

POLYUREA

AD COS
Advanced Construction Systems

High technology coatings Waterproofing and protective systems for concrete and steel



Waterproofing products

Concrete repair & reinforcement

Floors, coatings & containment

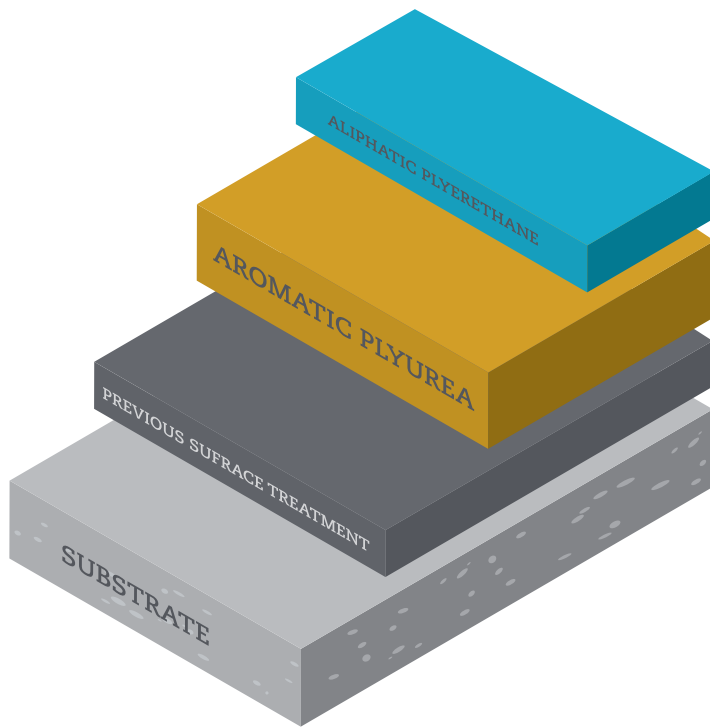
Cement based products

Tunnelling systems

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SURFACE COATING

Protects from UV radiation and aggressive chemicals.

BASE COAT

Provides excellent mechanical and chemical protective properties.

Substrate preparation may vary, depending on the type and condition

Substrate (concrete, steel,...)

What is polyurea?

Polyurea is a polymer formed by two components (isocyanate and a resin blend) that form a 100% solid, continuous, waterproof film with no detrimental effect to the environment. It is used to protect substrates from abrasion and corrosion.

Polyurea is an extremely durable product due to its excellent mechanical and chemical properties. It is bacteriologically stable, extremely resistant to abrasion and has great tolerance to damage caused by acid and alkaline solutions and hydrocarbon-based products (oil and grease, among others).

Principal characteristics

- Quick drying, walkable within minutes, easy to maintain and with high durability.
- High waterproofing and anti-corrosive protection.
- High thermal stability.
- High chemical resistance and mechanical performance.
- High elongation (400%), copies the substrate on the previous one.
- Forms a continuous protective coating with no overlaps or seams.
- 100% solid and free from volatile organic compounds.
- High abrasion, shock and wear resistance.
- Resistant to UV radiation.



PRODUCT RANGE

POLYUREAS

urea spray 400

Aromatic polyurea with 400% elongation and high abrasion and corrosion resistance.

urea spur

Aromatic polyurea for depositing on soft substrates: roofs, foams, others.

urea top sw

Aliphatic polyurethane, resistant to UV radiation, does not lose its colour.

urea repair

For repairing polyurea in poor condition, with the same mechanical properties as UREA SPRAY 400.

PRIMERS

urea prim concrete

Primer for porous substrates: concrete, brick, wood.

urea prim concrete thix

Primer for very porous substrates: concrete that is damaged or in poor condition.

urea prim metal

Primer for preparing metals and anti-corrosive cathodic protection.





CERTIFICATIONS & REFERENCES

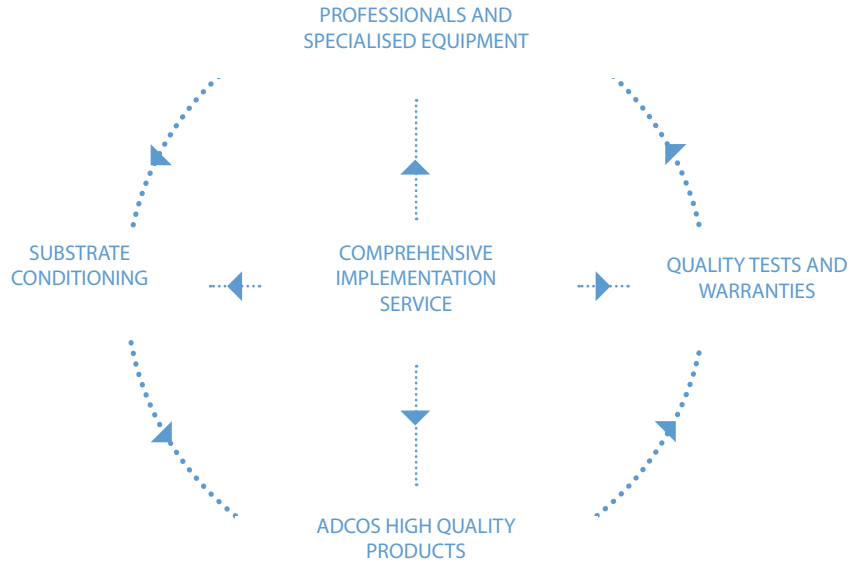
Comprehensive services tailored for each customer.

Our aim is to provide the best solution in accordance with the needs of each customer.

We contribute our technical skills, product quality and knowledge of project and service management for large-scale industry.

We design the best solution and implement ongoing improvements to cut costs and provide a quality service without putting people and the environment at risk.

We have the professionals, equipment and products required to ensure high-quality service and durability.



Conformity and quality certificates



European Community Declaration of Conformity



Belgian Construction Certification Association (BCCA) Belgian Accreditation Council (BELAC) Factory Production Control (EN 1402-2)



ISO 9001 Standard Quality Management Certification (in progress: end of 2013)

Food and water contact certifications



Food contact EC 1935/2004 European Community Food Contract Certification



WRAS – United Kingdom Declaration of Conformity with Drinking Water (in progress: end of 2013)



World Health Organisation (WHO) Drinking Water Contact Certification



Food & Drug Administration – USA Declaration of Conformity (in progress)

Tests

The mechanical, chemical and sanitary properties of the products manufactured by ADCOS have been tested in different European laboratories



Ecoanalytical laboratories Labeko – Slovakia Compatibility with Drinking Water and Food



Belgian Building Research Institute (BBRI) & Belgian Accreditation Council (BELAC) Tensile, adhesive, abrasion and anti-slip properties



SOME REFERENCES

Regina Helena Irrigation canal

Novara, Italy



UREA PRIM CONCRETE and UREA SPRAY 400 were used for the waterproofing and mechanical protection of more than 20,000 m² of concrete wall and joints on the Regina Helena irrigation canal in the region of Novara, Italy designed to transport an important volume of water from the Ticino river.



Endesa Aqueduct

Vitoria, Spain



UREA PRIM CONCRETE and UREA SPRAY 400 were used for the waterproofing a concrete surface area of 10,000 m² and joints in the Endesa aqueduct in Vitoria, Spain.



Enel Reservoir

San Giacomo Lake, Italy



UREA PRIM CONCRETE and UREA SPRAY 400 were used to repair joints and fissures in 2,000 m² of granite block walls in San Giacomo reservoir on San Giacomo lake.



Metal Containers

Europe



UREA PRIM METAL and UREA SPRAY 400 were used to protect an internal surface area of more than 3,000 m² in metal tanks from corrosion and abrasion.



Water Containers

Bouchemaine, France



UREA PRIM CONCRETE THIX was used to repair and prime the substrate, and UREA SPRAY 400 was used to waterproof and protect concrete from wear in the water containers of a hydrocarbon tank.



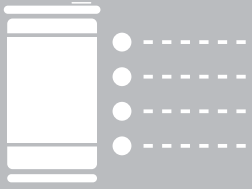
Pools

Europe



UREA PRIM THIX (grey area), UREA PRIM CONCRETE (2 coats) and UREA SPRAY 400 with a UREA TOP SW finish were used to waterproof more than 5,000 m² of swimming pool surface in southern Europe. UREA TOP SW prevents the coating from losing its colour due to UV radiation and aggressive chemical agents (such as chlorine in pools).





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UREA SPRAY 400 DESCRIPTION

UREA SPRAY 400 is a pure polyurea elastomeric film for hot spraying that hardens quickly.

Fields of application

Protection for concrete, steel and wood.
Protection against wear and abrasion.
Protection against corrosion and chemicals.
Anti-corrosive protection.

Waterproofing and coating of surfaces such as:

- Interiors and exteriors of steel and concrete ponds.
- Tunnels (coating or waterproofing).
- Primary and secondary containment of fluids (parapets).
- Paving, foundations and ducts in industrial buildings.
- Ponds and tanks in general.
- Pools in industrial processes.
- Reservoirs, viaducts, irrigation canals.
- Bridge pillars and decks.
- Waterproofing of roofs for industrial warehouses.
- Underground stations (ceiling, floor).
- Sealing of joints (prefabricated elements)
- Bonding of walls, floors and expansion joints.
- Cellars and refrigeration tunnels.
- Vehicles, boats, industrial parts.
- Repair of concrete and substrates in general.
- Surfaces subject to abrasion.

Advantages

Easy to apply:

- High abrasion and wear resistance.
- High elongation.
- High shock resistance.
- Highly resistant to corrosion and chemical attack.
- Continuous, waterproof film.
- Ultra rapid reactivity (seconds).
- Excellent adhesion to metal, concrete and foam.
- Vertical and horizontal applications.
- Poses no risk to the environment.
- Contains no solvents
- Bacteriologically stable.

Consumption

+/- 1.05 kg/mm/m

Mixing proportion

1 / 1 in volume

Packaging

Component A (amine) : 225 / 60 kg
Component B (isocyanate) : 225 / 60 kg

Colours

Standard: light grey (RAL 7037); Optional: RAL colour chart

Storage

Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C.
Add dry nitrogen to already opened drums.

UREA SPRAY 400 DESCRIPTION

- Application
- The surface must be mechanically prepared and primed beforehand.
 - Apply UREA PRIM CONCRETE or METAL beforehand.
 - Apply UREA SPRAY 400 when hot at high pressure using two-component spray equipment.
 - The substrate temperature must be 3 °C higher than dew point
 - to prevent deposits from forming on moist surfaces.

Technical Characteristics	Volatile Organic Compounds -VOC (g/l)	0
	Viscosity (cps) COMP A / COMP B	800/750
	Service temperature (°C)	-20 to 85
	Max. temperature for occasional use (°C)	150
	Density (g/cc)	1.12
	Gel time (sec)	5
	Walkable (min)	5
	Full cure 100% (h)	24
	Tensile strength (PSI, MPa)	3046, 21 NBN EN 12311-2
	Elongation (%)	345 - 400 NBN EN 12311-2
	Shore A hardness	92
	Shore D hardness	45
	Abrasion resistance mg lost, Taber method, (1,000 g/ 1,000 cycles)	26
	Adhesion to concrete	> 434, > 3
	Adhesion to steel	> 651, > 4.5
	Pull off test (PSI, MPa)	NBN EN 1542
	Crack Bridging (Fracture containment capacity at -10 °C)	Class B3.1 NBN EN 1062-7
	Capillary absorption (kg/m.h)	< 0.02
	Water vapour permeability	Class II (2.1 g/day/ m ²) EN ISO 7783
	UV resistance - 500 h (50 °C, 50 W/m ²)	Compliant
	Atmospheric humidity during application	15 -90%
	Peeling (N/mm)	70
	Shear strength (N/mm)	40
	Reaction to fire	not measured
	Safety	Consult MSDS data

UREA SPUR DESCRIPTION

UREA SPUR is a pure polyurea elastomer film for hot spraying that hardens rapidly. It is deposited on soft substrates such as polyurethane and polyisocyanurate foam and bituminous layers. It has a higher elongation capacity and less tension than UREA SPRAY 400.

Fields of application	Protection of surfaces with little rigidity such as polyurethane foam.	
Advantages	<ul style="list-style-type: none"> • Easy to apply: • High abrasion and wear resistance • High elongation • Continuous, impermeable, high impact film • High chemical resistance • Ultra rapid reactivity (seconds) • Excellent adhesion to metal, concrete and foam • Vertical and horizontal applications • Poses no risk to the environment, contains no solvents and is bacteriologically stable. 	
Consumption	+/- 1.05 kg/mm ² depending on the porosity of the substrate	
Packaging	Component A (Amine) : 225 / 60 kg Component B (Isocyanate) : 225 / 60 kg	
Colours	Standard: light grey (RAL 7037); Optional: RAL colour chart	
Storage	Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C. Add dry nitrogen to already opened drums.	
Application	<ul style="list-style-type: none"> • The surface must be mechanically prepared and primed beforehand. • Apply UREA PRIM CONCRETE or METAL beforehand. • Apply UREA SPRAY 400 when hot at high pressure using two-component spray equipment. 	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	0
	Service temperature (°C)	-20 to 85
	Max. temperature for occasional use (°C)	160
	Density (g/cc)	1.12
	Atmospheric humidity during application	15-90%
	Gel time (s)	5-10
	Walkable (min)	5
	Full cure 100% (h)	24
	Tensile strength (PSI, MPa) - (NBN EN 12311-2)	2030, 14
	Elongation (%) - (NBN EN 12311-2)	+/- 600
	Shore D hardness	30
	Adhesion to concrete(PSI, MPa)	> 434, > 3
	Adhesion to steel (PSI, MPa)	520, 3.6
	Pull off test (NBN EN 1542)	

UREA REPAIR DESCRIPTION

UREA REPAIR is a 2-component polyurea elastomer coating for repairing faults in UREA SPRAY 400 film with the same excellent mechanical properties.

Fields of application	Repair of holes, fissures and other faults in polyurea films.	
Advantages	<p>Easy to apply using a brush or a spatula Economical, only the required quantity must be prepared</p> <ul style="list-style-type: none"> • High abrasion and wear resistance. • High elongation. • Continuous, impermeable, high impact film. • High chemical resistance. • Ultra rapid reactivity (seconds). • Excellent adhesion to metal, concrete and foam. • Vertical and horizontal applications. • Poses no risk to the environment and is bacteriologically stable. 	
Packaging	350 g pack (Comp A 200 g + Comp B 150 g)	
Colours	Available in most RAL colours.	
Storage	<p>Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C. Add dry nitrogen to already opened drums.</p>	
Application	<p>Apply with a brush or spatula. Once the containers are open and the product has been mixed, it will solidify within 3 to 5 minutes.</p>	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	Compliant with European environmental legislation
	Humidity during application	15-80%
	Can be recoated in at least	minutes
	Adhesion to concrete	> 434, > 3
	Pull off test (PSI, MPa) - (NBN EN 1542)	

UREA TOP SW DESCRIPTION

UREA TOP SW is a 2-component aliphatic polyurethane elastomer finish coat for UREA SPRAY SYSTEMS. This coat has the same mechanical and chemical properties as polyurea, with the added advantage that it is inert to UV radiation and aggressive chemical reagents such as chlorine in pools.

Fields of application	<ul style="list-style-type: none"> • For surfaces exposed to UV radiation whose colours must remain stable. • For coating pools and ponds exposed to outdoor conditions and aggressive reagents. 	
Advantages	Easy to apply, colour stability guaranteed when exposed to diverse weather conditions.	
Consumption	80 to 120 g/m for a thickness of 50 µm	
Packaging	Pack of 5 kg (Comp A 4.4 kg + Comp B 0.6 kg) Pack of 20 kg (Comp A 17.6 kg + Comp B 2.4 kg)	
Colours	Available in most RAL colours	
Storage	Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C. Add dry nitrogen to already opened drums.	
Application	Apply with a brush or roller or with an airless or pneumatic paint gun. (without air and gun: 120 bar, 0.15 nozzle). Can be applied a few minutes after spraying the polyurea. It is advisable to clean the airless spray system with a solvent before applying UREA TOP SW.	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	Compliant with European environmental legislation
	Density, depending on colour (g/cm ³)	1.2
	Humidity during application	15-80%
	Dry to the touch (h)	1 / 8
	Can be recoated in at least (h)	18
	Adhesion to concrete Pull off test (PSI, MPa) - (NBN EN 1542)	> 434, > 3

UREA PRIM CONCRETE DESCRIPTION

UREA PRIM CONCRETE is a 2-component epoxy primer for concrete surfaces.

Fields of application	For preparing concrete surface before applying polyurea UREA SPRAY 400.	
Advantages	Easy to apply; seals the concrete surface and increases the polyurea adhesion.	
Consumption	150-250 g/ m ² depending on the porosity of the surface.	
Packaging	Component A (Epoxy) : 7 kg - red liquid Component B (Amines) : 3 kg - yellow liquid	
Colours	Available in most RAL colours.	
Storage	Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C.	
Application	<ul style="list-style-type: none"> • Thoroughly mix components A and B in a proportion of 7 to 3 (epoxy to amines). • Apply to clean, correctly prepared concrete with a roller or an airless spray system. 	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	Compliant with European environmental legislation
	Maximum humidity of concrete during application	5%
	Can be recoated (h) depending on the temperature	min: 3-6 max: 24-48
	Adhesion to dry concrete (PSI, MPa)	> 434, > 3 (fracture in the concrete)
	Adhesion to wet concrete (PSI, MPa) (NBN EN 1542)	> 290, > 2

UREA PRIM CONCRETE THIX DESCRIPTION

UREA PRIM CONCRETE THIX is a 2-component thixotropic epoxy primer for concrete surfaces.

Fields of application	For filling and smoothing the surface of concrete that is damaged or in poor condition before applying polyurea UREA SPRAY 400.	
Advantages	<ul style="list-style-type: none"> • Closes and fills holes in concrete that is in poor condition. • Acts as a levelling agent and a primer. 	
Consumption	150-500 g/m ² depending on the porosity and roughness of the surface.	
Packaging	Component A: 3.25 kg - light brown Component B: 1.75 kg - dark brown	
Storage	Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C. Add dry nitrogen to already opened drums.	
Application	<ul style="list-style-type: none"> • Thoroughly mix components A and B in a proportion of 1 to 2 (component A and component B). • Apply to clean, correctly prepared concrete with a spatula. • The thixotropy of the mixture can be adapted by adding filler powder (e.g. fine silicon). 	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	Compliant with European environmental legislation
	Maximum humidity of concrete during application	5%
	Can be recoated (h) depending on the temperature	min: 3-6 max: 24-48
	Adhesion to dry concrete (PSI, MPa)	> 434, > 3 (fracture in the concrete)
	Adhesion to wet concrete (PSI, MPa) (NBN EN 1542)	> 290, > 2

UREA PRIM METAL DESCRIPTION

UREAPRIM METAL is a 1-component coating based on specific aromatic poly-isocyanates. It reacts to water and to atmospheric humidity, forming MCU (Moisture Cured Urea).

Fields of application	For preparing metal surfaces before applying UREA SPRAY 400.	
Advantages	<p>Excellent protection of the substrate:</p> <ul style="list-style-type: none"> • Extreme abrasion and shock resistance. • High chemical resistance. • Elastic cathodic protection ($\pm 30\%$). • Superior to inorganic zinc primers. • Has greater tolerance to surfaces than epoxy primers. <p>Easy to apply:</p> <ul style="list-style-type: none"> • Can be applied with a brush, roller or conventional gun in most weather conditions and tolerates damp surfaces. • Minimum surface preparation required. • A primer for repairing pitted steel or complex shaped steel. • It is particularly effective when used as a primer on exposed surfaces. 	
Consumption	250 or 380 g/m for a coat of 100 μm applied using an airless spray system or a roller, respectively.	
Packaging	UREAPRIM METAL metal drum containing 28.5 kg UREAPRIM ACCELERATOR metal drum containing 4.5 kg	
Storage	Store for 12 months in the original packaging. Keep the original drums tightly closed to prevent contamination by humidity in a clean, dry place at a temperature of between 10 and 30 °C. Add dry nitrogen to already opened drums.	
Application	<ul style="list-style-type: none"> • Minimum surface preparation (abrasion or water jet, manual or electric tools). • Tolerates instantaneous oxidation. • 1 component: no shelf life limit, no mixing errors. • Can be applied with a brush, roller or airless spray system. • High DFT tolerance; up to 380 μm. • Excellent flow through holes. • Productivity increase of 25-30% using the airless spray system. • Reduction in equipment cleaning time: 15-20%. • Rapid, problem-free installation. 	
Technical Characteristics	Volatile Organic Compounds - VOC (g/l)	Compliant with European environmental legislation
	Viscosity (mPa-s)	1100
	Density (g/cm ³)	2.80
	Humidity during application	15 - 80%
	Can be recoated (h) depending on the temperature See table below	Min: ± 4 - Max: 24 / 48
	Adhesion to metal (PSI, MPa)	> 725, > 5

UREA PRIM
METAL
DESCRIPTION

Hardening time

(100 µm DFT, at 50 - 90% air humidity)

<i>Without accelerator</i>			
	10 °C	25 °C	35 °C
Tack-free	1 h	30 min	20 min
Overcoatable	6 h	4 h	3 h
Full cure	10 days	7 days	5 days
<i>With accelerator</i>			
	10 °C	25 °C	35 °C
Weight %	1.2	1	0.9
Volume %	3.4	3.0	2.6
Weight per drum 25 kg	300 g	250 g	230 g
Volume per drum 10 l	340 ml	300 ml	260 ml
Tack-free	20	15 min	10 min
Overcoatable	1 h	30 min	20 min
Full cure	7 days	5 days	4 days



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