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 : Pentens Thailand

 : Pentens\_Thailand

 : [www.pentenshailand.com](http://www.pentenshailand.com)

**Pentens®**  
Green Waterproofing, Leader in Asia



## GREEN WATERPROOFING SYSTEM



Environmentally friendly product

## GO GREEN

DJI International (the Group), established in 1989, is one of the leading manufacturers and distributes specialist in building material for all industry which include raised floor system, water-based resin, water resistant floor, low pressure cracks, silicon-rubber waterproofing paint, soft resin mortar for waterproofing and high strength epoxy flooring.

The key vision of the Group is through dynamic and innovative management while teamwork to improve quality of products and services in order to commit excellences. On top of that, our team of architects and engineers are constantly searching for new innovative ideas and processes. Therefore, the group is assured of superior quality, versatility, durable and reliable products.

The Group believer that trust is the most important key in business activities and recognizes improvement in the quality of products and services will gain more consumers 'and customers'. Besides that, the Group also aims for a better living society and a wholesome environment.

The Group has also increased its research and development activities in all facets of product design and process innovation, gearing it to move towards the production of greater value-added products as well as improving current production techniques and process based in Taiwan.

Through its globalization plan, the Group seeks to continuously provide quality products and engineering services to all level of industries in Thailand. Simultaneously, the Group also looks forward to position Taiwan industrial products to be recognized in the international market.

## Our Mission

- ◆ Environmentally Friendly
- ◆ Clean, Aesthetic, Flexibility
- ◆ Comfortable and Eternal Quality

## Why Choosing PENTENS GREEN WATERPROOFING

- ◆ Low VOC
- ◆ A long-term warranty against defects.
- ◆ Over 20 years Relevant Specialist in Waterproofing Experience.
- ◆ Regional Manufacturing Facility.
- ◆ Excellent Quality, Service and Competitive Price.





A detailed architectural drawing of a building floor plan is the background for the left side of the page. A black pen lies horizontally across the top of the drawing, and a pair of black-rimmed glasses is placed on the lower left. The drawing includes various rooms, corridors, and structural elements with dimension lines and labels.

# SYSTEM **GREEN** **WATERPROOFING,** LEADER IN ASIA

- ◆ GREEN ROOF SYSTEM
- ◆ COOL ROOF SYSTEM
- ◆ TOILET SYSTEM
- ◆ SWIMMING POOL SYSTEM
- ◆ BASEMENT SYSTEM
- ◆ WATER TANK SYSTEM
- ◆ EPOXY FLOORING SYSTEM
- ◆ ANTI-CORROSIVE SYSTEM
- ◆ SPORT FLOORING SYSTEM



# GREEN ROOF SYSTEM

A green roof system is the roof of a building that is partially or completely covered with vegetation and a growing medium planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems. PENTENS T-100 is a water based polyurethane membrane which is suitable for green roof system with its high elongation that can improve waterproofing performance. polyurethane membrane which is suitable for green roof system with its high elongation that can improve waterproofing performance.

## ► Pentens T-100

**Elongation**  
ASTM D412-98

790%

**Tensile Strength**  
(kgf/cm<sup>2</sup>) ASTM D412-98

20.90

**Tear Strength**  
(kgf/cm<sup>2</sup>) ASTM 6986

11

**Chemical Resistance**  
10% HCOOH, 60° C, 24hrs

No Changes on the surface  
of the sample



Environmentally friendly product



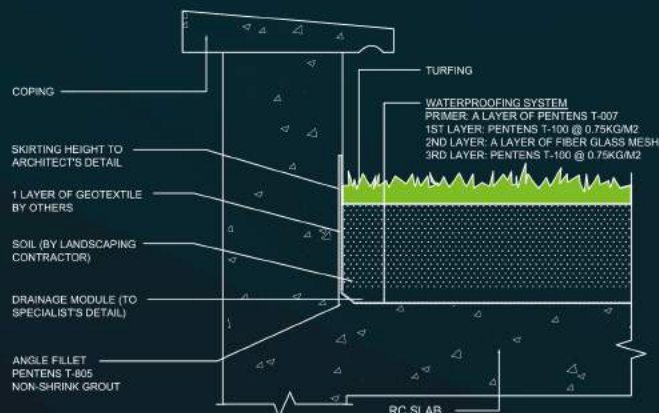
## Step.1

### PENTENS T-100 Advantages :

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ Easy application.
- ◆ High elasticity.
- ◆ Superb adhesive strength.
- ◆ Can be applied directly on damp or wet Surfaces.
- ◆ Suitable in hot and humid tropical climate.
- ◆ Resistant to any bubbling or side osmosis.
- ◆ Phenomenon even submerges in water
- ◆ Capable of re-application.
- ◆ Non-toxic.

### Green Roof Waterproofing Application

Primer	: Pentens T-007
1 <sup>st</sup> Layer	: Pentens T-305
2 <sup>nd</sup> Layer	: Pentens T-305
1 <sup>st</sup> Layer	: Pentens T-100
2 <sup>nd</sup> Layer	: Pentens T-100
	TILE



### Pentens T-100 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)	
Heavy Metals : (EPA 3025 / EPA 6010B: ICP)	
A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
Volatile Organic Compounds (ISO 11890-2) (g/L)	0.53
Total Halogenated Organic Solvent (ISO 11890-2) (%)	Not Detected
Total Aromatic Organic Solvent (ISO 11890-2) (%)	Not Detected
Epichlorohydrin (ISO 11890-2) (%)	Not Detected
N-Methyl Pyrrolidinone (ISO 11890-2) (%)	Not Detected
Formaldehyde (High Performance Liquid Chromatography) (%)	Not Detected
Alkyl Phenol Ethoxylate (LCMS-MS) (%)	Not Detected
Flash Point (ASTM D3828-07a) (°C)	>61

## Step.2

### Description

PENTENS SPU-1000 is a solvent free, two-component pure polyurea spray coating. The seamless coating provides an elastic yet tear resistant surface for applications subjected to extreme wear and tear, strong impact and chemical exposure. Except for some yellowing effect, the coating is suitable for outdoor applications.

### Garden Roof Waterproofing Application

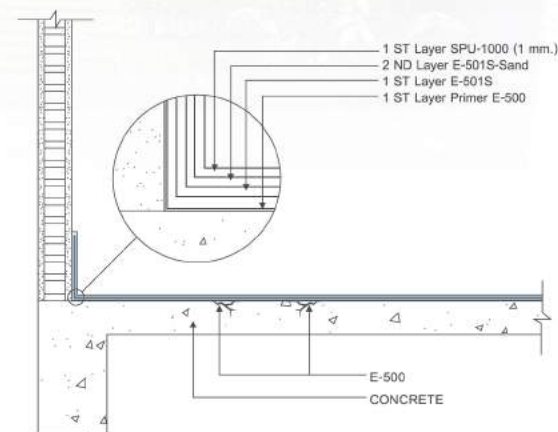
Primer	: Pentens E-500
1 <sup>st</sup> Layer	: Pentens E-501s
2 <sup>nd</sup> Layer	: Pentens E501s + Sand
1 <sup>st</sup> Layer	: Pentens SPU-1000

### PENTENS SPU-1000 Advantages :

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ High elasticity.
- ◆ Strong and tough, extremely high mechanical properties.
- ◆ Chemical resistance – very good resistance for to wide range of industrial chemical.
- ◆ Hard wearing.
- ◆ Outstanding impact resistance.
- ◆ Non-skidded
- ◆ Excellent bond strength to properly prepared substrates.
- ◆ No abnormality even submerges in water for a long time.
- ◆ Fast set return to service in minutes (Often second)
- ◆ Non-toxic.

### Pentens SPU-1000 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B : ICP)	
A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected
Volatile Organic Compounds (ISO 11890-2) (g/L)	1.0
Total Halogenated Organic Solvent (ISO 11890-2) (%)	Not Detected
Total Aromatic Organic Solvent (ISO 11890-2) (%)	Not Detected
Epichlorohydrin (ISO 11890-2) (%)	Not Detected
N-Methyl Pyrrolidinone (ISO 11890-2) (%)	Not Detected
Formaldehyde (High Performance Liquid Chromatography) (%)	Not Detected
Alkyl Phenol Ethoxylate (LCMS-MS) (%)	Not Detected
Flash Point (ASTM D3828-07a) (°C)	>61





# GARDEN ROOF SYSTEM



**PENTENS SYSTEM** has been designed to provide a green, toughness and long term durability with the waterproofing of existing roof. PENTENS SPU-1000 Pure Polyurea waterproofing spray coating is an ideal choice of waterproofing coating for Pentens system. With the fast set nature, this system can help you save time with the ability to return substrate to service in minutes.

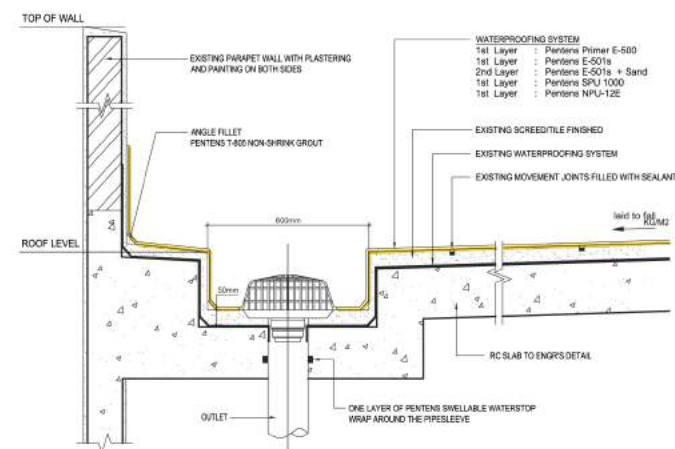
## Pentens SPU-1000 Technical Data

Elongation ASTM D412-06a(%)	Tensile Strength (kgf/cm <sup>2</sup> ) ASTM D412-06a	Tear Strength (kgf/cm) ASTM D624-00	Solid (%)	Pull-off Adhesive Strength (kgf/m <sup>2</sup> ) ASTM 4541
>500	>150	>70	100	>20



Environmentally friendly product

## Step.1 EXPOSE SYSTEM



### Garden roof Waterproofing Application

- 1<sup>st</sup> Layer : Pentens Primer E-500
- 1<sup>st</sup> Layer : Pentens E-501s
- 2<sup>nd</sup> Layer : Pentens E-501s + Sand
- 1<sup>st</sup> Layer : Pentens SPU 1000
- 1<sup>st</sup> Layer : Pentens NPU-12E

### Pentens SPU-1000 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)

A. Cadmium (Cd)	Not Detected
B. Lead (Pb)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected

Volatile Organic Compounds  
(ISO 11890-2) (g/L)

Total Halogenated  
Organic Solvent (ISO 11890-2) (%)

Total Aromatic  
Organic Solvent (ISO 11890-2) (%)

Epichlorohydrin  
(ISO 11890-2) (%)

N-Methyl Pyrrolidinone  
(ISO 11890-2) (%)

Formaldehyde  
(High Performance Liquid Chromatography) (%)

Alkyl Phenol Ethoxylate  
(LCMS-MS) (%)

Flash Point  
(ASTM D3828-07a) (°C)

### PENTENS SPU-1000 Advantages:

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ High elasticity.
- ◆ Strong and tough, extremely high mechanical properties.
- ◆ Chemical resistance – very good resistance to wide range of industrial chemicals.
- ◆ Hard wearing.
- ◆ Outstanding impact resistance.
- ◆ Non-skid
- ◆ Excellent bond strengths to properly prepared substrates.
- ◆ No abnormality even submerges in water for a long time.
- ◆ Fast set Return to Service in minutes (Often seconds)
- ◆ Non-toxic.



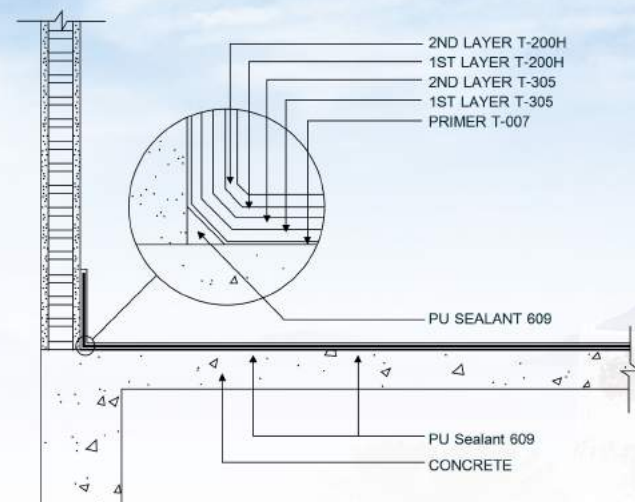
**PENTENS T-200H** is based on a newly developed Water based Polyurethane and Acrylic Polymers. It is dramatically reduces solar heat absorption in either air-conditioned or non-air conditioned buildings. It takes the majority of the heat load off a building's skin and reduces temperatures to approximately that of outside shade.

## ► Pentens T-200H Technical Data

Elongation ASTM D412-06a(%)	Tensile Strength (kgf/cm <sup>2</sup> ) ASTM D412-06a	Tear Strength (kgf/cm) ASTM D624	Solid (%)
>600	>24	>10	>60



## Step.2 EXPOSE SYSTEM



### ■ PENTENS T-200H Advantages :

- ◆ Low VOC.
- ◆ Water Based & Environmentally friendly.
- ◆ Air and UV Protection.
- ◆ Chemical resistant & waterproof.
- ◆ User friendly, suitable use on any surface.
- ◆ Adheres well over aged, galvanized and metal roofs, wood, asphalt or aluminum coatings, polystyrene foam insulation, polyester plastic panels, precast flat concrete and barrel cement tiles and many roofing materials.
- ◆ Has a high rate of water vapor transmission which permits moisture in the substrate to escape without causing blistering peeling or flaking.
- ◆ Prevention of ravages of acid rain, freeze-thaw, cycles, sunlight, bacteria and fungus.
- ◆ Non-toxic.

### ■ Roof Waterproofing Application

Primer	: Pentens T-007
1 <sup>st</sup> Layer	: Pentens T-305
2 <sup>nd</sup> Layer	: Pentens T-305
1 <sup>st</sup> Layer	: Pentens T-200H
2 <sup>nd</sup> Layer	: Pentens T-200H

### ■ Technical & Physical Data

Form	Liquid
Colour	Grey, white, green
Resin	Modified Polyurethane and Acrylic.
Density	1.20
Solid content	> 60% by weight
Elongation	> 600%
Tensile Strength (ASTM C412)	> 24 kgf / cm <sup>2</sup>
Tear Strength (ASTM D624)	> 10 kgf / cm <sup>2</sup>
Aging test at 80°C, 168 Hrs (ASTM D573-04)	
a. Tensile strength	> 45 kgf / cm <sup>2</sup>
b. Elongation	> 500%
c. Tear strength	> 35 kgf / cm <sup>2</sup>
Water Vapor Transmission ASTM E96 Method B (Perms)	<5
Curing Time	12 hours
Application Temperature	5° C to 40° C
Service Temperature	0° C to 80° C



# COOL ROOF SYSTEM

**Cool roofs** is a roof that can deliver high solar reflectance as well as high thermal emittance. Cool roof system provides a GREEN alternative energy and efficient solution to your insulation, roofing and waterproofing needs. Spray Polyurethane Foam PENTENS PU-130 uses to reduce thermal conductive heat transfer and its air barrier properties help reduce convective heat transfer; finished layer PENTENS T-202 Ceramic Coating with solar reflectance Index (SRI) 110.

## Pentens PU-130 Technical Data

Density ASTM D1622-03	Thermal Conductivity ASTM C518-04	Water Absorption
32.20kg/m <sup>3</sup>	0.0272(W/m.K)	1.20(g/100cm <sup>2</sup> )



## Cool Roof Waterproofing Application

PRIMER	: PENTENS T-009
INSULATION LAYER	: PENTENS PU-130
1 <sup>st</sup> LAYER	: PENTENS PU-202
2 <sup>nd</sup> LAYER	: PENTENS T-202

## PENTENS T-130 Advantages :

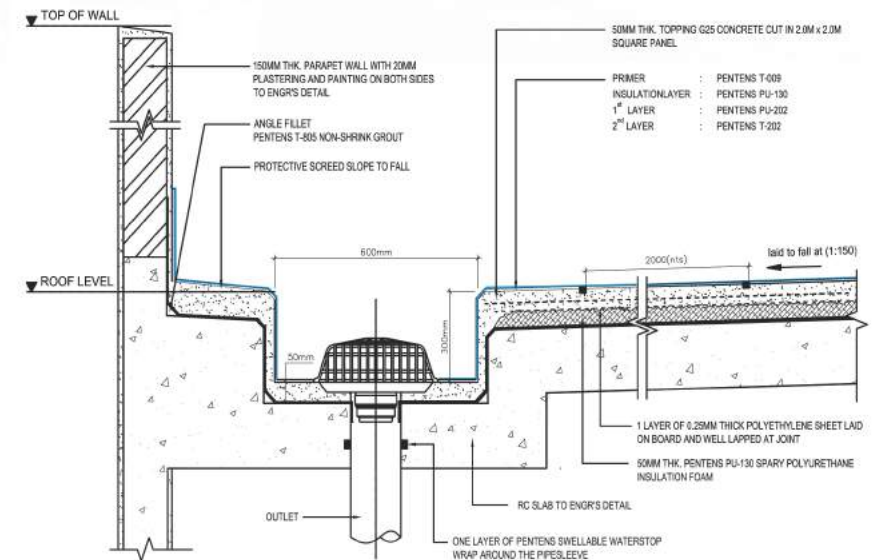
- Greater structural integrity.
- Can be applied to damp surface.
- Multi-purpose for a wide range of building applications.
- Good adhesion to most construction surface, such as wood, brick, concrete, metal and many plastics.

## PENTENS T-202 Advantages :

- low VOC.
- Environmentally friendly.
- Excellent adhesion and durability.
- Excellent weather resistance.
- Excellent abrasion resistance.
- Good impact strength.
- Good flexibility.

## Technical & Physical Data

Heavy Metals : (EPA 3025 / EPA 6010B : ICP)	
A. Cadmium (Cd)	Not Detected
B. Lead (Pb)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected
Volatile Organic Compounds (ISO 11890-2) (g/L)	3.53 (T-202) 0.53 (T-100) 17.67 (PU-130)
Total Halogenated Organic Solvent (ISO 11890-2) (%)	Not Detected
Total Aromatic Organic Solvent (ISO 11890-2) (%)	Not Detected
Epichlorohydrin (ISO 11890-2) (%)	Not Detected
N-Methyl Pyrrolidinone (ISO 11890-2) (%)	Not Detected
Formaldehyde (High Performance Liquid Chromatography) (%)	Not Detected
Alkyl Phenol Ethoxylate (LCMS-MS) (%)	Not Detected
Flash Point (ASTM D3828-07a) (°C)	>61





# TOILET SYSTEM

Waterproofing in toilets is critical in the prevention of seepage to the concrete. The consequences of seepage include the hassle and inconvenience to the daily life, degradation of structural integrity of the concrete slab and structures, growth of mold and mildew, and deterioration in indoor air quality due to increase dampness.

Pentens T-100 provide a better water and vapour proof in complicating application surface compare to membrane-type and ensure better integrity between applied surfaces and waterproofing coating.

## ► Pentens T-100 Technical Data

Elongation ASTM D412-98	Tensile Strength (kgf/cm <sup>2</sup> )ASTM D412-98	Tear Strength (kgf/cm <sup>2</sup> )CNS 6986	Puncture (kgf)ASTM E154	Chemical Resistance 10% HCOOH, 60°C, 24hrs
790%	20.90	11	1.6	No Changes on the surface of the sample



# TOILET SYSTEM

## Toilet Waterproofing Application

Primer	:	Pentens T-007
1 <sup>st</sup> Layer	:	Pentens T-305
2 <sup>nd</sup> Layer	:	Pentens T-305
1 <sup>st</sup> Layer	:	Pentens T-100
2 <sup>nd</sup> Layer	:	Pentens T-100
		TILE

## ■ PENTENS T-100 : Advantages

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ Easy application.
- ◆ High elasticity.
- ◆ Superb adhesive strength.
- ◆ Suitable in hot and humid tropical climate.
- ◆ Resistant to any bubbling or side osmosis.
- ◆ No phenomenon even submerges in water for a long time.
- ◆ Capable of re-application.
- ◆ Non-toxic.

## ■ Pentens T-100 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)

A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected

Volatile Organic Compounds  
(ISO 11890-2) (g/L)

Total Halogenated Organic Solvent (ISO 11890-2) (%)

Total Aromatic Organic Solvent (ISO 11890-2) (%)

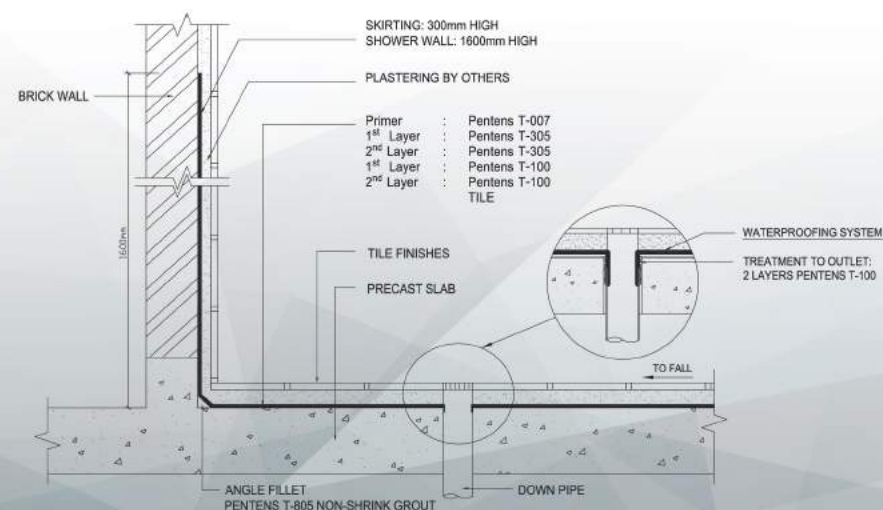
Epichlorohydrin (ISO 11890-2) (%)

N-Methyl Pyrrolidinone (ISO 11890-2) (%)

Formaldehyde (High Performance Liquid Chromatography) (%)

Alkyl Phenol Ethoxylate (LCMS-MS) (%)

Flash Point (ASTM D3828-07a) (°C)





# SWIMMING POOL SYSTEM

Swimming pools are constantly subject to water pressure. The waterproofing also needs to be able to cope with the pool chemicals. If not properly waterproofed, it will suffer from water damage such as cracking and flaking, and it will also be damaged by the pool chemicals used. Pentens T-100 waterproofing is the most preferred type of waterproofing for swimming pools. Pentens T-100 is a single component which is newly developed polymer of MMA, natural rubber, and polyurethane combines with the reaction with asphalt and then being modified and further emulsified to form elastic waterproof membrane. It is approximately that of outside shade.

## Pentens T-100 Technical Data

Elongation ASTM D412-98	Tensile Strength (kgf/cm <sup>2</sup> ) ASTM D412-98	Tear Strength (kgf/cm <sup>2</sup> ) CNS 6986	Puncture (kgf) ASTM E154	Chemical Resistance 10% HCOOH, 60°C, 24hrs
790%	20.90	11	1.6	No Changes on the surface of the sample



## PENTENS T-100 Advantages :

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ Easy application.
- ◆ High elasticity.
- ◆ Superb adhesive strength.
- ◆ Suitable in hot and humid tropical climate.
- ◆ Resistant to any bubbling or side osmosis.
- ◆ No phenomenon even submerges in water for a long time.
- ◆ Capable of re-application.
- ◆ Non-toxic.

## Swimming Pool Waterproofing Application

Primer	: Pentens T-007
1 <sup>st</sup> Layer	: Pentens T-305
2 <sup>nd</sup> Layer	: Pentens T-305
1 <sup>st</sup> Layer	: Pentens T-100
2 <sup>nd</sup> Layer	: Pentens T-100
TILE	

## Technical & Physical Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)

A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected

Volatile Organic Compounds  
(ISO 11890-2) (g/L)

Total Halogenated  
Organic Solvent (ISO 11890-2) (%)

Total Aromatic  
Organic Solvent (ISO 11890-2) (%)

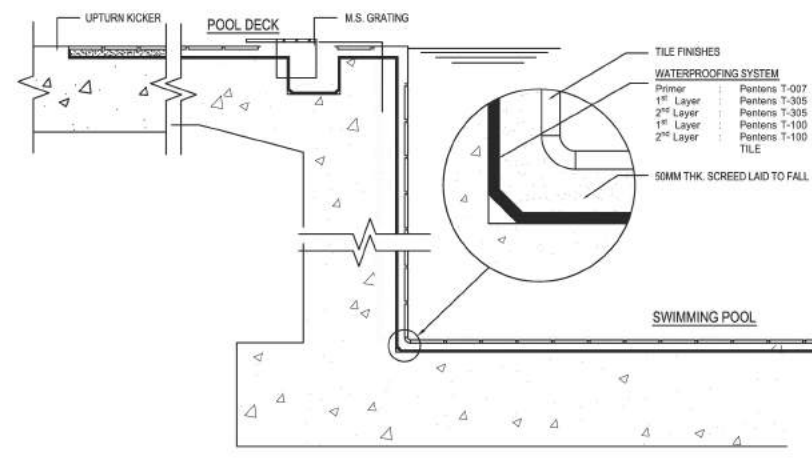
Epichlorohydrin  
(ISO 11890-2) (%)

N-Methyl Pyrrolidinone  
(ISO 11890-2) (%)

Formaldehyde  
(High Performance Liquid Chromatography) (%)

Alkyl Phenol Ethoxylate  
(LCMS-MS) (%)

Flash Point  
(ASTM D3828-07a) (°C)





# BASEMENT SYSTEM

**In basement construction**, excellent waterproofing is essential and the necessary water stops and membranes can be incorporated into the design. Double waterproofing system in basement become an alternative way for most architects and engineers as crystallization waterproofing limits to capillaries and minor shrinkage cracks up to 0.4mm. During construction, basement slab separate into two times casting, a layer of PENTENS T-100 Water-based PU Waterproofing Membrane is applied after the first casting as it provides additional protection layer against water seepage from underground.

## ► Pentens T-100 Technical Data

Elongation ASTM D412-98	Tensile Strength (kgf/cm <sup>2</sup> ) ASTM D 412-98	Tear Strength (kgf/cm <sup>2</sup> ) CNS 6986	Puncture (kgf) ASTM E154	Chemical Resistance 10% HCOOH, 60°C, 24hrs
790%	20.90	11	1.6	No Changes on the surface of the sample



## Retaining Wall Waterproofing Application

Primer	: Pentens T-007
1 <sup>st</sup> Layer	: Pentens T-305
2 <sup>nd</sup> Layer	: Pentens T-305
1 <sup>st</sup> Layer	: Pentens T-100
2 <sup>nd</sup> Layer	: Pentens T-100
Insulation layer	: Pentens PU 130

## PENTENS T-100 Advantages :

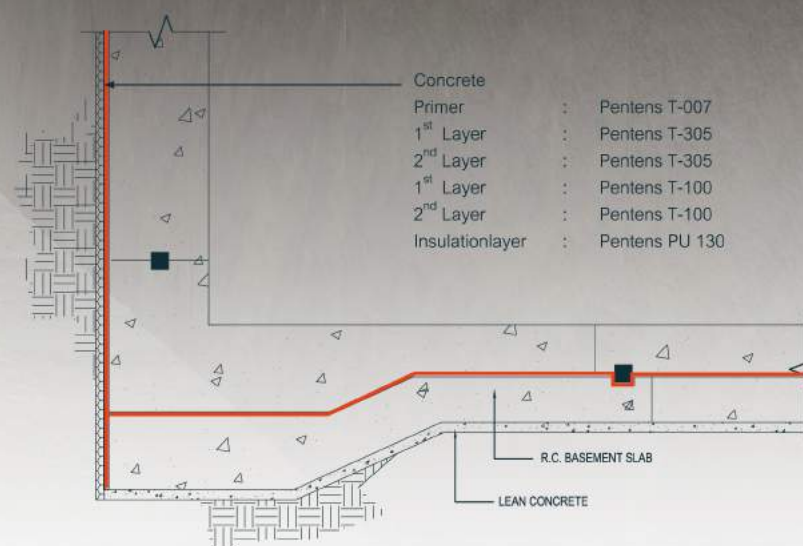
- Low VOC.
- Environmentally friendly.
- Easy application.
- High elasticity.
- Superb adhesive strength
- Suitable in hot and humid tropical climate.
- Resistant to any bubbling or side osmosis.
- Phenomenon even submerges in water for a long time.
- Capable of re-application.
- Non-toxic.

## PENTENS PU-130 Advantages :

- Greater structural integrity.
- Can be applied to damp surface.
- Multi-purpose for a wide range of building applications.
- Painted and plastered.
- Good adhesive to most construction surface, such as wood, brick, concrete, metal and many plastics.,

## Pentens T- 100 & Pentens PU-130 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)	
A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected
Volatile Organic Compounds (ISO 11890-2) (g/L)	
	0.53 (T-100) 17.67 (PU-130)
Total Halogenated Organic Solvent (ISO 11890-2) (%)	
	Not Detected
Total Aromatic Organic Solvent (ISO 11890-2) (%)	
	Not Detected
Epichlorohydrin (ISO 11890-2) (%)	
	Not Detected
N-Methyl Pyrrolidinone (ISO 11890-2) (%)	
	Not Detected
Formaldehyde (High Performance Liquid Chromatography) (%)	
	Not Detected
Alkyl Phenol Ethoxylate (LCMS-MS) (%)	
	Not Detected
Flash Point (ASTM D3828-07a) (°C)	
	>61





# WATER TANK SYSTEM



Environmentally friendly product

This application is for drinking and non-drinking water tanks either on new or old concrete. In both cases, the cement base products are ideal for this application. PENTENS SPU-1000 Cementitious waterproofing coating whereby could stand positive or negative pressure needs to be applied in order to protect the concrete and prevent any leakage of the contained liquid.

## ► Pentens SPU-1000 Technical Data

Elongation ASTM D412-06ae2 (%)	Tensile Strength (kgf/cm <sup>2</sup> ) ASTM D412-06	Tear Strength (kgf/cm <sup>2</sup> ) ASTM D624-00	Solid (%)	Pull-off Adhesive Strength (kgf/cm <sup>2</sup> ) ASTM D4541
>500	>150	>70	100	>20



# WATER TANK SYSTEM

## Step.1

### Water Tank Waterproofing Application

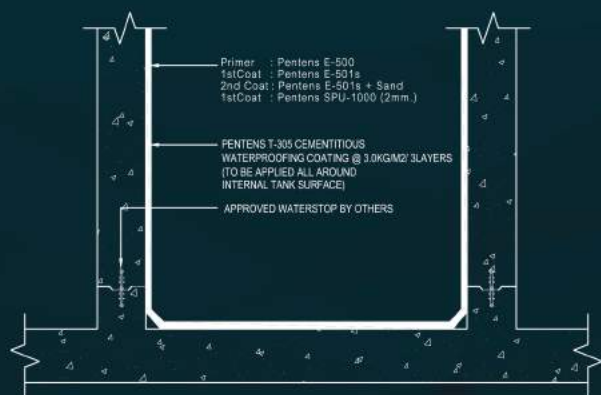
Primer	: Pentens E-500
1 <sup>st</sup> Coat	: Pentens E-501s
2 <sup>nd</sup> Coat	: Pentens E-501s + Sand
1 <sup>st</sup> Coat	: Pentens SPU-1000 (2mm.)

### PENTENS SPU-1000 Advantages :

- ◆ Low VOC.
- ◆ Environmentally friendly.
- ◆ High elasticity.
- ◆ Strong and tough, extremely high mechanical properties.
- ◆ Chemical resistance – very good resistance for wide range of industrial chemical.
- ◆ Hard wearing.
- ◆ Outstanding impact resistance.
- ◆ Non-skidded.
- ◆ Excellent bond strength to properly prepared substrates.
- ◆ No abnormality even submerges in water for a long time.
- ◆ Fast set return to service in minutes (Often second)
- ◆ Non-toxic.

### Pentens SPU-1000 Green Test Data

Heavy Metals : (EPA 3025 / EPA 6010B: ICP)	
A. Cadmium (d)	Not Detected
B. Lead (Pd)	Not Detected
C. Total Chromium (Cr)	Not Detected
D. Mercury (Hg)	Not Detected
Volatile Organic Compounds (ISO 11890-2) (g/L)	1.0
Total Halogenated Organic Solvent (ISO 11890-2) (%)	Not Detected
Total Halogenated Organic Solvent (ISO 11890-2) (%)	Not Detected
Total Aromatic Organic Solvent (ISO 11890-2) (%)	Not Detected
Epichlorohydrin (ISO 11890-2) (%)	Not Detected
N-Methyl Pyrrolidinone (ISO 11890-2) (%)	Not Detected
Formaldehyde (High Performance Liquid Chromatography) (%)	Not Detected
Alkyl Phenol Ethoxylate (LCMS-MS) (%)	Not Detected
Flash Point (ASTM D3828-07a) (°C)	>61



## Step.2

**PENTENS E-501LN Tank Lining Epoxy** is a 100% solids modified epoxy coating designed for high performance waterproofing, chemical resistance and traffic compatibility under a wide range of application and service conditions. PENTENS E-501LN features odorless application, "zero" VOC content, low viscosity and self-priming to concrete, steel, aluminum, ceramic tile\*, plywood, natural stone, glass\*, vinyl tile and many other substrates. (\*Note: Some glassy surfaces require use of adhesion-promoting additives.) Clear or a wide range of colors is available.

### Water Tank Waterproofing Application

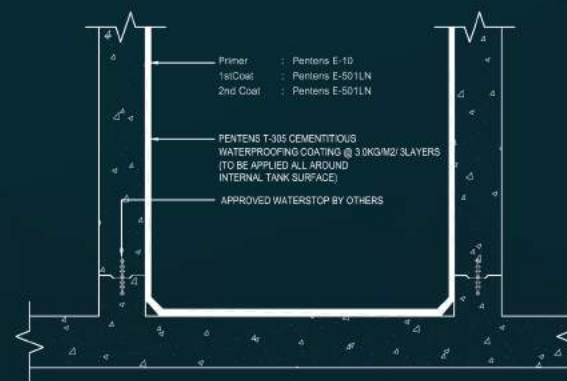
Primer	: Pentens E-10
1 <sup>st</sup> Coat	: Pentens E-501LN
2 <sup>nd</sup> Coat	: Pentens E-501LN

### PENTENS E-501LN Advantages :

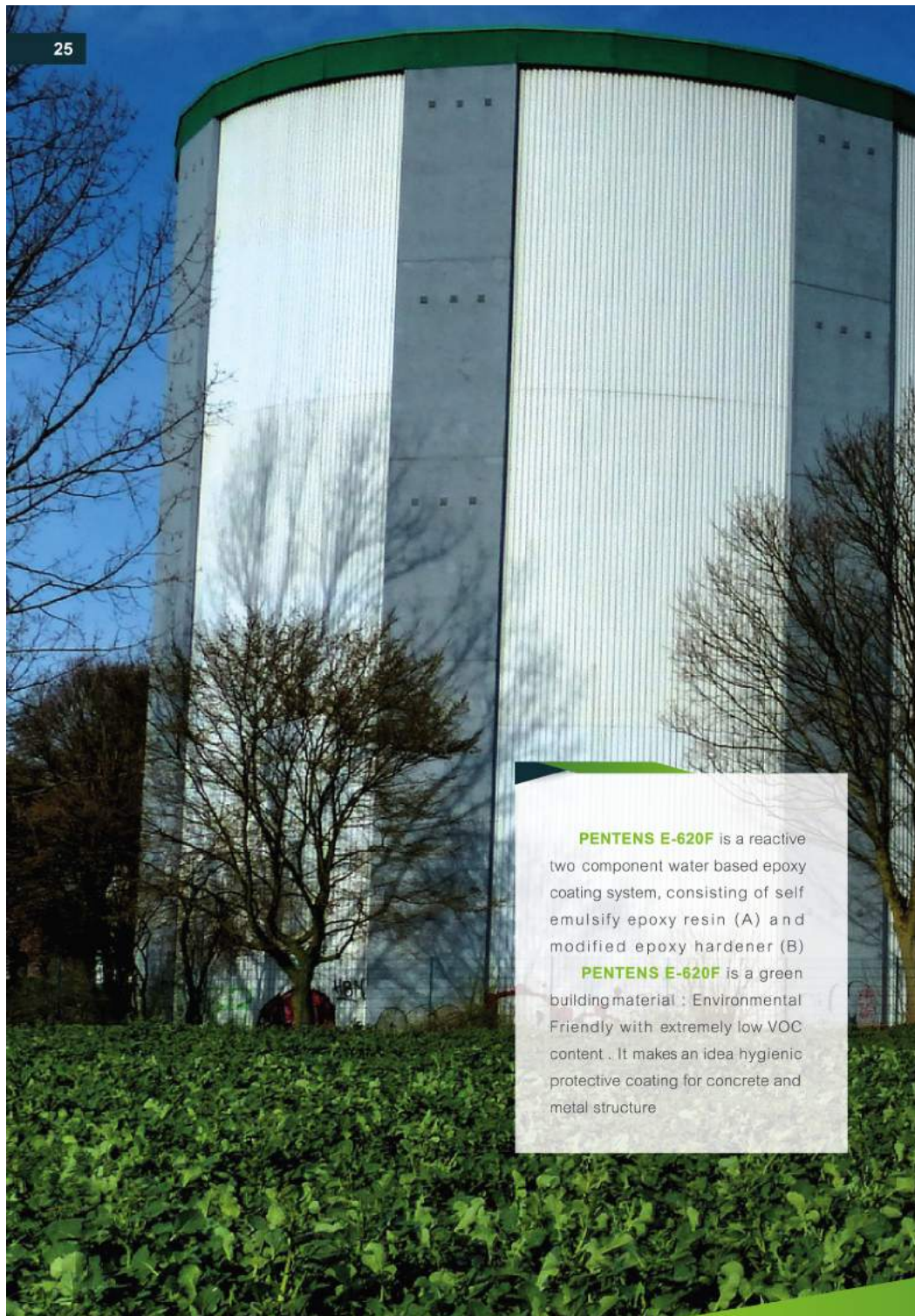
- ◆ Non-toxic.
- ◆ Odorless.
- ◆ High adhesive strength.
- ◆ Low viscosity.
- ◆ Good penetration.
- ◆ High mechanical and chemical

### Pentens E-501LN Green Test Data

Composition	100% Solids Modified Epoxy : "0" V.O.C.
Viscosity@ 25 °C	1110 cps (resin) 385 cps (hardener)
Tensile Strength	250 kgf/cm <sup>2</sup>
Elongation at break	9%
Adhesive strength	64 kgf/cm <sup>2</sup>
Compressive strength	640 kgf/cm <sup>2</sup>
Hardness (Shore D)	68
Pot life (15 kg set at 30 °C)	15 minutes
Consumption	As primer : 0.2 kg/m <sup>2</sup> Saturating coat : 0.3 kg/m <sup>2</sup> (Depends on the thickness of the fiberglass mat). Top coat : 0.3 - 0.4 g/m <sup>2</sup>
Curing time	~ Initial curing after 6 hours ~ Full cured 7 days
Shelf Life	1 year when unopened and undamaged
Storage Condition	Store in a dry cool place
Packaging	
A component	Pigmented : 22.5 kg/pail
B component	9 kg/pail







**PENTENS E-620F** is a reactive two component water based epoxy coating system, consisting of self emulsify epoxy resin (A) and modified epoxy hardener (B)

**PENTENS E-620F** is a green building material : Environmental Friendly with extremely low VOC content . It makes an idea hygienic protective coating for concrete and metal structure

## PENTENS E-620F

### Water-based Epoxy Coating

#### Pentens E-620F Advantages :

- ◆ NO ODOR AND LOW VOC : ENVIRONMENTAL FRIENDLY
- ◆ EXCELLENT WEAR AND IMPACT RESISTANT PROPERTIES.
- ◆ CAN APPLY ON DAMP SURFACE AND FRESHLY LAID GARDENED (GREEN CONCRETE) .
- ◆ NO RISK OF FIRE AND EXPLOSION.

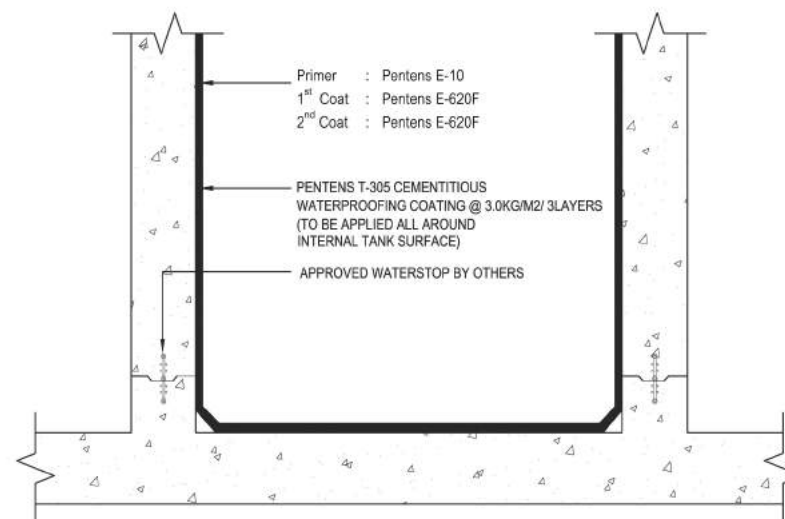
#### Tank Waterproofing Application

Primer : Pentens E-10  
 1<sup>st</sup> Coat : Pentens E-620F  
 2<sup>nd</sup> Coat : Pentens E-620F

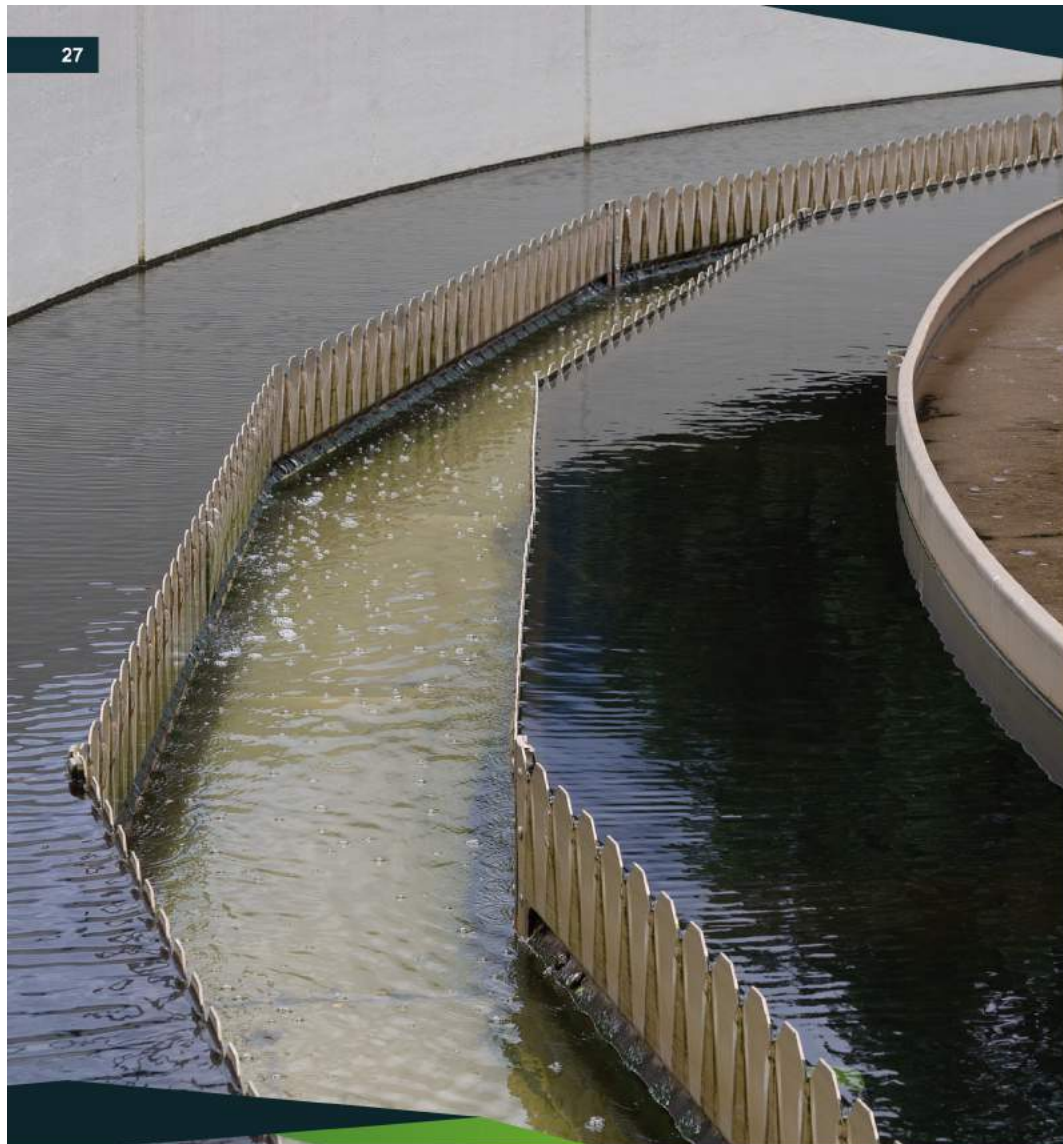
#### Pentens E-620F

##### Technical & Physical Data

Regular Color	Grey Green
Solid content	58%
Pot life (25° C)	20 minutes
Re-coat time	6 hours @25° C and 50% RH
Foot traffic	6 hours
Full Cure	7 days
Shelf Life & Storage	1 year at dry and cool place
Condition	cool place
Packaging	A : 20 kg/pail, B : 2 kg/pail







**PENTENS E-610CR** is a 100% solids, pigmented, two-component solvent free epoxy resin. It is highly resistant to acids, alkalis and a broad range of chemicals.

**PENTENS E-610CR** is ideal for use as a protective coating for concrete and steel in extremely corrosive areas where resistance to 99% Glacial acetic acid and 70% sulfuric acid or other strong caustics is needed.



Environmentally friendly product

## PENTENS E-610CR

High Performance, Chemical-resistant Epoxy Resin

### Pentens E-610CR Technical & Physical Data

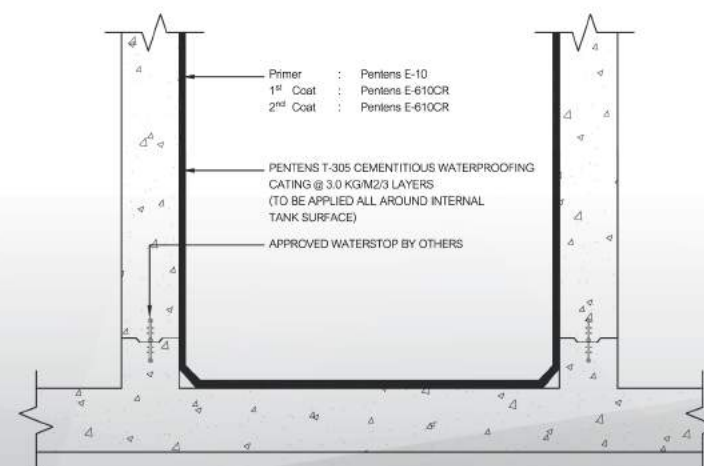
Color	Green, Yellow, Gray
Solid content	100%
VOC Content	0%
Pot life (25°C)	20 minutes
Consumption	
Coating 0.3 mm	0.40 kg/m <sup>2</sup>
Self-leveling 0.8 mm	1.0 kg/m <sup>2</sup>
Foot traffic	8 hours
Full cure	7 days
Hardness (Shore D)	85
Compressive strength	680 kg/m <sup>2</sup>
Abrasion resistance (CS-17)	30 mg
Adhesion to concrete	21 kg/m <sup>2</sup> (100% Concrete failure)
Shelf Life & Storage	1 year at dry and cool place
Packaging	
E-610CR A	12.5 kg pail
E-610CR B	5.0 kg pail

### Tank Waterproofing Application

Primer	:	Pentens E-10
1 <sup>st</sup> Coat	:	Pentens E-610CR
2 <sup>nd</sup> Coat	:	Pentens E-610CR

### Pentens E601CR Advantages :

- ◆ Exhibits excellent resistance to strong acids, alkalis, and most industrial chemicals and solvents.
- ◆ High mechanical loading capacity.
- ◆ Solvent free





# EPOXY FLOORING SYSTEM

- ◆ PRODUCTION AND WAREHOUSE OF FOOD INDUSTRY.
- ◆ CLEANING ROOM OF ELECTRIC INDUSTRY.
- ◆ PROTECTIVE COATING OF CHEMICAL PLANTS.
- ◆ SECONDARY CONTAINMENT AREAS.
- ◆ PROTECTIVE COATING OF WASTE TREATMENT.
- ◆ GAS AND ELECTRIC UTILITIES.
- ◆ HYGIENIC COATING OF HOSPITAL.
- ◆ WEAR RESISTANCE COATING OF CAR PARK.



Environmentally friendly product



## PENTENS E-601

### Self-Leveling Epoxy Top Coat

#### Epoxy Flooring Application

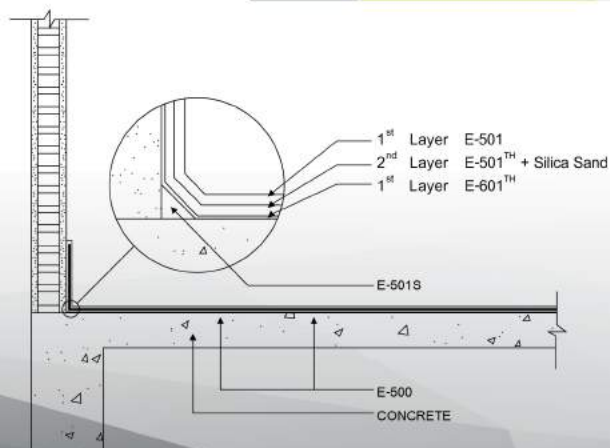
- 1<sup>st</sup> Layer : Pentens E-501
- 2<sup>nd</sup> Layer : Pentens E-501 + Silica Sand
- 1<sup>st</sup> Layer : Pentens E-601

#### Pentens E-601 Advantages :

- ◆ Solvent free.
- ◆ Excellent wear and impact resistant properties
- ◆ Impervious to liquids and excellent resistant to chemicals
- ◆ Easy application.
- ◆ High strength.
- ◆ Varying degree of anti-skid finish available.
- ◆ USDA approved
- ◆ Protects and beautifies
- ◆ Aesthetics
- ◆ High mechanical.
- ◆ Short waiting times.
- ◆ Easy to maintain
- ◆ Design application to fit budget

#### Technical & Physical Data

Form	Liquid
Specific Gravity	1.3
Flexural Strength (N/mm <sup>2</sup> )	32
(ASTM C 580)	
Tensile Strength (N/mm <sup>2</sup> )	40
(ASTM C 307)	
Elongation at break (%)	9
(ASTM D 638)	
Compressive Strength	>75
(N/mm <sup>2</sup> ) (ASTM C 579 : 93)	
Abrasion Resistance CS-17	10 mg weight loss after
(ASTM D 4060)	1000 cycles of abrasion
Tensile Adhesion (Pull-out-Strength) (ASTM D4541)	3.5 N/mm <sup>2</sup>
	Failure in concrete
Pot life (25°C)	20 minutes
Shelf Life & Storage	Have a shelf life of 1 year
Condition	at dry and cool place
Packaging	
E-601A	20 kg pail
E-601B	5 kg pail



## PENTENS E-620F

### Water-based Epoxy Coating

PENTENS E-620F is a reactive two component water based epoxy coating system, consisting of self emulsify epoxy resin (A) and modified epoxy hardener (B)

PENTENS E-620F is a green building material : Environmental Friendly with extremely low VOC content . It makes an idea hygienic protective coating for concrete and metal structure .

#### Epoxy Flooring Application

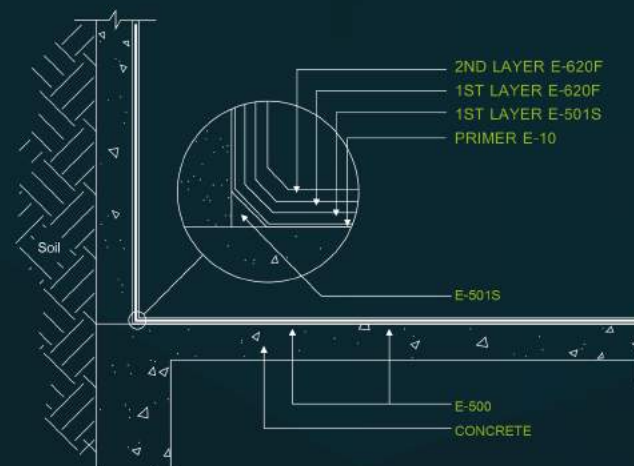
- Primer : Pentens E-10
- 1<sup>st</sup> Coat : Pentens E-501S
- 1<sup>st</sup> Coat : Pentens E-620F
- 2<sup>nd</sup> Coat : Pentens E-620F

#### Technical & Physical Data

Regular Color	Grey Green
Solid Content	58%
Pot life (25°C)	20 minutes
Re-coat time	6 hours @ 25°C and 50% RH
Foot traffic	6 hours
Full Cure	7 day
Shelf Life & Storage	1 year at dry and
Condition	cool place
Packaging	A : 20 kg/pail, B : 2 kg/pail

#### Pentens E-620F Advantages :

- ◆ No odor and Low VOC : Environmental Friendly
- ◆ Excellent wear and impact resistant properties.
- ◆ No risk of Fire and Explosion.



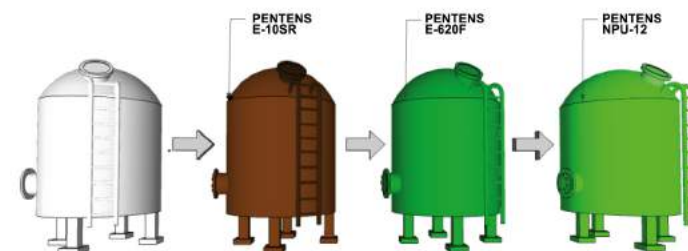


# Anti-corrosive System



Environmentally friendly product

Suitable for indoor and outdoor tin boards, iron fittings, oil sumps, bridges, ships, pipes, factory facilities.



**Pentens E-10SR** is combine by hydrophilic epoxy resin , water, zinc phosphate, and iron oxide pigment. Zero organic solvents in the material will reduce the health damage of workers and protect our environment.

## Pentens E-10SR Advantages :

- ◆ Apply at low temperature
- ◆ Good adhesion
- ◆ Excellent adhesion to most substrates including brick, masonry, concrete, compressed fiberboard, stone and timber
- ◆ Easy to apply
- ◆ Low viscosity
- ◆ Negligible odor and toxicity
- ◆ Applied to damp surface

**Pentens NPU-12E** is a nanotechnology based polyurethane coating of finest quality, durable, water repellent, fungus/algae/bacteria resistant, UV resistant, scratch resistant, anti-corrosive sealer, primer & finish for a wide variety of exterior and interior surfaces.

## Pentens NPU-12E Advantages :

- ◆ Outstanding adhesion
- ◆ High resistance to weathering and blistering
- ◆ Self-cleaning
- ◆ Excellent color retention
- ◆ Zero VOC
- ◆ Additional features like termite-free, stain resistant and anti-sticking.
- ◆ Easy clean-up using water

## Technical & Physical Data

Appearance (mixed)	Brushable/ rollable/ sprayable uniform liquid in color
Finish	Semi-gloss
Pot life @ 25°C	45-60 minutes
Re-coat time	6 hours @ 25°C and 50% RH
Full cure @ 25°C	3 days
Dry film thickness	300 um (microns)
Viscosity (Brookfield LVF, 30 rpm, 25°C)	1100 cps
Drying Time (Touch dry)	4 hours
Pliability (Ø 3mm)	Unaffected
Water resistance in 100% Relative Humidity, 24 hours	Unaffected
Chemical resistance (5w/v% H <sub>2</sub> SO <sub>4</sub> / 24 hours)	Unaffected
Heating residue	65%
Light exposure (Fluorescent UV-Condensation Light)	Unaffected
Consumption	Approx. 0.2 kg/m <sup>2</sup>
Self life	12 months when unopened/ damaged
Storage condition	Store in a dry cool place
Packaging	NPU-12E A : 10 kg/ pail NPU-12E B : 1 kg/ pail



# Sport Flooring System

**PENTENS T-250** is suitable for application on the following surfaces :



Environmentally friendly product

## **PENTENS T-250** Colorful Wear-resistant Surface Coating

**PENTENS T-250** colorful wear-resistant surface coating is a specially formulated waterborne styrene-butadiene emulsion for both exterior and interior use. As a decorative and protective finish, PENTENS T-250 has outstanding durability. When applied correctly to a suitable backing, it will neither flake nor peel. What makes PENTENS T-250 durable is an acrylic-based resin and selected pigments to which are added mica, hollow ceramics, and fine hard aggregates, to ensure long life. PENTENS T-250 also contains a biocide which combats bacterial and fungus growth.

### **Sport Flooring Application :**

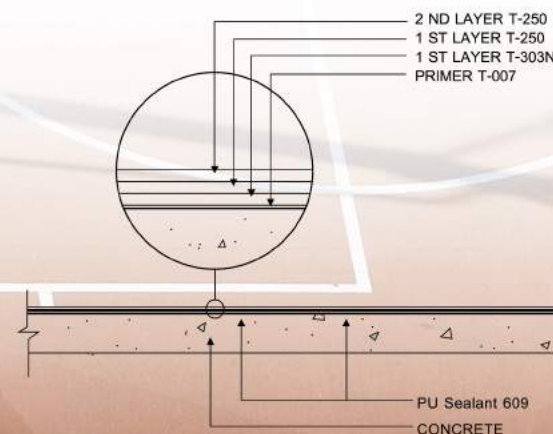
Primer	:	Pentens T-007
1 <sup>st</sup> Layer	:	Pentens T-303N
2 <sup>nd</sup> Layer	:	Pentens T-250
3 <sup>rd</sup> Layer	:	Pentens T-250

### **Technical & Physical Data**

Form	Liquid
Colour	Red, White, Green, Blue (Other refer to color chart)
Resin	Acrylic
Solid content	>60% by weight
QUV Accelerated Weathering	No cracking
Curing Time	12 hours
Application Temperature	5°C to 50°C

### **Pentens T-250 Advantages :**

- ◆ Wear-resistance.
- ◆ Heat resistance-thick application
- ◆ Vapor barrier
- ◆ Resistance to pollution attack-ideal for industrial and coastal areas.
- ◆ Good mechanical and chemical stability.
- ◆ Water based, environment friendly
- ◆ Air and UV protection
- ◆ Non-toxic.
- ◆ Prevention of ravages of acid rain, freeze-thaw, cycles, sunlight, bacteria and fungus.





# PROJECT REFERENCE



Rangsit  
University



Fuse Chan  
Sathorn



Oriental Residence  
Bangkok



A space  
condo



King Chulalongkorn  
Memorial Hospital



Terminal 21



Dvaree Jomtien  
Beach 11





# PROJECT REFERENCE





Royal Garden  
Plaza



King Mongkut's University  
Of Technology North Bangkok



PTT  
Public Company Limited



The Sukhothai  
Bangkok



The Sukosol  
Bangkok

# PROJECT REFERENCE



Somdej Phranangchaosirikit  
Hospital



Village Kunalai



Thanachart  
Bank



Ministry of Public  
Health



Tobacco Monopoly  
Hospital



Bangpakok9 International  
Hospital



Siriraj  
Hospital



# CERTIFICATE

**GREEN WATERPROOFING SYSTEM**  
**ECO-BUILDING MATERIAL**

# Pentens®

Green Waterproofing, Leader in Asia



Environmentally friendly product



[www.pentensthailand.com](http://www.pentensthailand.com)



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