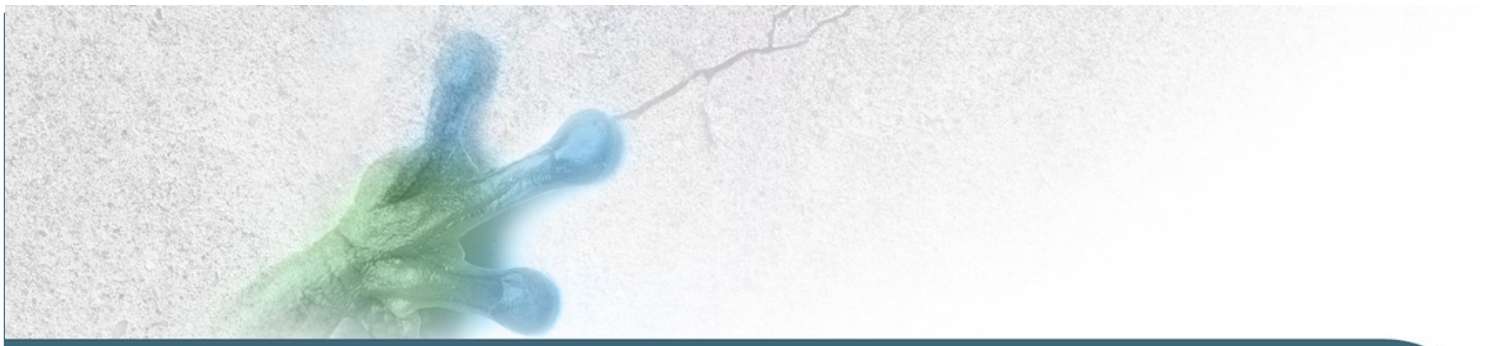


bio-based

sustainable

eco-friendly

Solutions for Civil Engineering

KEMICA COATINGS

Reinventing coatings

An expert in the field of polyurethanes (PU) and polyurethanes (Hybrids) for more than thirty years, KEMICA COATINGS, based in France, designs, manufactures and distributes high-performance resins.

These resins are bio-based, solvent-free and odorless. They can be applied to concrete, steel or wood to overcome waterproofing, protection of structures, flooring and anti-corrosion problems in Industry, Building and Civil Engineering.

Bio-based products

At the heart of the design of **SOUPLETHANE** resins lies a strong commitment to the preservation of the environment. Unlike traditional synthetic resins that are based on petrochemical compounds, the composition of the **SOUPLETHANE** range gives pride of place to renewable natural materials. Sustainably sourced plant extracts are used as the main basis for high-quality polymers. This approach drastically reduces the environmental impact and limits the dependence on non-renewable resources.

Negative carbon footprint

By opting for **SOUPLETHANE** resins, companies can position themselves as committed players in favor of sustainable development. In this way, they help reduce their carbon footprint and contribute to the preservation of natural ecosystems. In addition, these natural resins offer an environmentally friendly and safe alternative, meeting the strictest environmental standards.

Electric Comb Leak Test

SOUPLETHANE resins are waterproof. Applied by professionals, they pass the electric comb test without difficulty. This is a commonly used method for evaluating the quality and effectiveness of sealant resins. This process involves applying the resin to a flat surface connected to the ground and then running an electric comb over it. The comb detects any porosity or air bubbles that could compromise the seal.
This fast and accurate test ensures the reliability of the sealants, ensuring optimal protection against water or other harmful substances.

Fire resistance

The fire resistance of resins is essential to ensure the safety of goods and people in buildings. To do this**, KEMICA COATINGS formulates** resins that achieve performances rarely achieved in the profession:

- **SOUPLETHANE** is classified Bfl-S1 (european standards)
- For high-rise buildings or establishments open to the public, **SOUPLETHANE** is available in a NON-FLAMMABLE version with a Eurofeu classification B–S2–D0 (**SOUPLETHANE 5 COR FRB**).

KEMICA COATINGS
Reinventing coatings

Summary

REQUIREMENTS IN CIVIL ENGINEERING

Civil engineering structures must ensure a long lifespan of the structures (120 years for bridges or tunnels).
The coating techniques chosen must therefore ensure the long-term protection of the concrete or metal structures by protecting the structures from any aggression from the external environment (rain, corrosive gases, sea salts, etc.) and also ensure the waterproofing of the structures in the event of cracking of the concrete to avoid corrosion of the reinforcement and pollution of the ground and subsoil.

In the case of enclosed environments - tunnels, technical rooms - the fire risk is high, and the coatings used for floor, wall or ceiling coverings must be non-flammable.

The performance criteria of the coatings sought are as follows:

- **EASY CLEANING, MAINTENANCE AND REPAIR**

- **RESISTANCE TO CHEMICAL AGENTS:** the products likely to come into contact with the coating are chemically very aggressive and in a pH range of 1 to 14.
- **ANTI-DUST**: thus, preserving the light in the tunnels and making cleaning easy.
- **RESISTANCE TO THERMAL SHOCKS:** accidental leakage of hot LIQUIDS, steam etc.
- **AIR AND GAS TIGHTNESS:** (oxygen, CO2, H2O, N2, etc.): case of controlled atmosphere rooms
- **WATERPROOFING:** to guarantee the containment of the room in the event of cracking (prevents the diffusion of contaminants in the support or outside in the event of a cracked support)
- **CONTINUOUS AND SEAMLESS COATING:** (floors, walls and ceilings) no attachment of contaminants in the joints.
- **RESISTANCE to UV rays that degrade coatings.**
- **EASY DECONTAMINATION OF POLLUTED MEDIA**
- **NON-FLAMMABILITY of coatings and insulation**

- **SAFETY, IMPLEMENTATION AND USE**

- **NO EMISSION OF ORGANIC VAPOURS AND SOLVENTS DURING PROCESSING**
- **RESISTANCE TO WEAR**: requirement for floors subject to the circulation of forklifts or machinery.
- **ANTI-SLIP:** requirement for workshop floors subject to water leaks and pedestrian traffic
- **FIRE RESISTANCE:** does not spread flame or contribute to combustion.

THE ANSWERS OF THE SOUPLETHANE COATING

- **HYGIENE :**

The SOUPLETHANE film is continuous, without porosities or microporosities. It prevents bacterial growth, not allowing bacteria in contact with the coating to find the nutrients necessary for their survival and proliferation. A test carried out by the Institute of Microbiological Research (IRM) shows that a strain of bacteria (SALMONELLA) in contact with the coating reduces by 97% after just 15 minutes, 99.83% after 24 hours and 99.9999% after 7 days. This property is of great interest for applications for cladding ceilings, false ceilings, ventilation ducts, etc. difficult to access and not subject to daily maintenance.

The absence of porosities, unlike hydraulic binders or stainless-steel binders for example, prevents the proliferation of bacteria or yeasts that nestle in the pores, which can be a cause of contamination.

- **ANTI-DUST :**

SOUPLETHANE does not become electrostatically charged after friction, thus not attracting contaminating dust from the atmosphere.

Its anti-dust properties are due to two combined effects:

- Low natural susceptibility to attract oneself with dust (test carried out by the **CEA**, low susceptibility of around 3%).
- For the dust that has nevertheless settled on the substrate, the decontamination after conventional cleaning is almost total (99%). By the way, it is not necessary to use aggressive decontamination cleaning products, a simple wash with deionized water is sufficient (**CEA test**).

- **CONTINUOUS AND SEAMLESS COATING :**

SOUPLETHANE film can be applied without sagging in a thick film on a horizontal, vertical or ceiling surface. The coating is continuous and seamless.

- **NON-TOXICITY OF THE COATING:**

SOUPLETHANE is bio-sourced, BPA-free, PHTHALATE-free, solvent-free, FORMALDEHYDE-free.

- **EASE OF CLEANING, MAINTENANCE AND REPAIR,**

SOUPLETHANE is easy to clean: its closed surface makes it difficult for dirt to encrust. It is also very resistant to damage from cleaning products.
It is easy to repair by re-applying a new layer of resin on top of the old one - CSTB test N° CLC-ETA-13-26042113-1.

- **RESISTANCE TO CHEMICAL AGENTS :**

SOUPLETHANE is resistant to a wide range of chemicals: bases, acids, solvents. It is commonly used for protective coatings of retention tanks, antacid floors and tanks storing chemicals.

- **RESISTANCE TO THERMAL SHOCKS :**

SOUPLETHANE is resistant :
- Hot liquids (e.g. hot water at 90°C): tested by the LCPC with thermal shocks of 140°C. - No change in the characteristics of **the SOUPLETHANE** after return to room temperature.
- Superheated steam: 160°C (test carried out by CEMETE in Aix-en-Provence) - no blisters or cracks, etc. - good resistance of the coating which can withstand such thermal shocks.

- **AIR AND GAS TIGHTNESS :**

SOUPLETHANE is a vapour barrier, and the diffusion of gases is very slow through the film.

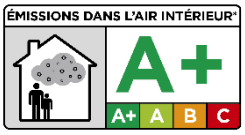
Example for the 1 mm film of **SOUPLETHANE**:
- Water vapour permeance 9 x 10^{-3} g/m2.24h.mm hg,
- Oxygen permeability 6 cm3/m^2. 24h.bar.

- **SEALING :**

In the event of cracking in the concrete substrate, the **SOUPLETHANE** can bridge cracks with an opening of 3 mm without damage thanks to its elasticity.
This is of major interest for two reasons:
- Cracks in a concrete slab are the primary cause of slab degradation. This quality guarantees the longevity of a floor covering,
- Cracks are a source of contamination and are difficult to clean. Ref.: LCPC test (ability of **SOUPLETHANE** to bridge cracks with an opening of more than 3 mm).

- **NO EMISSION OF ORGANIC VAPOURS AND SOLVENTS DURING PROCESSING:**

SOUPLETHANE is solvent-free.
It does not emit any components that pose a health hazard:
. No smell
. No BISPHENOL A, F or S
. No formaldehydes
. No phthalates
. No VOCs



The FLEXIBLETHANE 5 **coating** meets the most stringent requirements of HQE or BREEAM certified buildings.
The **SOUPLETHANE** is certified: HQE A+ (+)

- **NON-DEGRADABLE BY UV RAYS :**

SOUPLETHANE does not flour under the effect of UV rays and thus retains its mechanical properties for many years. (Epoxy resins lose an average of 0.1 mm/year of thickness in France, and nearly 1 mm/year in countries highly exposed to UV rays)

- **WEAR RESISTANCE :**

SOUPLETHANE has been tested by the CSTB according to European standards. It obtained a classification equivalent to the UPEC U4P4.

- **ELECTRICAL CONDUCTIVITY**: floors are charge dissipators - 10^9 0hm.cm

- **ANTI-SLIP POWER :**

SOUPLETHANE is used in flooring by sprinkling quartz, corundum or silica aggregates on the surface layer to meet this requirement**.**

- **FIRE RESISTANCE :**

SOUPLETHANE 5 COR FRB is non-flammable classified EUROFEU : B – S2 – d0

100%

waterproofing
anticorrosion
non flammable
antifouling
antibacterial

0%

solvent
toxicity
VOC
BPA

KEMICA COATINGS
Reinventing coatings

THE PRODUCTS USED

SOUPLETHANE 5

Solvent-free, two-component polyurea-urethane resin that provides a liquid membrane for waterproofing, corrosion protection or continuous flooring, without microporosities.

Can be applied manually (brush, roller) or by spraying with an airless machine.

CSTB Technical Assesment
N° AT: 12/15-1704
DTA from CSTB

SOUPLETHANE 5 COR

Solvent-free, two-component polyurea-urethane resin for waterproofing, corrosion protection of chemical retentions, gutters, tanks and internal linings of pipes carrying corrosive effluents.

SOUPLETHANE 5 COR FRB

Solvent-free, two-component polyurea-urethane resin that creates a liquid waterproofing, corrosion protection or continuous flooring membrane, without microporosities for the protection of floors and walls or chemical retentions.

NON-FLAMMABLE resin – rating : B – S2- d0

Can be applied manually (brush, roller) or by spraying with an HP airless machine

SOUPLETHANE 5 N

Solvent-free, two-component polyurea-urethane resin that produces a decontaminable, radiation-resistant liquid waterproofing, corrosion protection or flooring membrane for nuclear medicine facilities.

Can be applied manually (brush, roller) or sprayed with with HP airless machine

Decontaminable
(CEA class 1-4) and resistant to nuclear radiation

PU AQUEUX R

Solvent-free, fast-setting, single-component primer that can be applied manually (brush, roller) or by spraying with HP single-component airless machine.

Solvent-free PU primer

KEMIPOX

Two-component, all-purpose primer that can be applied manually on wet concrete (brush, roller).

Solvent-free epoxy primer

ALPIC

Two-component, solvent-free, UV-resistant ALIPHATIC polyurethane resin that provides a protective topcoat on liquid waterproofing membranes.

UV-stable color topcoat

POUDREC

Low-density anti-slip aggregate that can be applied to fresh resin. Grit size 300 to 600 µ

Anti-slip

KEMTEX

Reinforcement fabric for the treatment of singular points and cracks.

Reinforcement cloth

TECHNICAL PERFORMANCE CERTIFICATIONS AND REPORT

Tests	Test Conditions	Results	Organism
Adhesion	Dry concrete Dry concrete Dry concrete Wet concrete	4,0 MPa 5,5 MPa 3,5 MPa 2,6 MPa	CSTB Metal Institute King Fahd Institute CSTB
Cracks caused	T= 20°C T= - 5°C T= -10°C T= - 30°C	4,9 mm 2,7 mm 1,5 mm 0,8 mm	VERITAS VERITAS LCPC VTT (Finland)
Substrate Movements	1 mm crack 500 cycles Amplitude +/-1 mm Temperature : -10°C	Waterproof under 100 mm of water	CSTB
Tensile Strength	Speed : 1 mm/min	18 MPa @23C 32 MPa @-10°C	LCPC
Compressive Strength	ASTM C 109	113 MPa	FUGRO SUHAIMI
SOUPLETHANE Repairability Test		Adhesion >4 MPa	CSTB
Static puncture shear resistance	ETAG TR007	L3 @23°C L3 @60°C	CSTB
Dynamic Punch Shear resistance	ETAG TR006	I3 @23°C I3 @60°C	CSTB
Abrasion resistance	EN ISO 5470-1 Meule Taber H22 Load 1 000 g	630mg/1 000 rotations	CSTB
Water Absorption	NFT3080 ETAG TR003 DIN 1048	0 .0 Waterproof 0 .0	LCPC (Maroc) CSTB King Fahd Institute
Hardness Shore A		**>95**	

Tests	Test Conditions	Results	Organism
Resistance to Artificial Aging Cycles	NF P 84-402	75 cycles of 12 hours No blisters, no cracks, no peeling	VERITAS
Resistance to oxidizing agents	Resistance to 15% perchlorate @100°C	No effect	King Fahd Institute
Diffusion of chloride ions	ASTM 1202 Diffusion coefficient measurement	<5 coulombs (10000 coulombs for concrete) Not Measurable (< 10-14)	King Fahd Institute LERM
Application on dripping concrete		Adhesion : 3.15 MPa	Internal Testing
Chemical Resistance	pH 1 to 13	No saponification reaction at high pH	Suez/Veolia/ AREVA CSTB
Immersion Adhesion After Aging	Immersion in demineralized water at 75°C for 45 days	Adhesion : Class 1	Metal Institute of SHENYANG
Pressure Reservoir		1 MPa 1.5 MPa	CEBTP LCPC (Morocco)
Shock and impact resistance	NF EN 13813	IR20	CSTB
Puncture Shear Resistance	NF EN 433	Residual 0.05mm	CSTB
Resistance to movement of a 1 mm joint after ageing	ETAG TR 008	No cracks, No delamination Waterproof under 100 mm of water	CSTB
Resistance to cracking	NF EN 1062-7 Method A Annex C.2	Initial: >3mm After ageing cycle at 70°C: >3mm	CERIB

AREAS OF EMPLOYMENT AND TECHNICAL RECOMMENDATIONS

- **BRIDGES - VIADUCTS**
- **TUNNELS**
- **TREATMENT PLANTS**
- **DRINKING WATER TANKS - PUMPING STATIONS - DRINKING WATER TREATMENT PLANTS**
- **DIGESTERS – METHANIZERS – SEWERS**
- **PIPES FOR DRINKING WATER TRANSPORT**
- **PIPES FOR THE TRANSPORT OF WASTEWATER OR EFFLUENTS**


BRIDGES
VIADUCTS

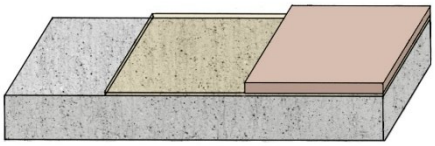
Concrete bridges

Benefits :

- WATERPROOF Industrial Floor (laying of concrete cracks with an opening of more than 3 mm)
- Chemically resistant over a PH range of 1 to 14
- Resists rolling wear
- Very non-slip

STEP 1: Preparation of the substrate: shot blasting.

STEP 2: Singular Point Processing



STEP 3: Application of the PU Aqueux R Primer

- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Drying in 1 hour

Characteristics of the primer			
Chemical nature	One-component moisture-curing, prepolymer single-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Oui

STEP 4: Application of the SOUPLETHANE 5 resin

- With a roller or notched comb, 3 mm of SOUPLETHANE 5

- Cracks larger than 3 mm aperture

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.4 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Waterproofing**	3 mm crack bridging

Metal bridges or walkways

Benefits :

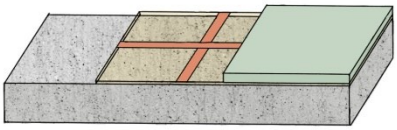
- Very high adhesion to metal: 20 MPa
- - Chemically resistant over a PH range of 1 to 14
- Resists rolling wear
- Very non-slip

STEP 1: Preparation of the substrate: shot blasting.

STEP 2: Singular Point Processing

STEP 3: No primer

STEP 4: Application of the SOUPLETHANE UR 5 resin



Bridges :

- With a roller or notched comb, 3 mm of SOUPLETHANE UR5
- Anti-slip finish: SOUPLETHANE UR5 1 mm thick + 2/4mm aggregates and sealing with SOUPLETHANE UR5 500 resin.

Gateways :

- With a roller or notched comb, 2 mm of SOUPLETHANE UR5
- Cracks larger than 3 mm apertureμ thick + 1/2mm aggregates and sealing with SOUPLETHANE UR5 500Q resin.

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 en volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.4 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Waterproofing**	3 mm crack bridging


TUNNELS

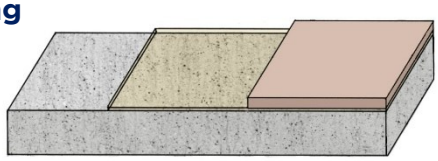
KEMICA COATINGS
Reinventing coatings

Upper surface lining of tunnels

Benefits :
- High adhesion to concrete : 4 MPa
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)

STEP 1: Preparation of the substrate: sanding or sanding

STEP 2: Treatment of singular points



STEP 3: Application of the PU Aqueux R Primer

- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Dries in 1 hour

Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 resin

- Bottom: with a roller or notched comb, 2 mm of SOUPLETHANE 5
- Walls and ceiling: with a roller or by mechanized spraying, installation of 2 mm of SOUPLETHANE 5

- 3 mm crack spawning

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.3 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Fire Rating**	Bfl-S1

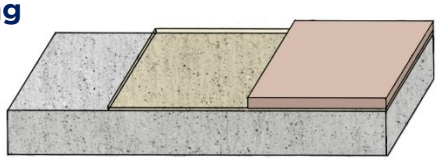
KEMICA COATINGS
Reinventing coatings

Intrados lining of tunnels

Benefits :
- High adhesion to concrete : 4 MPa
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)
- Non inflammable – B-S2- d0

STEP 1: Preparation of the substrate: sanding or sanding

STEP 2: Singular Point Processing



STEP 3: Application of the PU Aqueux R Primer

- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Dries in 1 hour

Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 COR FRB resin

- Base: with a roller or notched comb, 2 mm of SOUPLETHANE 5 COR FRB
- Walls and ceiling: with a roller or by mechanised spraying, installation of 2 mm of SOUPLETHANE 5 COR FRB

- 3 mm crack spawning

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 en volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.3 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	35%	**Waterproof**	3 mm crack bridging


TREATMENT PLANTS

KEMICA COATINGS
Reinventing coatings

Basins storing corrosive liquids

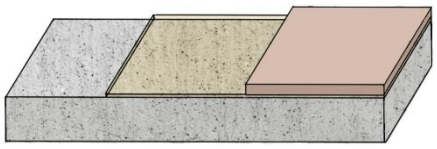
Benefits :
- Highly chemically resistant coating
- Can be applied by HR<95% and -10°C < T°C < 50°C
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)

STEP 1: Preparation of the support (see page 36)

STEP 2: Treatment of singular points (see page 37)

STEP 3: Application of the PU Aqueux R Primer

- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Drying in 1 hour



Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 COR resin

- Bfl-S1

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 en volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.3 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Fire classification**	B_{fl}-S1

KEMICA COATINGS
Reinventing coatings

CHEMICAL AGENT RESISTANCE TABLE

SOUPLETHANE 5 COR

Chemical Retention Storage Tanks
Concrete/Steel Floors
Contact : 72 h *Contact permanent*

Chemicals Temperature Temperature
5 mm

ACIDS	Concentration	Thickness	Thickness	Thickness
Hydrochloric	33%	3 mm	3 mm	5 mm
Nitric	60%	2 mm	3 mm	5 mm
Sulfuric	40%	3 mm	3 mm	5 mm
Phosphoric	100%	2 mm	3 mm	5 mm
Acetic	70%	3 mm	3 mm	5 mm
Lactic	30%	2 mm	3 mm	5 mm
Any acid pH <1		2 mm	3 mm	5 mm
Any acid pH <1		Test contact 72 h	Immersion 3 weeks	

BASICS	Concentration	Thickness	Thickness	Thickness
Sodium	50%	3 mm	5 mm	5 mm
Potash	50%	2 mm	5 mm	5 mm
Any basis pH < 13		2 mm	2 mm	5 mm
Any basis pH < 13		Test contact 72 h	Immersion 3 weeks	

Hydrocarbures	Concentration	Thickness	Thickness	Thickness
Crude oil	100%	2 mm	3 mm	5 mm
Diesel fuel	100%	2 mm	5 mm	5 mm
Aliphatic gasoline	100%	2 mm	2 mm	5 mm
Kerosene	100%	2 mm	2 mm	----------
Aromatics Benzene, xylene	100%	2 mm	----------	----------

CHLORIDES	Concentration	Thickness	Thickness	Thickness
Sodium salt	100%	2 mm	3 mm	5 mm
Ferric chloride	41%	2 mm	3 mm	5 mm

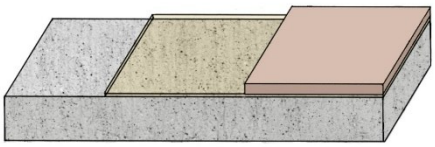
Chemical retention

Benefits :
- Chemical resistance (pH from 1 to 14)
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)
- Non inflammable : B-S2-d0

STEP 1: Preparation of the support (see page 31)

STEP 2: Treatment of singular points (see page 33)

STEP 3: Application of the PU Aqueux R Primer



- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Drying in 1 hour

Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 COR FRB resin
- Base: with a roller or notched comb, 2 mm of SOUPLETHANE 5 COR FRB
- 3 mm crack bridging

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 3/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.4 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Waterproof**	3 mm crack bridging


DRINKING WATER TANKS
PUMPING STATIONS
DRINKING WATER
PROCESSING PLANTS

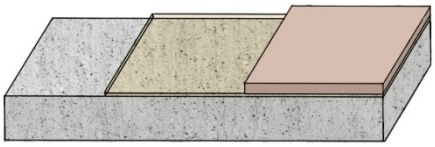
KEMICA COATINGS
Reinventing coatings

Tanks, floors, ceilings

Benefits :
- BPA-free ACS coating
- Can be applied by HR<95% and -10°C < T°C < 50°C
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)

STEP 1: Preparation of the substrate: sanding or hydro-scrubbing

STEP 2: Singular Point Processing



STEP 3: Application of the PU Aqueux R Primer
- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Drying in 1 hour

Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 WP resin
- Bfl-S1

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 2/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1. 35 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Fire classification**	B_{fl}-S1

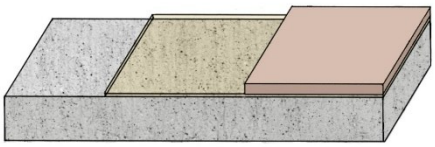

DIGESTERS
METHANIZERS
SEWERS

Digesters Methanizers

Benefits :
- Chemical resistance (pH 1 to 14) – H^2S resistant
- Provides waterproofing in the event of cracking in concrete (up to 3 mm crack opening)
- High adhesion to concrete or metal: 4 Mpa for concrete and 20 Mpa for metal

STEP 1: Preparation of the substrate: sandblasting

STEP 2: Singular Point Processing



STEP 3: Application of the PU Aqueux R Primer
- Laying of the primer
  - Roller application
  - Consumption : approx. 150 g/m²
  - Drying in 1 hour

Characteristics of the primer			
Chemical nature	Moisture-curing, prepolymer one-component	**Density @25°C according to ISO2811**	1.16 g/ml
Aspect	Transparent Amber Liquid	**Flash Point**	>110°C
Dry extract	100%	**Solvent-free**	Yes

STEP 4: Application of the SOUPLETHANE 5 COR resin
- Ceiling: roller or spray, installation of 3 mm of SOUPLETHANE 5 COR
- 3 mm crack spawning

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B: 2/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.1 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	150%	**Waterproofing**	3 mm crack bridging

PIPES
FOR DRINKING WATER TRANSPORT

Pipes for drinking water

Benefits :

- The SOUPLETHANE WP resin is ACS and can be applied in a thick film (2 to 7 mm)
- Ensures the waterproofing of buried, punctured or cracked pipes.
- Bio-based resin: carbon negative
- Resistant to concentrated JAVEL water (for cleaning and disinfection of the pipe)

INNER COATING

STEP 1: Scraping, HYPERBAR water jet stripping.

STEP 2: Application of the SOUPLETHANE WP resin

- Crack bridging of 1 cm

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B : 2/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.35 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	35%	**Waterproofing**	3 mm crack bridging

Commissioning: 6 hours after resin application


PIPES FOR
TRANSPORT OF WASTEWATER

Wastewater pipes

Benefits :

- SOUPLETHANE UR5 resin can be applied in a thick film (2 to 7 mm)
- Ensures the waterproofing of buried, punctured or cracked pipes.
- Bio-based resin: carbon negative
- Resists chemical liquids on a pH of 1 to 14
-

-

INNER COATING

STEP 1: Scraping, HYPERBAR water jet pickling, drying.

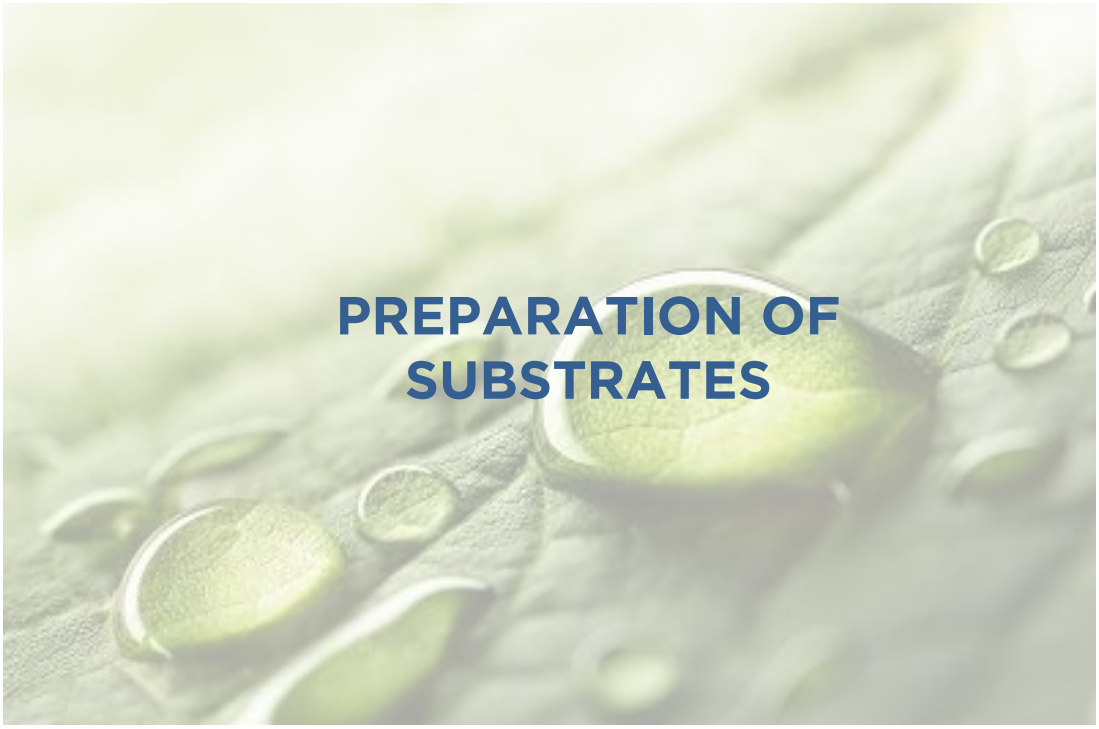
STEP 2: Application of the SOUPLETHANE WP resin

- By projection with a two-component pump with rotating bowl, installation of 2 to 7 mm of SOUPLETHANE UR5

Characteristics of Polyurea-Urethane Resin			
Chemical nature	2-component polyurea-urethane (aromatic) resin	**Mix Ratio**	Comp A / Comp B: 2/1 in volume
Composition	Component A – polyol : opaque coloured liquid Component B – isocyanate : transparent amber liquid	**Density @20°C of mixture A+B according to ISO2811**	1.35 g/ml
Dry extract	100%	**Colour**	On request
Compressive Strength	110 MPa	**Tensile Strength**	18 MPa
Elongation	35%	**Sealing**	Bridging 1 cm cracks

Commissioning: 6 hours after resin application

PREPARATION OF SUPPORTS AND TREATMENT OF SINGULAR POINTS



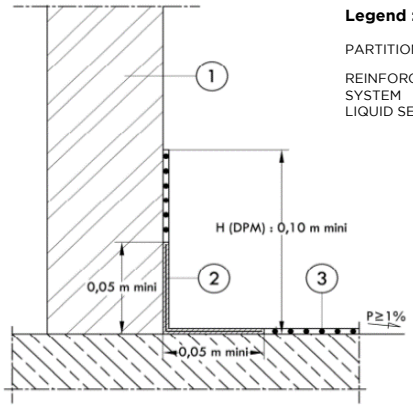
- On new concrete even, smooth, without roughness, poured since 28 days in accordance with DTU21 (France)
    - Shot blasting or grinding, dedusting or acid etching followed by rinsing and drying.

- On old concrete
    - Remove old coatings, crumbly parts.
    - Trim if necessary to obtain a flat, smooth surface without roughness.

- In the event of an uneven concrete surface: apply a rendering made by a KEMIPOX mortar (1 volume of KEMIPOX for 2 volumes of sand 0.4/0.8 mm) with a sand finishing of quartz with 0.4/0.8 mm granular size.


TREATMENT OF
SINGULAR POINTS

Upstands

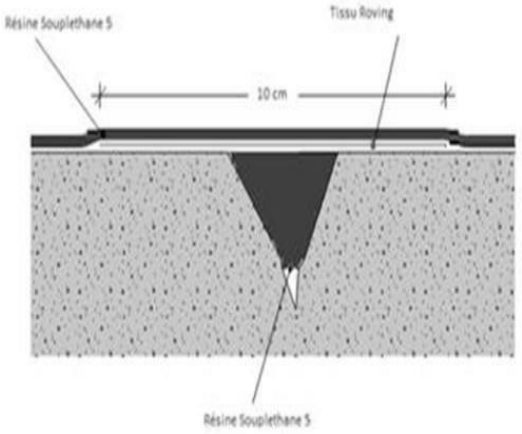


Concrete sanding and careful dusting with a vacuum cleaner

Note: the minimum height of the stand is 150 mm

- Application of a strip of **KEMTEX** roving fabric (280 gr/m^2), impregnated and glued with SOUPLETHANE 5. The resin is overlapping the singular points in accordance with the CSTB Technical Assessment
- Unbubble the **KEMTEX** cloth with a roll of wool before applying the outer layer of **SOUPLETHANE**

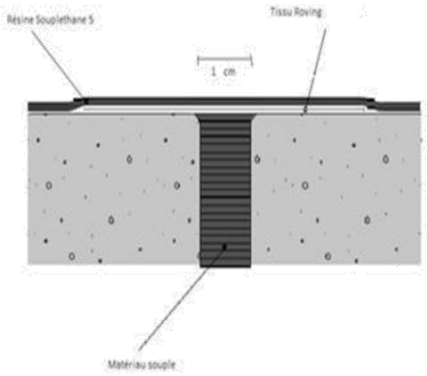
Existing cracks (no difference in level)



Concrete sanding and careful dusting with a vacuum cleaner

- In case of microcracks smaller than 0.3 mm, no specific treatment is required due to the bridging capacity of the **SOUPLETHANE 5** resin
- In case of cracks between 0.3 and 0.8 mm, open the crack and carefully remove the dust with a vacuum cleaner and then fill the crack with SOUPLETHANE 5 **resin**. Cover the crack with a 10 cm wide Kemtex glass roving saturated with SOUPLETHANE 5 resin **- In case of cracks greater than 0.8 mm**, fill crack with a flexible PU joint. Cover the crack with a **10 cm wide KEMTEX glass roving** saturated with SOUPLETHANE 5 **resin.**

Splitting joint (no difference in level)



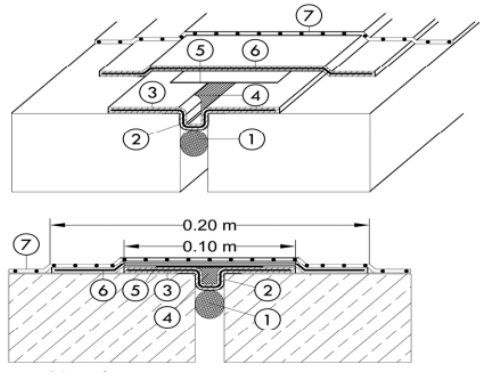
Concrete sanding and careful dusting with a vacuum cleaner

Note: Splitting joints have an opening between 2 and 10 mm

Fill the joint with **SOUPLETHANE PUTTY** (shore A hardness less than 70)

Cover the crack with the **10 cm wide** KEMTEX roving fabric glued with **SOUPLETHANE 5**

Expansion joint (no difference in level)



Careful sanding or grinding of concrete and dusting with a vacuum cleaner

Install the expanded foam joint in the joint, then glue a 150 mm wide PVC tape (600% elongation type) on both sides with epoxy glue. Put a layer of epoxy on top of the PVC tape and sprinkle with silica sand of a controlled size (0.4-0.8). Remove excess once cured.

Fill the cavity with **SOUPLETHANE 5 COR PUTTY**.

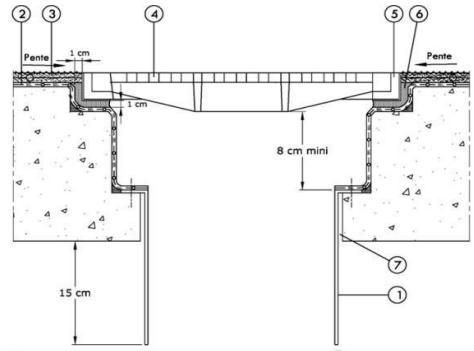
Cover the edges of the PVC tape with the **15 cm wide** KEMTEX ROVING glued with **SOUPLETHANE 5.**

Legend:

1. EXPANDED FOAM ROD
2. ADHESIVE TAPE USED AS FORMWORK
3. REINFORCED LIQUID SEALING SYSTEM
4. SOFT FILLING MATERIAL
5. POSSIBLE DESOLUDARISATION STRIP
6. REINFORCED LIQUID SEALING SYSTEM
7. LIQUID SEALING SYSTEM

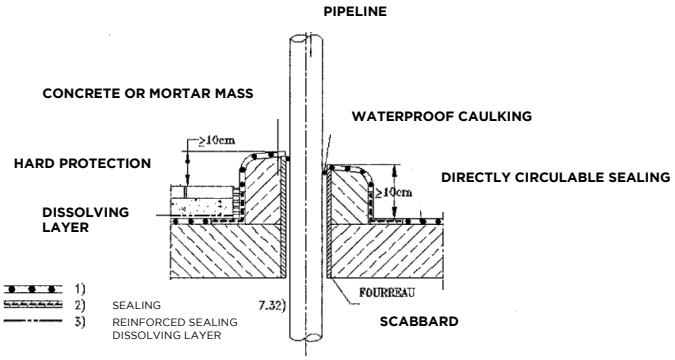
KEMICA COATINGS
Reinventing coatings

Traps

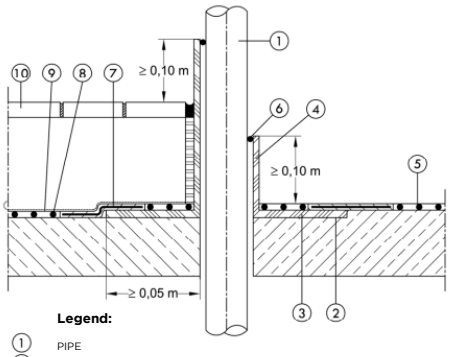


① STUM AND PLATE GLUED THEN MECHANICALLY
② LIQUID SEALING SYSTEM
③ WEARING COAT
④ GRID
⑤ LEGLESS FRAME
⑥ SEALING MORTAR
⑦ CLEARANCE = 0.025 M IN ACCORDANCE WITH DTU 20.12

Pipe passages
(on solid with sheath)



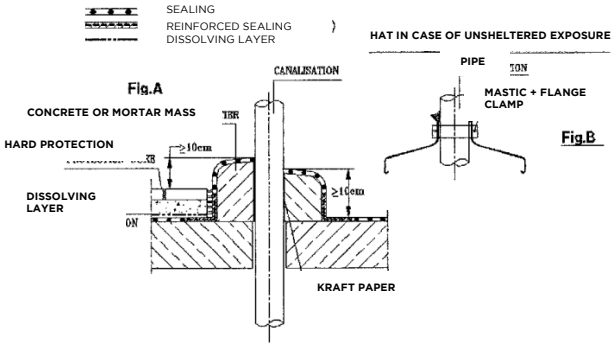
Hose Penetrations
(with Plate and Metal Sleeve)



Legend:

① PIPE
② ENCLOSURE
③ FIXING TO THE GROUND BY GLUING AND MECHANICAL FIXING
④ SOLID PLATE AND METAL SLEEVE
⑤ DIRECTLY CIRCULABLE LIQUID SEALING SYSTEM
⑥ WATERPROOF CAULKING
⑦ REINFORCED LIQUID SEALING SYSTEM
⑧ LIQUID SEALING SYSTEM
⑨ DRAINING
⑩ SEALED TILES

Hose passages
(on solid without sheath)



KEMICA COATINGS

Reinventing coatings

Discover the entire range of SOUPLETHANE solvent-free resins as well as:

- Our innovations and news
- Our qualifications and performance
- Our recommendations and solutions
- Our implementations and application techniques

On our website: www.kemica-coatings.com

Z.A. du Bois Gueslin F-28630 Mignières - France Tel.: +33 (0)2 37 26 33 56
e-mail : info@kemica-coatings.com