WILLPUR® WS- FA

Very fast-reacting two-component injection resin

1. Applications

WILLPUR® WS- FA is a very fast-setting 2-component injection resin based on polyurethane, free from CFCs and halogens. It is used for sealing and consolidating in dry, wet and highly pressurised water-bearing areas with high water flows. Without contact with water, the product hardens very quickly to form a high-strength, non-foamed polyurethane resin; on contact with water, a rapid reaction takes place, and the product hardens to form a compact, solid foam.

WILLPUR® WS- FA

- is used for the permanent consolidation and sealing of wet and water-bearing rock in mining and tunnelling
- reliably seals pressurised water inflows with high volume flows from rock, soil or structures
- closes cracks in the rock during tunnelling and prevents water flow along the tunnel axis.
- Permanently seals pressurised water-bearing cracks in concrete and masonry such as in tunnels, canals, shafts, locks, underwater concrete floors and excavation pit enclosures
- can also be used in direct combination with **WILLPUR® WS- X** or **WILLPUR® WS- F**

Applicable at ambient temperatures between - 15°C and + 40°C

2. Substance data*

		WILLPUR® WS- FA - A	**WILLPUR® WS- FA - B**	**Norm**
Shape		light yellow liquid	brown liquid	
Viscosity at 5°C	mPa*s	1180 ± 100	1650 ± 200	DIN EN ISO 3219
Viscosity at 10°C	mPa*s	710 ± 100	1010 ± 100	DIN EN ISO 3219
Viscosity at 15°C	mPa*s	450 ± 75	560 ± 100	DIN EN ISO 3219
Viscosity at 20°C	mPa*s	290 ± 50	340 ± 50	DIN EN ISO 3219
Viscosity at 25°C	mPa*s	190 ± 50	210 ± 50	DIN EN ISO 3219
Density at 5°C	g/cm³	1.01 ± 0.05	1.237 ± 0.05	DIN 51757
Density at 10°C	g/cm³	1.01 ± 0.05	1.237 ± 0.05	DIN 51757
Density at 15°C	g/cm³	1.01 ± 0.05	1.237 ± 0.05	DIN 51757

Density at 20°C	g/cm³	1.01 ± 0.05	1.237 ± 0.05	DIN 51757
Density at 25°C	g/cm³	1.01 ± 0.05	1.232 ± 0.05	DIN 51757

3. Reaction and mechanical data*

Reaction profile without water:		**10°C**	**15°C**	**25°C**	**Norm**
Curing	sec	60	41	19	DIN EN ISO 10364:2018
Foaming factor		1	1	1	PV_FW16

Foaming start and foaming end measured according to DIN EN ISO 10364:2018
Foam factor measured according to PV_FW16

Reaction profile		**With 1 % water (referring to the mixture)**		**With 2 % water (based on the mixture)**	
		min:sec	**SF**	**min:sec**	**SF**
10°C	Foaming start*	01:05	5-8	01:06	8-12
10°C	Foaming end*	01:20		01:30	
15°C	Foaming start*	00:49	4-6	00:49	8-12
15°C	Foaming end*	01:05		01:08	

			Norm
Compressive strength at 10% compression after 7 days	N/mm²	77	DIN EN ISO 604:2003-12
Bending stress after 7 days	MPa	42	DIN EN ISO 178:2018-08
Bending modulus of elasticity after 7 days	MPa	1961	DIN EN ISO 178:2018-08
Shore hardness D		80	ISO 7619-1

4. Composition and properties

WILLPUR® WS- FA - A is a mixture of various polyols and additives.
WILLPUR® WS- FA - B is a modified polyisocyanate.

The mixture of both components penetrates the structure to be sealed. Water is displaced due to the hydrophobicity of the resin, causing the product to foam.

The cured resin is more or less foamed, or not foamed at all, depending on water contact, which means that the properties of the end product vary greatly.

5. Preparation/Processing

The components are pumped directly from the containers in a mixing ratio of 1:1 (parts by volume) using two-component pumps. Homogeneous mixing is achieved using static mixers type ME 13-32. Injection into the rock, soil or structure is carried out using packers or injection lances.

The product foams up on contact with water.
Recommended processing temperature (product) between 15-25 °C
Recommended processing temperature (component temperature) between 5 - 35 °C.
Processing under extreme conditions (rock or component temperatures) from -15 °C to + 40 °C is possible under certain conditions.

The reaction time can be accelerated by adding a **WILLADD®** Fast catalyst to the A component (see technical data sheet **WILLADD® Fast**).
We recommend using **WILLADD® Thix** for highly pressurised or very cold water or for high volume flows of water (see technical data sheet for more information).
WILLADD® Thix).

6. Safety notes

WILLPUR® WS- FA- B isclassified as dangerous according to REGULATION (EC) No. 1272/2008. Before starting processing, it is necessary to inform yourself about precautionary measures and safety advice by means of the safety data sheets.

7. Storage

At least six months from date of delivery or twelve months from date of production when stored in a dry place between 10°C and 30°C. Frost can damage the A component. The minimum durability is reflected by the batch number on the container.

8. Delivery form

	WILLPUR® WS- FA -A	WILLPUR® WS- FA -B (item no.)
20 l tin canister à	21 kg (WPUR-WSFA-1-A21)	25 kg (WPUR-WSFA-1-B25)

Other delivery forms on request.

9. Waste management

In Germany, empty packaging can be taken back by the KBS or Interseroh-System for steel or plastic packaging. The return is limited exclusively to used, completely empty packaging of the same type, shape, and size that we carry in our product range.

Transport and outer packaging are not included.

For more information on the location and further modalities of the return, please visit the website of the recycling partner acting on our behalf:

Interseroh+ GmbH

www.interseroh.plus
info@interseroh.plus
Tel.: +49 (0)2203 9147 - 1268

Kreislaufsystem Blechverpackungen Stahl GmbH
www.kbs-recycling.de
info@kbs-recycling.de
Tel.: +49 (0)211 239228 - 0

Reacted product residues can be disposed of in smaller quantities with household waste, in larger quantities as construction waste or incinerated.
Non-reacted product components must be disposed of in accordance with local regulations.

10. Test certificates/Approvals

Hygiene examination, Hygiene Institute of the Ruhr Area April 2025

11. Legal notes

***The indicated data are laboratory values.**

Our technical application advice, which we give to support the customer or applicator on the base of our experience and to the best of our knowledge according to the current state of knowledge in practice and science, is non-binding and does not represent an agreed quality. The data and processing instructions are based on laboratory tests.

In practice, the measured values may be different due to influences outside our control. We explicitly reserve the right to make technical changes during further development.

The technical documents should be read carefully before starting work.

With the publication of a new version of the technical data sheet, all previous data sheets lose their validity. The applicator must test the products for their suitability for the intended application.

With the publication of this data sheet, previous editions become void.

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