TECHNICAL DATA SHEET

MINOVA

MINING

# BEVEDOL WF21 - BEVEDAN 1 (OPTION BLACK DYED)

## TWO-COMPONENT INJECTION RESIN

## DESCRIPTION

Extremely fast reacting two-component injection resin, free of CFCs and halogen for solidification in dry or water bearing zones.

BEVEDOL WF21 is a mixture of various polyols and additives which reacts with BEVEDAN 1 to form a tough/hard polyurethane resin foam. BEVEDAN 1 is a modified polyisocyanate.


## APPLICATION AND USE

Adhesive class: instantaneous

To be used for cracks of more than 0.04 mm width.

- Rock stabilization
- Injections bolting
- Sealing against gas

## ADVANTAGES

- Rapid reaction time
- Excellent adhesive strength
- High mechanical resistance

## TECHNICAL DATA

The data below are laboratory data. They may vary in practice due to thermal exchange between resin and strata, surface properties of the stone, humidity, pressure, and other factors.

## MATERIAL DATA

| Parameter | Unit | BEVEDOL WF21 | BEVEDAN 1 | Standard |
|---|---|---|---|---|
| **Density at 25 °C** | kg/m$^3$ | 960 ± 50 | 1130 ± 50 | DIN 12791-1 |
| **Colour** | - | yellow/(black) | dark brown | - |
| **Flash point** | °C | > 140 | > 150 | DIN 53213 |
| **Viscosity at 5 °C** | mPa*s | 930 ± 150 | 835 ± 150 | ISO 3219 |
| **Viscosity at 10 °C** | mPa*s | 600 ± 120 | 500 ± 110 | ISO 3219 |
| **Viscosity at 15 °C** | mPa*s | 425 ± 90 | 350 ± 90 | ISO 3219 |
| **Viscosity at 20 °C** | mPa*s | 290 ± 70 | 250 ± 70 | ISO 3219 |
| **Viscosity at 25 °C** | mPa*s | 200 ± 50 | 170 ± 50 | ISO 3219 |
| **Viscosity at 30 °C** | mPa*s | 160 ± 50 | 140 ± 40 | ISO 3219 |

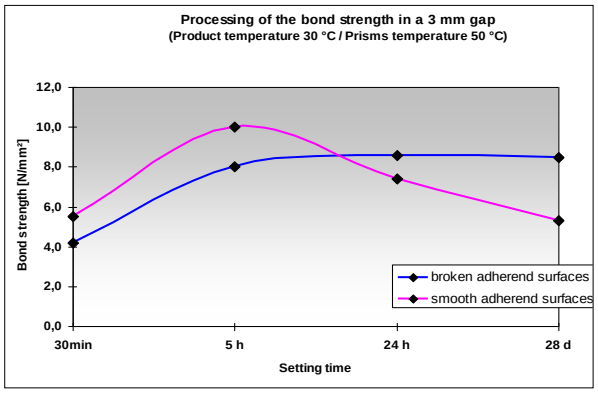
## REACTION DATA

| Starting temperature | Setting Time | Foaming factor | Standard |
|---|---|---|---|
| **5 °C** | 2 min 10 s ± 15 s | 1.0 – 1.2 | MCT PV 10-301 |
| **10 °C** | 1 min 35 s ± 20 s | 1.0 – 1.2 | MCT PV 10-301 |
| **15 °C** | 1 min 15 s ± 20 s | 1.0 – 1.2 | MCT PV 10-301 |
| **20 °C** | 1 min ± 15 s | 1.0 – 1.2 | MCT PV 10-301 |
| **25 °C** | 45 s ± 10 s | 1.0 – 1.2 | MCT PV 10-301 |
| **30 °C** | 38 s ± 10 s | 1.0 – 1.2 | MCT PV 10-301 |
| Max. Reaction temperature (30 °C) | | 122 °C | GesBergV |

## MECHANICAL DATA

Determination under application conditions

- Volume rate 10 l/min CT-PM remote dredging pump
- BVS40M
- Strength investigation dry (Class 1)




| Parameter | Value | Standard |
|---|---|---|
| **Shore hardness** | D75 ± 5 | ISO 7619-1 |

## BOND STRENGTH[1]

| Setting time | Unit | 30 min | 5 h | 24 h | 28 d |
|---|---|---|---|---|---|
| **Bond strength - broken adherend surfaces** | N/mm² | 4.2 | 8.0 | 8.6 | 8.5 |
| **Bond strength - smooth adherend surfaces** | N/mm² | 5.5 | 10.0 | 7.4 | 5.3 |

## DEFLECTION FRACTURE[1]

| Deflection fracture, 3 mm gap | Unit | 30 min | 5 h | 24 h | 28 d |
|---|---|---|---|---|---|
| **Broken adherend surfaces** | mm | 1.6 | 1.0 | 0.3 | 0.2 |
| **Smooth adherend surfaces** | mm | 1.6 | 0.5 | 0.1 | 0.1 |

## DEFORMATION[1]

| Deformation work, 3 mm gap | Unit | 30 min | 5 h | 24 h | 28 d |
|---|---|---|---|---|---|
| **Broken adherend surfaces** | Nmm | 6460 | 10429 | 2406 | 1126 |
| **Smooth adherend surfaces** | Nmm | 9208 | 5321 | 896 | 387 |

## STRENGTH[1]

| Parameter | Unit | 24 h |
|---|---|---|
| **Compressive strength (at 50 % compression set)** | N/mm² | 19.3 |
| **Bending tensile strength** | N/mm² | 12.0 |

**Classification according suitability for application in water bearing rocks**

| Strength investigation wet to bearing (Class II) | | 3 h |
|---|---|---|
| **Bond strength** | N/mm² | 1.6 |
| **Strength investigation fastmoving water (Class III)** | | **3 h** |
| **Bond strength** | N/mm² | 1.9 |

[1] Test performed at DMT. Essen

## APPLICATION METHOD

The two components are pumped by a dual component pump at the volumetric ratio 1 : 1; they are mixed thoroughly in a static mixer unit prior to injection into strata via a packer installed in a previously drilled borehole.

For detailed instructions on use, in particular before a change of the injection resins, consult the 'Technical handbook for the safe use of injection resins in the mining sector'.

## SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals, see MSDS of BEVEDOL WF21 and BEVEDAN 1.

When the material is warmed up, local overheating, e. g. at the container wall, must be avoided by any means.

## PACKAGING AND TRANSPORTATION

All forms of packing are approved to the danger goods regulation road, railway, domestic shipping.

The components can be delivered in 20/26/200/1000 l units.

Other packaging units are available on request. Details are shown in the offer.

## STORAGE AND SHELF LIFE

At least six months from date of delivery when stored in a dry place between 10 °C and 30 °C. If this time is exceeded, we recommend having the material checked by Minova for compliance with specification.

## DISPOSAL

Follow local regulations.

## APPROVALS AND CERTIFICATES

1. **LOBA** Approval of the District Government of Arnsberg 84.12.22.67-2-10
2. Data sheet of the determination of properties (DMT, 2011)

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## ADDITIONAL DOCUMENTATION

- Operating instructions on proper use of Minova injection resins
- BEVEDOL S21 – BEVEDAN 1F MSDS

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