

Product Data Sheet

CasTech Swell PU

Nov-2025, Ver. 01.01



Water-Expanding Polyurethane Sealing Strip

DESCRIPTION

CasTech Swell PU is a hydrophilic, water-expanding sealing strip based on a specially formulated polyurethane. Its three-dimensional polymer structure, built from unstructured chains with weak cross-linkage, provides elastomeric properties. On contact with water, the hydrophilic resins cause it to expand volumetrically up to approximately 450% in a slow and controlled manner, generating lasting swelling pressure to seal joints effectively without exerting excessive force on surrounding fresh concrete.

TYPICAL USES

- Sealing construction joints in concrete structures (walls, slabs, tunnels)
- Sealing pipe penetrations and service openings through concrete
- Gaskets for precast elements such as segmental linings (tubbings), manhole rings and concrete pipes
- Waterproofing expansion joints in civil and structural engineering projects

ADVANTAGES

Characteristics and advantages:

- Controlled expansion – slow-reacting swelling prevents damage to fresh concrete from early loading
- High expansion capacity – up to 450% in fresh water and 160% in salt water
- Excellent chemical resistance – sea water, fuels, oils and mild acids/bases
- Easy installation – nailed or adhered to the substrate; supplied in manageable rolls
- Versatile – construction joints, pipe penetrations and precast elements
- Flexible – conforms easily to uneven surfaces and complex joint geometries

TECHNICAL SPECIFICATION

Material Basis	Polyurethane
Type	Sponge rubber
Colour (Visual)	Blue (other colours on request)
Specific Density (20°C)	~ 0.7 g/cm ³
Standard Profiles (W × H)	10×20, 10×25, 20×20, 20×25, 30×30 mm
Shore A Hardness (DIN ISO 7619-1)	~ 25
Tensile Strength (DIN EN ISO 527)	~ 0.4 MPa
Elongation at Break (DIN EN ISO 527)	~ 90%
E-Modulus (DIN EN ISO 527)	~ 0.9 MPa
Water Absorption, Tap Water (DIN EN ISO 62)	~ 450% by volume
Water Absorption, 4% Salt Water (DIN EN ISO 62)	~ 160% by volume

In accordance with the standard, 5 – 10% variation is expected.

CHEMICAL RESISTANCE

Resistant: sea water, petrol, diesel, kerosene, mineral oil, sewage, xylene, toluene, acetone*, ethanol, methanol, sodium hydroxide (10%), ammonia solution (32%), ethylene glycol.

Limited resistance: benzyl alcohol (72 h). **Not resistant:** sulphuric acid (96%).

*Acetone and some solvents cause accelerated expansion.

APPLICATION INSTRUCTIONS

Surface preparation: substrates must be sound and free from loose particles. Smooth rough surfaces before installation to ensure full contact. The substrate can be damp but not saturated with free water.

Construction joints: place the profile in the centre of the reinforcement, or at least 10 cm from the concrete faces. Nail or glue it to the substrate to prevent displacement during concreting, and secure joints and laps.

Timing and weather protection: install in dry conditions where possible. Due to its slow reaction, **CasTech Swell PU** can be exposed unprotected to wet weather for a maximum of 2 – 3 days before concreting. For longer exposure or wet conditions, coat the profile with a protective sealant to prevent premature swelling for up to 7 days.

Precast elements: create a notch for the profile, and choose a profile size so that assembling the elements pre-stresses the seal.

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PACKAGING

Supplied in 5 m rolls packed in cartons:

- 10×20, 10×25, 20×20, 20×25 mm: 50 m per carton (10 rolls)
- 30×30 mm: 25 m per carton (5 rolls)

STORAGE AND SHELF LIFE

Minimum 12 months from the date of manufacture in original packaging in a dry, cool place (15 – 25°C), protected from heat, frost and direct sunlight.

HEALTH AND SAFETY

CasTech Swell PU is a non-flammable material (Building Material Class B2 per DIN 4102-1). No special safety measures are required under normal conditions.

Disposal: small quantities can be disposed of as normal domestic waste; larger quantities in accordance with local regulations.

Additional information: Refer to the Safety Data Sheet (available on request).

TECHNICAL SUPPORT

CasTech provides on-site assistance and consulting services on projects when requested. Technical data sheets on other CasTech products and guidance on their use are available on request.

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