

**MINING / CONSTRUCTION**

# Ekopur W, HW, S and HS

## POLYURETHANE INJECTION RESIN

### DESCRIPTION

Ekopur W, HW, S and HS are two-component polyurethane injection resins, obtained after mixing component A (a mixture of polyols and flame retardants) and component B (polymeric MDI isocyanate with additives) in a volume ratio of 1:1. The adhesives property allows use of them under various geological and mining conditions.

### APPLICATION AND USE

Polyurethane adhesives are used to strengthen and seal brittle and weak rock mass and coal layers which may have varying moisture contents. They are also used to seal water and gas leaks. Application parameters of the adhesives can be adjusted to customer specific requirements.

### ADVANTAGES

- High adhesion ability to different rocks
- High compressive and flexural strength obtaining the desired strength in a short time
- Very good rock mass penetration ability
- Flexibility of the produced bond
- Good hydro-insulation and gas-insulation
- Ability to apply in environments with different moisture content
- Does not increase the endogenous fire risk
- Does not disturb gas indicator readings
- Ability to apply in "Long Distance Pumping" (LDP) technique - pumping over long distances (components and pump located up to 5000 m away from the application area)



### TECHNICAL DATA

The data below are laboratory data. They may vary in practice due ambient temperature, pressure and other factors.

### MATERIAL DATA

Material parameters*	Ekopur W, HW, S and HS (A+B)
maximum reaction temperature [°C]	<150
compressive strength** [MPa]	> 60
flexural strength** [MPa]	> 60
flammability	self-extinguish

## COMPONENT CHARACTERISTICS

Component parameters	Ekopur W, HW, S and HS	
	A	B
Components volume ratio	1	1
Density [g/cm <sup>3</sup> ]	~1.1	~1.2
Viscosity [mPas]	< 700	< 700

\* Parameters can be adjusted to customer specific requirements.

\*\* For foaming factor 1

## PRODUCT CHARACTERISTICS

Version	W	HW	S	HS
reaction end time [s]	30-300	20-120	30-400	200-1200
foaming factor	1-5	1-5	1-5	1-5

## APPLICATION METHOD

The adhesive is pumped into the rock mass with injection techniques. Using a pump-set, the components (in a volume ratio of 1:1) are fed via a static mixer. While reacting, the adhesive penetrates the gaps and fissures within a few meters from the injection hole, where it hardens and thus strengthens and seals the rock mass. For details, please see the Application Instructions.

## SAFETY INSTRUCTIONS AND LIMITATIONS

When applying the product, use standard PPE meant for work with chemicals: safety gloves and goggles, protective clothing etc. Immediately change the clothes if they become soaked with components. For detailed safety information please see the Ekopur W, HW, S and HS Material Safety Data Sheet.

Failure to follow the application equipment operating manual and particularly its poor technical condition, insufficient cleaning and lack of maintenance, leads to a change in the ratio of supplied components which reduces bonding effectiveness or makes bonding completely impossible. Remove adhesive spills with area larger than 100 cm<sup>2</sup>, if such appear during application. The Ekopur adhesive must not fill voids.

## PACKAGING AND TRANSPORTATION

Adhesive components are packed into barrels/canisters with a capacity of 20 or 30 litres. Containers are delivered on pallets. After arranging with the customer, the material can be delivered in alternative packages (for instance 200 litres barrels or 1000 litres containers).

## STORAGE AND SHELF LIFE

The components A and B shall be stored in airtight containers and in dry and well-ventilated areas at 10 - 30 °C. The warranty period for properly stored components (A and B) is 6 months.

## DISPOSAL

Follow local regulations.

## APPROVALS AND CERTIFICATES

1. Certificate - safety mark "B"
2. Hygienic assessment (PZH)

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## **ADDITIONAL DOCUMENTATION**

- Ekopur W HW S and HS MSDS

## **LIST OF REPRESENTATIVES**

- AUSTRIA: Minova MAI GmbH
- CZECH REPUBLIC: Minova Bohemia s.r.o.
- FRANCE / BELGIUM: Sales office Minova France / Belgium
- GERMANY: Minova CarboTech GmbH
- ITALY: Minova CarboTech GmbH Italy branch
- KAZAKHSTAN: Minova Kazakhstan LLP
- POLAND: Minova Ekochem S.A.; Minova Arnall Sp. z o.o.; Minova Ksante Sp. z o.o.
- RUSSIA: ZAO "Carbo-ZAKK"
- SLOVAKIA: Minova Bohemia s. r. o., organizačná zložka
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