

## Contite® HPWM

### WATERPROOFING MEMBRANE FOR UNDERGROUND STRUCTURES

#### DESCRIPTION

**Contite HPWM** is a single component high performance flexible waterproofing membrane based on EVA for the protection of various structures including tunnels, underground stations, shafts, caverns, etc.

Complies to EN1504 Part 9 and EN1504 Part 2

- Principle 1 : Protection Against Ingress (PI).  
Method 1.3 - Surface Coating.  
Method 1.8 - Application of Membranes.
- Principle 2 : Moisture Control. (MC)  
Method 2.3 - Surface Coating.
- Principle 8 : Increasing Resistivity (IR).  
Method 8.3 - Overlays or Coatings.

#### USES & ADVANTAGES

**Contite HPWM** may be applied to number of substrates and especially where sandwiched between two layers of structural concrete including:

- Basements
- Shotcrete tunnel and cavern linings
- Diaphragm wall and piles
- Mining.
- Water retaining structures

#### Advantages include:-

- Protecting concrete against aggressive ground waters.
- Very easy to install in big areas by spray especially to difficult surfaces.
- No fixing or anchoring required as spray applied
- No seams or joints.
- Very fast curing time from 2-3 hours depending on temperatures and humidity.
- Can be applied over concrete within 24 hours unlike other conventional waterproofers that require 28 days & dry surface.
- Excellent crack bridging properties and elongation.
- Connect to other waterproofing systems easily.
- No undercutting, easy to repair and difficult to damage.
- Fully bonded.
- Can overcoat within 24 hours. Excellent adhesion to concrete and steel.
- Hard wearing suitable for application over shotcrete containing steel fibres.
- Non flammable.
- Resistant to salt bearing ground waters.
- Chemical resistant.
- Life of material permanent when sandwiched between concrete linings.

#### Advantages over sheet membrane:-

- Easy to handle and apply over various complex shapes/areas without any problem.
- Rate of application is higher and quick as mentioned below :
  - Approx. 45 - 95 m<sup>2</sup>/hr with the use of approx. 3 workers.
  - Approx. 160-170 m<sup>2</sup>/hr with the use of robotic equipment and spray application.

- Spray application can be done continuously and consistently without the need to use any waterstops in between the section nor division of sections is required.
- Rock bolts/anchor bolts used in tunnels can be easily coated & protected from corrosion by spray application.

#### PROPERTIES

<b>Appearance:</b>	Light grey & orange powder (other colours available)
<b>SG:</b>	Approx.550-650 gm/litre
<b>Application Thickness:</b>	2-6 mm
<b>Elongation:</b>	≥150%
<b>ASTM D412</b>	
<b>Waterproof Penetration:</b>	Zero
<b>BS EN 12390-8:2000</b>	
<b>Bond strength to Concrete:</b>	>1.5N/mm <sup>2</sup>
<b>BS EN ISO 4624:2003/ASTM D4541</b>	
<b>Bond Strength to Steel:</b>	>2Nmm <sup>2</sup>
<b>BS EN ISO 4624:2003/ASTM D4541</b>	
<b>Crack Bridging Ability:</b>	>2.5 mm when applied at correct thickness BS EN 1062-7; 2004 Class A
<b>Water Content:</b>	35 to 55 % by weight
<b>Non Flammable:</b>	Class E.
<b>BS EN ISO 13501-1</b>	
<b>BS EN ISO 11925-2</b>	
<b>Chemical Resistance:</b>	Complies with BSEN 14414 Method A
<b>Resistance to Leaching:</b>	Complies with BSEN 14415 Method A & B
<b>Fire Resistance:</b>	Non ignitable
<b>BS EN ISO 11925-2</b>	

Test results above are based on Laboratory conditions.

#### COVERAGE RATE

Approx. 1.2 kg - 3.6 kg /m<sup>2</sup> for 2 - 6 mm thickness. Apply in multiple layers up to a max of 2 mm per layer may build up to 6 mm.

#### SUBSTRATE PREPARATION

Ensure the surfaces to be coated are clean and sound, free from dust, laitance, curing compounds, grease, dirt, oil or other surface contaminants. Repair damaged surfaces or honey combed concrete with **Conpatch 600MCI** or other appropriate repair material from Cormix.

Surfaces should be damp, porous surfaces saturated before application, do not have running or standing water present.

In the case of cracks consult Cormix for treatment methodology.

Static cracks can be routed out and repaired with **Conpatch 600MCI** or **Contite Seal Mortar**. Moving cracks should be treated via injection with **Contite PUE200/201** polyurethane resin.

If water is running either drain away or plug using a suitable product from Cormix.

# Contite® HPWM

## WATERPROOFING MEMBRANE FOR UNDERGROUND STRUCTURES

### APPLICATION

**Contite HPWM** can be applied using a Robotic Spray Equipment such as Rotor Shotcreting Machine along with compressed air setup to feed the **Contite HPWM** through a Hose with 32 mm diameter, whereas water is mixed with **Contite HPWM** at the Nozzle.

The equipment details required are as mentioned below:

#### SHOTCRETE MACHINE

- Rotor shotcreting machine with rotor having 12 round holes. Each round hole is 90 mm high.
- The base of rotor with 90 mm coupling.
- The dust collector of rotor with 90 mm high coupling.
- The diameter of spraying nozzle = 32 mm, with approximately 16 to 18 water ring holes.
- The diameter of spraying hose = 32 mm.

#### Water Additions

**Contite HPWM** can be sprayed by adding water at the nozzle. The water additions should be between 35% to 55% by weight.

### QUALITY CONTROL

Quality Control for checking thickness of applied membrane can be done as below :

- 1) Using wet film depth gauge, regular checking of wet film thickness can be done for applied membrane at various spots.
- 2) After application: cut out small patches of membrane in the form of square (5 x 5 cm) & check for thickness.

### CURING

The material is tack free in 2-3 hours.  
It may be over coated after 24 hours with concrete / shotcrete.

### CLEANING

The Spray Equipment & the product carrying lines should be cleaned using Compressed air.  
The Nozzle should be cleaned with water.

### PACKAGING

15 KG bag or according to customer requirements.

### STORAGE & SHELF LIFE

The shelf life is 12 months if unopened, stored free from frost, moisture and direct sunlight.

### HEALTH & SAFETY

**Contite HPWM** is non-toxic but is alkaline in its nature. When applying gloves & goggles should be worn. Wash off splashes to skin with water. If in eyes wash out with plenty of clean water and seek medical attention. **Contite HPWM** is non-flammable. MSDS is available from Cormix.

### TECHNICAL SERVICE

The Cormix International Technical Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

### QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.  
ISO 14001 : 2015 verified by Lloyd's Register International.

### DISCLAIMER

Performance data is achieved testing in accordance with International Standards. Testing by others may result in different results from those published as a result of external factors such as poor sampling, incorrect mixing, varying temperatures, curing, crushing procedures etc. Cormix does not take responsibility nor need to defend others testing that does not achieve the published data. The user must test the products suitability for the intended application and purpose. Cormix reserves the right to change the properties of the product. Site conditions and differences in materials are such that no warranty or fitness for a particular purpose, nor liability can be inferred from the published data sheet, written recommendations or from other advise offered.

### CONTACT DETAILS

**Cormix International Limited**  
89 Romkloa Rd., Sansab, Minburi, Bangkok 10510  
Tel. (66 2) 917 3955-8  
Website: <http://www.cormix.com>  
Email Address: [info@cormix.com](mailto:info@cormix.com)