

Technical Data Sheet

ACE PU-100 TR

DESCRIPTION

ACE PU-100 TR is a 100% pure aromatic polyurea waterproofing system, which is applied with hot spray equipment forming a continuous, passable and elastic membrane with high elongation and excellent resistance to traction and wear. Its two components, which are mixed "in situ", react in seconds becoming a 100% solid coating. It is environmentally friendly since it does not contain solvents (VOCs) or CFCs.

Due to its curing speed, it can be applied to both horizontal and vertical walls, no matter how irregular they may be. It allows any thickness in a single application and can be used in hours. The system has excellent behaviour in very humid environments, resists thermal shock and maintains elongation even at temperatures below 0°C.

SCOPE

Waterproofing and protection:

- All types of roofs: flat, sloped and inverted roofs, landscaped roofs, terraces and balconies.

ETAG 005 compliant and has an ETE certificate of 25 years lifetime.

- Sports flooring, industrial flooring, roofs with road traffic.

UNE EN-1504-2 compliant; non-skid finish (CTE SUA 1, Class 3 ENV 12633:2003)

- Swimming pools, aquariums, ponds, cisterns, rafts and irrigation canals, fire tanks.

- Drinking water reservoirs, drinking water/sea water pipes.

UNE EN 1186, RD 140/2003, UNE-EN 12873-2, EU Directive 2020/284 and ISO 12944 compliant

- Fibre cement encapsulations under the ACE ENCAPSULACE system

ISO 14966:2002 compliant

- Concrete floors, retaining walls and foundations.

UNE EN 1504-2 compliant

- 25% ethanol tanks.

UNE EN 1186-3/1 compliant. It resists without migration according to Royal Decree 866/2008

- Sewage water treatment plants, primary and secondary chemical containment ponds, petrochemical industries.

It complies with UNE EN 1504-2 9 and 10, ISO 12944

- Metallic structures against environmental or marine corrosion: Tanks, vehicles, mining equipment, boats...

ISO12944 C5M compliant

- ACE ARTFOAM ECO thermal insulation polyurethane foam systems protection.

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ANALYSIS OF THE COMPONENTS

DESCRIPTION	COMPONENT ACE PU-100 A	COMPONENT ACE PU-100 B
	Isocyanate	Amines/pigment mix
Appearance	Liquid	Liquid
Colour	Light yellow	Amber/pigmented according to RAL chart
Mix ratio by volume	1	1
Freezing point	Below 0° C (32°F)	N/A
Viscosity	600-900	650-980

PROPERTIES OF THE SYSTEM

PROPERTIES	OUTCOME	TEST
Hardness	SHORE A 95/ SHORE D 48-50	ASTM D 2240
Gel time	8 sec.	
Tack-free	3-5 minutes	
Density @25C° (77°F)	1,1 gr/cm ³ (RAL 7046)	ASTM D 792
Solids	100%	
VOC	0%	
Elongation	325% ±10%	ASTM D 412
Tensile strength	2973 psi ±10%	ASTM D 412
Tear resistance (given type c)	58,7	D53515
Resilience	>30%	ASTM D 2632
Adherence	Concrete >450PSI	ASTM D 4541
Abrasion resistance: mg loss/1000 cycles, 1000 grs	With wheel H-18 155mg	ASTM D 4060
Weathering	Aromatic system: It requires aliphatic coating when not having other types of protection	
Resistance to air temperature	-45°C - +120°C	

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RESISTANCE

The ACE PU-100 system provides excellent resistance to organic debris, bacteria and various chemicals, making it a superior product to be used in a wide spectrum of construction and industrial applications.

The list of resistance to different substances and chemical products is constantly updated. Request information from our technical department.

CHEMICAL RESISTANCE CHART: ACE PU-100 SYSTEM

	JETT FUEL A1/JP8	BIODIESEL	SKYDROLL	5% HCL	10% HNO3	20% HNO3	20% NaOH	10% NaOH	10% H2SO4	20% H2SO4	Hypochloride
1 week											
Swelling	None	Mild	Mild	Mild	None	Mild	None	None	None	None	None
Loss of hardness	None	Mild	Mild	None	None	None	None	None	None	None	None
Color change	None	Mild	Mild	Mild	Moderate	Severe	None	None	Mild	Mild	Mild
4 weeks											
Swelling	None	Mild	Severe	Mild	Moderate	Severe	None	None	None	None	None
Loss of hardness	None	Mild	Mild	None	None	Severe	None	None	None	None	None
Color change	None	Mild	Mild	Moderate	Moderate	Severe	None	None	Mild	Mild	Mild
12 weeks											
Swelling	None	Mild	Severe	Mild	Moderate	Severe	None	None	None	None	None
Loss of hardness	None	Mild	Mild	None	None	Severe	None	None	None	None	None
Color change	None	Mild	Mild	Moderate	Moderate	Severe	None	None	Mild	Mild	Mild
24 weeks											
Swelling	None	Mild	Severe	Mild	Moderate	Severe	None	None	None	None	None
Loss of hardness	None	Mild	Mild	None	None	Severe	None	None	None	None	None
Color change	None	Mild	Mild	Moderate	Moderate	Severe	None	None	Mild	Severe	Mild
36 weeks											
Swelling	None	Mild	Severe	Mild	Moderate	Severe	None	None	None	Mild	None
Loss of hardness	None	Mild	Mild	None	None	Severe	Mild	None	Mild	None	None
Color change	None	Severe	Severe	Moderate	Moderate	Severe	Mild	None	Severe	Severe	Mild
52 weeks											
Swelling	Mild	Mild	Severe	Mild	Moderate	Severe	None	None	None	Mild	None
Loss of hardness	Mild	Mild	Mild	Mild	Moderate	Severe	Mild	None	Mild	Mild	Mild
Color change	None	Severe	Severe	Moderate	Moderate	Severe	Mild	None	Severe	Severe	Mild

LEVEL OF DEGRADATION:



None



Mild



Moderate



Severe

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The tests were carried out keeping the ACE PU-100 membrane in permanent contact with the substances under study and at room temperature.

REFERENCE	REGULATION	TITLE	PRODUCT	HARDNESS SHORE D BEGINNING	HARDNESS SHORE D ENDING	SPECIFICATIONS ACCORDING TO UNE-EN 1504-2:2005
SYSTEM ACE PU-100	UNE-EN 13529:2005	Resistance to severe chemical attacks (Class I: 3 days with no pressure)	NaOH (20%)	51±1	48±2	Hardness decrease under 50%: 24 hours after removal of test liquid.
			Bleach (<5% Sodium hypochlorite)		49±1	
			Salt (20%)		49±1	
			Motor oil		50±1	
			Diesel oil		49±2	

REFERENCE	REGULATION	TITLE	PRODUCT	HARDNESS SHORE D BEGINNING	HARDNESS SHORE D ENDING	SPECIFICATIONS ACCORDING TO UNE-EN 1504-2:2005
SYSTEM ACE PU-100	UNE-EN 13529:2005	Resistance to severe chemical attacks (Class II: 28 days with no pressure)	NaOH (20%)	51±1	46±1	Hardness decrease under 50%: 24 hours after removal of test liquid.
			Bleach (<5% Sodium hypochlorite)		46±1	
			Salt (20%)		48±2	
			Motor oil		47±2	
			Diesel oil		46±2	

RESISTANCE TO SEVERE CHEMICAL ATTACKS IN DIRECT EXPOSURE

GROUP 9: Watery solutions of organic acids up to 10%

REFERENCE	REGULATION	TITLE	PRODUCT	HARDNESS SHORE D BEGINNING	HARDNESS SHORE D ENDING	SPECIFICATIONS ACCORDING TO UNE-EN 1504-2:2005
SYSTEM ACE PU- 100	UNE-EN 13529:2005	Resistance to severe chemical attacks (Class I: 3 days with no pressure)	Acetic acid 10%	54	53	Hardness decrease under 50%: 24 hours after removal of test liquid.

GROUP 10: Watery solutions of organic acids up to 20%

REFERENCE	REGULATION	TITLE	PRODUCT	HARDNESS SHORE D BEGINNING	HARDNESS SHORE D ENDING	SPECIFICATIONS ACCORDING TO UNE-EN 1504-2:2005
SYSTEM ACE PU-100	UNE-EN 13529:2005	Resistance to severe chemical attacks (Class I: 3 days with no pressure)	Sulfuric acid 20%	54	53	Hardness decrease under 50%: 24 hours after removal of test liquid.

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COLOUR MODIFICATION, BRIGHTNESS AND APPEARANCE according to ISO 4628-1

- Group 9. Watery solutions of organic acids up to 10%:
Acetic acid WITHOUT ALTERATION
- Group 10. Aqueous solutions of inorganic acids up to 20%: Sulfuric
Acid SLIGHT YELLOWING WITHOUT OTHER ALTERATION.

EVALUATION OF THE DEGREE OF BLISTERING

REFERENCE	REGULATION	PRODUCT	OUTCOME
SYSTEM ACE PU-100	UNE-EN ISO 4628-2	Group 9. Watery solutions of organic acids up to 10%: Acetic acid	0
		Group 10. Aqueous solutions of inorganic acids up to 20%: Sulfuric acid	0

EVALUATION OF THE DEGREE OF FLAKING

REFERENCE	REGULATION	PRODUCT	OUTCOME
SYSTEM ACE PU-100	UNE-EN ISO 4628-2	Group 9. Watery solutions of organic acids up to 10%: Acetic acid	0
		Group 10. Aqueous solutions of inorganic acids up to 20%: Sulfuric acid	0

APPLICATION METHOD AND REQUIREMENTS ACCORDING TO SUBSTRATE

APPLICATIONS ON CONCRETE / MORTAR:

- 1) The substrate must be firm, with a minimum tensile strength of $> 1.5 \text{ N/mm}^2$, tensile strength compression of at least 25 N/mm^2 , the concrete cured for at least 28 days and with a PH between 9 and 12.
- 2) Surface must be structurally sound, free of grout and contaminants such as rust, fats or salts, and completely clean of dust, remains of vegetation or any other agent which may negatively affect adherence.
- 3) The support must be dry (less than 5%, ASTM D 4263) and with minimal vapour transmission of humidity (less than $3 \text{ lb}/24\text{hr}/1000 \text{ ft}^2$ RMA Test Method).
- 4) For surface preparation the surface (substrate) must be roughened according to ICRI 03732 to a minimum profile of CSP 3 by diamond grinding, shot blasting, hydrocleaning or any other valid preparation technique. Once the mechanical treatment has been carried out, the generated contaminants will be removed leaving the resulting support clean and free of dust.

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- 5) If there are cracks, they will be treated according to their nature and gaps and cracks of >1.5 mm will be filled with elastic putties ACE MP-4035, joint sealing polyurea ACE POLYSEAL or repair mortars suitable for obtaining a uniform surface. Our technical staff will advise you on the suitable material for each case.
- 6) Once the singular points have been treated, primer will be applied to the entire surface to improve the conditions of the substrate and promote adhesion; Use the appropriate primer depending on the degree of humidity and condition of the support, and in cases of great porosity, the application of two coats of primer is recommended; in that case use two coats of the same primer or combine first layer of ACE EPOPRIMER with a second layer of ACE PRIMERFLEX. It is always advisable to sprinkle dry aggregate over the primers to promote bonding.
- 7) Apply the polyurea system respecting the minimum and maximum repainting time of the primer that you will find in its technical sheets and provided that the temperature of the substrate is between 3°C and 34°C and always at least 3°C higher than the dew point to prevent condensation.

Suitable primers for concrete / mortars:

ACE PRIMERFLEX PLUS, ACE EPOPRIMER 100, ACE EPOPRIME 52WB (with surface moisture)

APPLICATIONS ON STEEL

- 1) Before shot blasting, the steel surface must be cleaned according to SSPC-SP1 to ensure complete absence of both visible and non-visible contaminants using solvents, water vapour, alkaline solutions, soapy emulsions, detergents or organic solvents that remove from the substrate contaminants such as grease, oil, dust and salts soluble in the cleaning agent. A maximum surface chloride of < 3 ug/cm² should be achieved, NACE 6G186, CHLOR*RID
- 2) All imperfections, sharp edges or pointed ends will be removed from the support using mechanical tools and the entire surface will be mechanically treated by means of bead blasted or air blasted to "near white metal" grade SSPCSP-10 No. 2 / SA 2 ½ and profile of roughness 50-75mic. (75 mic. required for immersion).
- 3) After thoroughly cleaning the surface, primer will be applied and within the day, before the prepared steel surface can be contaminated or oxidized again, it must be covered with the next layer.
- 4) The coating can only be applied if the substrate temperature is at least over 3 degrees to dew point to prevent condensation and the primer is cured, dry and clean and within your repainting window.

Suitable Primers for Steel:

ACEBOND, ACE EPOPRIMER 100, ACE EPOPRIMER and ACE EPOPRIMER FZ

GEOTEXTILE APPLICATIONS

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- 1) The use of non-woven and treated heat protection polypropylene short pile geotextiles is recommended.
- 2) The geotextiles will be spread over the surface to be treated overlapping each other by about 15cm and avoiding wrinkles. Likewise, any element that could damage them should be removed from the support.
- 3) Do not walk on the geotextile until you have the coating applied to prevent it from rip or fray.
- 4) Apply the coating starting in the centre and working towards the contour of the surface. Let the membrane settle for at least 1 hour before crowning application in case the treated geotextile will not end up in the drainage screed.

OTHER SUBSTRATES

To find out about the application procedure on other substrates, request information from our technical staff or local representative.

PROCESSING PARAMETERS AND SUBSTRATE CONDITIONS

- Product temperature: 68°C - 80°C (155 – 176° F)
- Proportion by volume Component A: Component B: 1 / 1
- Working pressure: 2500 psi – 3500 psi
- Substrate conditions: temperature > -45°C and RH < 95%

APPLICATION PROCEDURE

- 1) It is advisable to keep the products at the indicated storage temperature and in any case, pre-heat them to 20°C before starting to apply the material.
- 2) Component B of the system must be shaken for 20-30 minutes to homogenize its content and colour using pneumatic agitator or electric drill with blades at low speed.
- 3) It is required to use a high pressure hot spray equipment able to reach and steadily maintain the temperatures and pressures necessary to process the System Components.

Suitable equipment: GRACO REACTOR GRACO HX-P2 and HX-P3 or equivalent.

The metering pump must be capable of heating components A and B to 68 – 80 °C (155–176°F) and generating a pressure between 17-24MPa (2500–3500psi) and heated hoses are required to maintain liquid temperatures until they reach the spray gun.

Only proper maintenance and cleaning of the equipment and spray gun will guarantee a correct product application. Follow your provider's instructions.

- 4) Before beginning application on the working area, test on a clean dry material to verify that the

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product cures properly and in time, otherwise check the equipment and possible procedural errors (bad agitation, inadequate temperatures...)

5) Apply the ACE polyurea system consistently and evenly, making successive passes until the expected thickness is obtained in a single application. If you need to reapply over the membrane on the same day, e.g. to add thickness or seal a pore, make sure the polyurea is still clean and dry before spraying the new layer and do it preferably after 1-2 hours to guarantee the best adherence. When applying new polyurea on a membrane already cured (overlaps of the following days, repairs...), you must do a light sanding and clean the surface with acetone beforehand or use ACE-400 activator or primer.

6) Once the desired thickness is obtained, if you are going to give an "over-spray" textured finish, apply it from a distance of about 2-3m as soon as you finish the section. Do not wait to finish the application of the entire surface to give the dripping because it will have adhesion problems.

7) When applying aromatic systems that do not carry another type of heavy protection (landscaped, ceramics,...) must be protected by applying an aliphatic top-coat such as ACE ALIFLEX, ACE 373 PLUS, ACE SP FLEX, ACE UV SHIELD.

8) Remember that both primers and polyurea or top-coats should be applied only when the substrate temperature is at least 3° C higher than dew point and always respecting the information provided in the technical sheets regarding:

- The minimum and maximum repainting times indicated
- The temperature and humidity of the environment and the suitable substrate

9) These products are exclusively for professional use. Consult the Safety Data Sheet before using them and use safety clothing and protective equipment at all times recommended respiratory. Proper application of the product is the responsibility of the user.

PRESENTATION

- Sets of 225 kg A + 225 kg B.
- Sets of 50 kg A + 50 kg B (on request)

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STORAGE AND TRANSPORTATION

Component A/ Isocyanate:

The original drums must be kept perfectly sealed in order to prevent contamination due to moisture or any other materials that may have a negative impact on the processing of the product. This product reacts slowly with water creating polyureas and liberating CO₂, which may cause the sealed drums to expand and break.

This product is hygroscopic and therefore the drums have to be sealed to prevent the absorption of moisture, which could affect its processing negatively.

It is recommended to store this product between 24°C – 40°C (75 °F – 104 °F) and it can be stored 12 months by keeping the product in the original containers properly sealed.

Component B/ Polyamine:

This product is hygroscopic and therefore the drums have to be sealed to prevent the absorption of moisture, which could affect its processing negatively. It is recommended to store this product between 10°C – 45°C (50°F – 113°F) and it can be stored 12 months by keeping the product in its properly sealed original containers.

Products transportation will be made according to the current legislation in each territory regarding both land and marine transportation matters, and it does not admit airplane transportation. See security sheet to know more about the classification of the substances in each case.

WASTE MANAGEMENT

In accordance with the provisions of Law 11/1997 and Article 18.1 of the Regulations that develops “the person responsible for the delivery of the packaging waste or used packaging for its correct environmental management will be the final holder of it.”

WARRANTY AND LIMITATIONS OF LIABILITY

Ace Coatings warrants solely that the quality of the product meets its stated specifications at the time of production and that the product is delivered free of any legitimate third party claims of misuse of US patents associated with the product.

Ace Coatings disclaims all other warranties expressed or implied by law or trade practice, including but not limited to any warranty of fitness for a particular purpose or use.

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Any claim submitted under this guarantee must be presented by the buyer directly to Ace Coatings, by written communication within a maximum period of 5 days from the detection of the defect, in no case beyond the expiration date of the product, or in any case, no later than 1 year from the date of delivery of the product to the buyer (the earlier option will be valid).

The buyer will not be able to make use of the guarantee if he does not notify Ace Coatings of the non-conformity as indicated above. Ace Coatings shall, in no event and under no circumstances (including negligence of any kind, strict liability or damages), be liable for any indirect, special, incidental or consequential damages related to, arising out of or resulting from any use of the product.

The information contained in this document is for guidance only and is based on laboratory tests that Ace Coatings believes to be reliable.

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