Method A | | Class A3 (-10°C) |
| Bond strength by pull-off acc. to EN 1542:2000 [MPa] | | 3,5 |
| Fire reaction a cc. to EN 13501-1+A1:2010 | | $E_{fl}$ |
| Slip resistance (smooth coating) acc. to EN 13036-4:2011 | | Class II |
| Artificial ageing acc. to EN 1062-11:2003+EN 1062-11:2003AC:2005 | | Blisters - none<br>Cracking - none<br>Flaking - none<br>There has been a change of colour |
| Impact resistance acc. to EN ISO 6272-1:2011 p.7.3 | | Class III |
| Resistance to severe chemical attack acc. to EN 13529:2005 | Environment: | Change Hardness: |
| | Jet fuel | <50% |
| | 60% toluene, 30% xylene, 10% methylnaphthalene | |
| | Trichloroethylene | |
| | Acetic acid 10% | |
| | Sulphuric acid 20% | |
| | Sodium hydroxide 20% | |
| | Sodium chloride 20% | |

| PUREX HB-RN | |
|---|---|
| Water vapour permeability acc. to EN ISO 7783:2012 | Class II |
| Abrasion resistance (Taber test) acc. to EN ISO 5470-1:2001 | <3000 [mg] |
| Capillary absorption and water permeability acc. to EN 1062-3:2008 | w<0,1[kg/m²h0,5] |
| Crack bridging acc. to EN 1062-7:2005 Method A | Class A5 (-10°C) |
| Bond strength by pull-off acc. to EN 1542:2000 | 2.3 [MPa] |
| Fire reaction acc. to EN 13501-1+A1:2010 | E |
| Impact resistance acc. to EN ISO 6272-1:2011 p.7.3 | Class III |

# Priming agents

The preparation of concrete and metal surfaces prior to spraying polyurea is a key element to achieve high adhesion of the coating. Any remaining contaminants and defects may cause it to not adhere properly or at all, therefore the concrete or metal surface should be mechanically treated, including shot-blasting, grinding or sandblasting, prior to the application of PUREX AM or PUREX HB-RN. For metal substrates, we recommend PRIMER ZN.

Concrete surfaces should be coated with a primer to close the pores present on the surface. We recommend PUR PRIMER C priming agent for this purpose.

| TECHNICAL DATA AND RECOMMENDED PARAMETERS DURING APPLICATION | | |
|---|---|---|
| | PUR PRIMER C | PRIMER ZN |
| Weight ratio A:B | 100:100 | 100:16 |
| Application/ life time at 20°C | 0.5-1h | 8 h |
| Curing time at 20°C | 3-4 h | 2 h |
| Theoretical consumption | 0.15-0.35 kg/m² depending on substrate porosity | 0.15-0.20 kg/m² depending on coating thickness |
| Method of application | manual - brush, roller, scraper | pneumatic ,airless spray, brush |

# Our strengths

- Experienced team
- Proprietary product formulas
- Documented financial stability
- Product parameters confirmed by external tests
- Systematically expanded manufacturing resources
- State-of-the-art R&D laboratory
- Professional technological facilities
- Employee and customer training
- High work ethic

# Benefits of working with us

- Quick response to enquiries
- Possibility of shipping to the final destination of the order - no need to store components at the Contractor's premises
- Support from Technical Advisors
- Own laboratory and research facilities, enabling the product to be tailored to individual customer needs
- Verified and reproducible product quality ensured by inspecting every product batch


U272/02/24

**Polychem Systems Sp. z o. o.** ul. Wołczyńska 43, 60-003 Poznań
+48 61 867 60 51 info@polychem-systems.com.pl www.polychem-systems.com.pl