

WILLPUR® HF+

Fast-reacting two-component polyurethane resin with a high foam factor

1. Applications

WILLPUR® HF+ is a hard-elastic dual-component, extremely fast-reacting, CFC- and halogen-free injection resin. When injected, it foams up and hardens quickly to form a rigid polyurethane foam that seals and stabilizes dry areas.

WILLPUR® HF+ is used for sealing against water, for consolidating unstable floors, for filling small cavities, including joints, gaps, pipes, hollow bodies, etc. Even without contact with water, the product reacts by foaming to form a tough, hard PUR rigid foam.

Properties:

- force-fit, water pressure-tight rigid foam
- fast reacting
- heat-insulating effect
- Permanent sealing
- Adaptable injection system with the addition of **WILLADD® THIX** and **WILLADD® FAST**

2. Substance data*

		WILLPUR® HF+ -A	WILLPUR® HF+ -B	Norm
Form		colourless liquid	brown liquid	
Viscosity at 5°C	mPa*s	2250 ± 200	1791 ± 200	DIN EN ISO 3219
Viscosity at 10°C	mPa*s	1410 ±	962 ± 100	DIN EN ISO 3219
Viscosity at 15°C	mPa*s	872 ± 100	400 ± 100	DIN EN ISO 3219
Viscosity at 20°C	mPa*s	575 ± 100	290 ± 50	DIN EN ISO 3219
Viscosity at 25°C	mPa*s	350 ± 100	200 ± 50	DIN EN ISO 3219
Density at 5°C	g/cm³	1.06 ± 0.02	1.23 ± 0.02	DIN 51757
Density at 10°C	g/cm³	1.06 ± 0.02	1.23 ± 0.02	DIN 51757
Density at 15°C	g/cm³	1.06 ± 0.02	1.23 ± 0.02	DIN 51757
Density at 20°C	g/cm³	1.06 ± 0.02	1.23 ± 0.02	DIN 51757
Density at 25°C	g/cm³	1.06 ± 0.02	1.23 ± 0.02	DIN 51757

3. Reaction and mechanical data*

Mixing ratio:	WILLPUR® HF+ -A	WILLPUR® HF+ -B
Parts per volume	100	100
Parts per weight	100	118

Changing the mixing ratio can change the reaction times and values.

Reaction profile		sec.	SF	Reaction temperature °C
15°C	Start of foaming*	45 - 65	14 - 16	< 160
15°C	End of foaming*	95 - 135		
25°C	Start of foaming*	18 - 33		
25°C	End of foaming*	65 - 95		

Start of foaming and end of foaming measured according to DIN EN ISO 10364:2018

Foam factor measured according to PV_FW16

4. Composition and properties

WILLPUR® HF+ -A is a mixture of various polyols and additives that reacts with the B component to form an elastic resin.

WILLPUR® HF+ -B is a modified polyisocyanate.

5. Preparation/Processing

The mixture:

The components **WILLPUR® HF+ -A** and **WILLPUR® HF+ -B** are pumped in a volume ratio of 1:1 using a two-component pump, as is usually used in the mining and tunnel construction industry.

Processing is also possible using a two-component cartridge. When running through a static mixer, the components are intimately mixed together and pressed into the injection point.

6. Safety notes

WILLPUR® HF+ -B is classified 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. The minimum durability is reflected by the batch number on the container.

8. Delivery form

	WILLPUR® HF+ -A (item no.)	WILLPUR® HF+ -B (item no.)
400 ml 2K cartridge	400 ml (WPUR-HF+-1-A/B2K-400)	400 ml (WPUR-HF+-1-A/B2K-400)
20 l tin canister à	20 kg (WPUR-HF+-1-A20)	23 kg (WPUR-HF+-1-B23)
200 l steel drum à	200 kg (WPUR-HF+-1-A200)	230 kg (WPUR-HF+-1-B230)
1000 l IBC	1040 kg (WPUR-HF+-1-A1040)	1210 kg (WPUR-HF+-1-B1210)

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



**Kreislaufsystem
Blechverpackungen Stahl GmbH**

www.kbs-recycling.de
info@kbs-recycling.de

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. 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.

F. Willich GmbH + Co. KG

Planetenfeldstr. 120
44379 Dortmund
Germany

Phone: +49 (0) 231 9640 - 0
Fax: +49 (0) 231 9640 - 232
info@f-willich.com
www.f-willich.com