

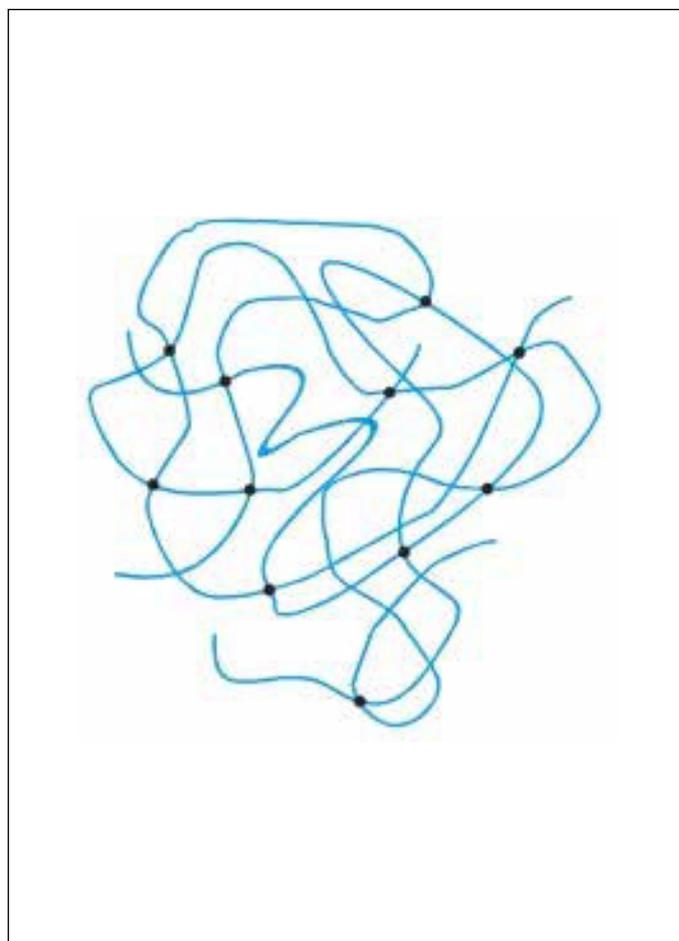
**Water-expanding rubber based on polyurethane,**

## DESCRIPTION

UniSwellAble is a Hydrophilic Swellable Water Bar, self-expanding waterstops are a proven valuable solution for concrete and construction industries, providing an efficient solution for sealing construction joints. Even after repeated wet-dry cycles, UniSwellAble Pro maintains a perfect seal thanks to its high rubber content. UniSwellAble Pro is also far less susceptible to washing out than traditional bentonite seals

## PROPERTIES

UNITECH WaterStop is designed for use in any concrete structure UniSwellAble is a water-expanding rubber based on polyurethane, which is available is several different types. UniSwellAble is used for sealing purposes in civil engineering, structural engineering as well as tunneling. It has the distinction of a three dimensional polymer structure, which is build up from unstructured polyurethane chains (macromolecules). The elastomeric features arise due to the weak cross linkage of the polymer chains. The swelling ability happens due to hydrophilic polymer resins, which can expand in contact with water up to approx. 450 % in volume. In order to avoid an early mechanical loading of surrounding fresh concrete by excessive swelling pressure the swelling process is slow and controlled (see volumetric expansion process). UniSwellAble is used for sealing of construction joints, pipe penetrations and precast concrete elements such as shaft rings, tubings etc..

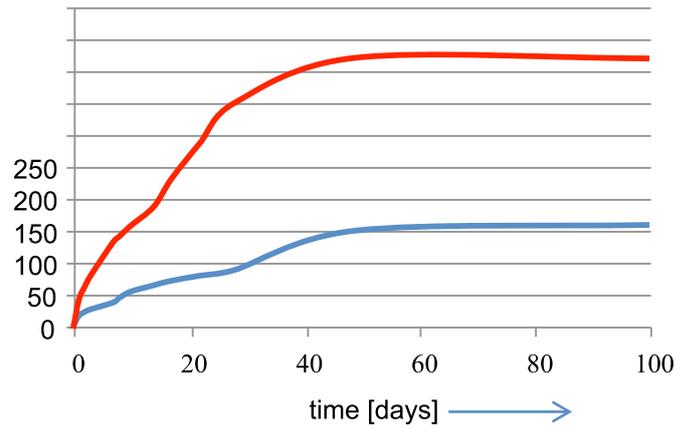


## TECHNICAL DATA

Rubber type	sponge rubber	
Material basis	polyurethane	
Colour Spec. density [20°C]	blue (other colours on request) approx. 0.7 g/cm <sup>3</sup>	
Profile types	rectangle and box profiles	
Dimensions	10 x 20, 10 x 25, 20 x 20, 20 x 25, 30 x 30 mm	
Shore A hardness	approx. 25	DIN ISO 7619-1
E-modulus	approx. 0.9 MPa	DIN EN ISO 527
Tensile strength	approx. 0.4 MPa	DIN EN ISO 527
Elongation at break	approx. 90 %	DIN EN ISO 527
Water absorbtion		DIN EN ISO 62
tap water	approx. 450 Vol.%	
4 % salt water	approx. 160 Vol.%	

**VOLUMETRIC EXPANSION PROCESS**

volumetric increase [%]



red graph = swelling in neutral drinking water (tap water)

blue graph = swelling in 4 % sea water (Persian Gulf)

Chemical resistance DIN EN ISO 175

Classification:

+ resistant (non or little effect)

+/- limited resistant (moderate effect)

- not resistant (serious effect)

Chemical compound	Classification	Remarks
Benzyl alcohol	+/-	resistant for 72 h
Ethyl acetate	+	accelerated expansion
Sea water 12 %	+	
Sea water 25 %	+	
Sulfuric acid 96 %	-	
Petrol	+	
Diesel fuel	+	
Kerosine, Jet fuel (Jet A1)	+	
Mineral oil 15W40	+	
"sewage, liquid manure, silage effluent"	+	
o-Xylene	+	accelerated expansion
m-Xylene	+	accelerated expansion
Toluene	+	accelerated expansion
Ethylene glycol	+	
Acetone	+	strong accelerated expansion
Ethanol	+	
Methanol	+	
Ammoniac solution 32 %	+	
Sodium hydroxide solution 10%	+	
2-Butoxyethanol	+	
n-Hexane	+	
Acetic acid 96 %	+	accelerated expansion