

# RASCOflex PU309L

## POLYURETHANE INJECTION MATERIAL

### POLYURETHANE INJECTION PRODUCTS

All RASCOflex polyurethanes in the PU309 series are solvent-free, 2-component, polyol- and isocyanate-based injection resins. All products undergo strict material tests, with particular priority given to their environmental compatibility.

The RASCOflex polyurethanes in the PU309 series excel by their high versatility and wide-ranging applications. The individual products in the series vary in terms of their standard preset gel time, foaming behaviour or thixotropic properties. To maximize flexibility on site and efficiently accommodate the constantly changing injection conditions, all standard RASCOflex PU309 products can be modified by additives, even during the injection works. It is thanks to this modularity that the RASCOflex PU309 series has evolved into a truly all-round system.

All products in the RASCOflex PU309 series are formulated so as to foam upon contact with water and thereby quickly halt the water flow. The polyurethane grout injected behind this then gels, without any contact with water, into a compact polyurethane mass. In its non-foamed state, the cured polyurethane body is rigid and tough-elastic.

### USE

The key feature of RASCOflex PU309L L (L = "slow") is its long gel time. This property allows the achievement of long injection distances or the controlled application of slow injection procedures.

RASCOflex PU309L is suitable for the waterproofing and consolidation of dry to water-bearing soft ground, rock, concrete and masonry etc. Its long gel times, controlled viscosity and reaction behaviour upon contact with water make it ideal for waterproofing in case of low water flow speeds, both above water and under-water. Applications include the consolidation and waterproofing of porous concrete, masonry, rock and soft ground as well as structural, waterproof filling of cracks, joints and voids.

### FEATURES

- high ground permeation
- long gel time
- suitable for long injection distances
- foaming of material limited to area of water contact, with material behind this forming compact, tough-elastic PU mass
- in absence of water: no foaming; material cures to resin with very high compressive strengths
- use of accelerator allows fine adjustment of gel time
- tough-elastic filling of cracks, voids, interstices and defects
- injectable as 1- or 2-component grout



Further product info



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RASCOR

**RASCOR International Ltd.**  
Gewerbestrasse 4  
CH-8162 Steinmaur / Switzerland  
Phone: +41 (0) 44 857 11 11  
www.rascor.com  
info@rascor.com

**RASCOR Construction Chemicals GmbH**  
Ratsgasse 6  
D-97688 Bad Kissingen / Germany  
Phone: +49 (0) 971 130 27 38  
www.rascor.com  
badkissingen@rascor.com

LEGAL NOTICE: The information provided on the use and application of our products in this technical data sheet is based on the present state of our knowledge. The customer shall bear sole responsibility for the proper specification, application and use of the products in line with the intended purpose, project-specific conditions and external actions. The most recent technical data sheet shall apply. The current technical data sheets are available at www.rascor.com. Our General Terms of Business shall form an integral part of this technical data sheet.

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## TECHNICAL/PHYSICAL DATA

	A-Comp Base component	B-Comp Base component
Supplied form	liquid	liquid
Material colour	slightly yellowish	brown
Container type	canister	canister
Standard container size *	19.8 ltr / 20.0 kg	19.8 ltr / 24.3 kg
Density (DIN EN ISO 2811)	1.01 kg/ltr (± 0.03)	1.23 kg/l (± 0.04)
Hazardous goods/ADR	none	none

\*Filling is controlled by weight balance. Volume details are indicative only and vary with temperature fluctuations.

### Mix (ready-to-use)

Mixing ratio	1:1 (by volume)
Setting time at 20 °C	approx. 50 min
Tensile bond strength (DIN EN 12618-2)	approx. 3.7 N/mm <sup>2</sup>
Flexural tensile strength (DIN EN 196-1)	approx. 17.7 N/mm <sup>2</sup>
Tensile strength (DIN EN ISO 527-3)	approx. 44.2 N/mm <sup>2</sup>
Compressive strength (DIN EN 196-1)	approx. 62 N/mm <sup>2</sup>
Application temperature	from +5 °C to +40 °C
Storage/shelf life	12 months, in original container at +10 °C to +25 °C, in dry conditions

The technical details are based on laboratory values from external and/or internal laboratory tests. These details are for information purposes only. The exact product values and their tolerances (e.g. temperature fluctuations ± 2 °C) are verified and approved on the basis of the test guidelines.

## APPROVALS

- EN 1504-5 System 4
- REACH-assessed exposure scenarios: water contact, periodic inhalation, application
- REACH-tested raw materials, classed as harmless

## EXPERT REPORTS

- Impact on groundwater hygiene in accordance with DIBt (German Institute for Construction Technology) guidance paper, Institute of Environmental Hygiene and Environmental Medicine, Gelsenkirchen, Germany
- Compatibility with polymers to DIN EN 12637-3, MFPA Leipzig, Germany
- Flexural tensile and compressive strength, University of Duisburg-Essen, Germany
- Model environmental product declaration available

## SUPPLY/ADDITIVES

Item no.	Product	Container	Contents
1401.6311.001	RASCOflex PU309L canister set	set	44,3 kg
1101.6311.001	RASCOflex PU309L A-Comp	canister	20 kg
1101.6391.001	RASCOflex PU309 B-Comp	canister	24,3 kg
1101.6911.001	RASCOflex PU-AC	canister	5 kg
1101.6921.001	RASCOflex PU-THIX	canister	5 kg
1101.6931.001	RASCOflex PU-FO	canister	5 kg

Grouting machines, equipment and accessories available on request

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CH-8162 Steinmaur / Switzerland  
Phone: +41 (0)44 857 11 11

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## APPLICATION/PREPARATION

The A and B components are supplied in the correct, ready-to-use volumetric proportions. Grouting is performed using a 2-component injection pump. The components are separately fed, in the ratio 1:1 by volume, to a static mixer located immediately upstream of the injection point. The mixed components react to form a solid polyurethane resin mass. The long setting time means that the material can also be injected as a ready-prepared, 1-component mix.

## GENERAL GUIDELINES / SAFETY NOTICE

The gel and curing times are temperature-dependent. The reaction between the components is significantly influenced by the ambient, material, ground and groundwater temperatures. A minimum application temperature of +5 °C should be observed for the individual components.

The components shall be properly blended into a homogeneous mix. For this purpose, a static mixer of min. 300 mm length should be used. As all RASCOflex polyurethane resins are moisture-sensitive, always ensure that the containers are properly sealed during storage.

As the B component is identical for the various RASCOflex PU309 systems, it does not need to be exchanged when switching systems. Do not use water or aqueous agents to clean the equipment and pumps.

## MODIFICATION / ADJUSTMENT OF PRODUCT PROPERTIES

Additives can be used at any time, also directly on site, to tailor RASCOflex PU309 to the demands of the particular situation.

Gel time acceleration: RASCOflex PU-AC

Foaming agent: RASCOflex PU-FO

Thixotropic agent: RASCOflex PU-THIX

To ensure correct dosage of the specific additive, please consult the relevant technical data sheet!

## CLEANING OF WORKING EQUIPMENT

As the injection product reacts with water, no parts of the working equipment shall under any circumstances be cleaned with aqueous cleaning agents. Either machine oil or, in particular cases, acetone-based rinsing or cleaning agents are recommended for cleaning all equipment and accessories that have come into contact with polyurethane. Please consult the manufacturer's instructions for the relevant pumps and equipment.

## DISPOSAL

For details on how to dispose of the individual components, please consult the product safety data sheet. Cured material, in moderate quantities, may be disposed of with normal domestic waste.



Mixing video

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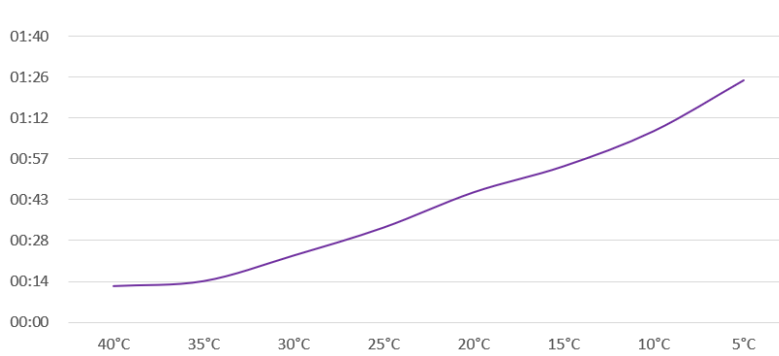
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## STANDARD GEL TIME

Gel time in minutes, in function of material/building fabric temperature

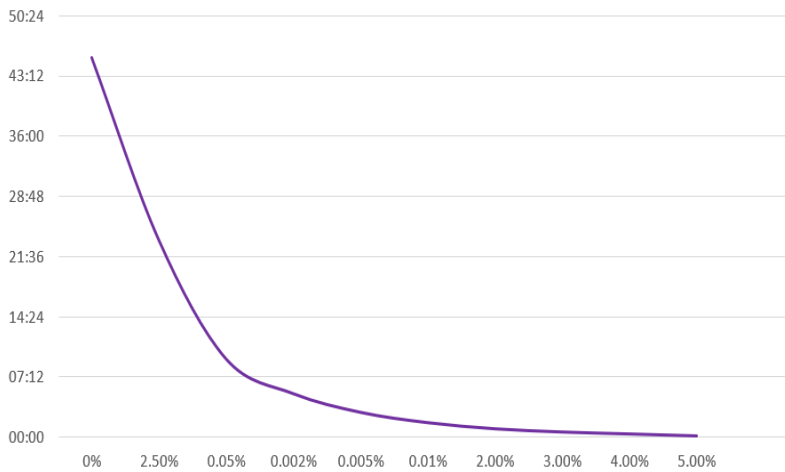


Temp.	Time
40 °C	12 min
35 °C	14 min
30 °C	23 min
25 °C	33 min
20 °C	45 min
15 °C	55 min
10 °C	1 h 05 min
5 °C	1 h 25min

Guide values from laboratory tests!

## GEL TIME WITH ACCELERATOR AT 20 °C

Gel time in minutes, in function of material/building fabric temperature



PU-AC at 20 °C	in gr of A-Comp	Time
5 %	1000	12 s
4 %	800	26 s
3 %	600	40 s
2 %	400	63 s
1 %	200	107 s
0.5 %	100	180 s
0.2 %	40	5 min
0.05 %	10	9 min
0.025 %	5	23 min
0.01 %	2	45 min

Guide values from laboratory tests!