

# Technical Datasheet

## Dirko™ black | the permanently-elastic, temperature resistant sealing compound



### **Description and field of application**

Dirko™ black is a high-temperature sealing compound on a silicone base. Dirko™ black cures by reacting with the humidity in the air. The cured sealing compound is permanently resilient. The product is characterized by a very large range of applications.

### **1. General product information**

<b>Chemical basis</b>	Oxime silicone
<b>Curing</b>	Room temperature vulcanized (RTV)
<b>Components</b>	One component
<b>Color</b>	Black
<b>Consistency</b>	Pasty, stable, in the cured state permanently resilient
<b>Temperature range</b>	-60°C to +280°C (briefly +300°C)
<b>Maximum sealing gap</b>	2.0 mm
<b>pH</b>	Neutral
<b>Electrical conductivity</b>	Insulating
<b>Resistant to</b>	Oil, grease, coolant, UV radiation, cold and hot water, salt water, detergents, weak acids and lyes, etc.
<b>Possible applications</b>	Valve cover, oil pan, water and oil pump, differential housing, gearbox, gear oil sump, thermostat housing, control housing, shaft cover, flanged connection, headlamp, tail light, battery compartment, etc.

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## 2. Technical data

### 2.1 General features

Measurable variables	Value	Test standard
Shore A hardness	35-45 Shore	DIN 53505
Density	1.16 g/ml	DIN 53479
Skin formation time (23°C, 50% relative humidity)	5-15 min	ISO 291
Curing time (23°C, 50% relative humidity)	about 2 mm/24 h	
Elastic modulus	0.7 N/mm <sup>2</sup>	DIN EN ISO 8339
Elongation at break	500%	DIN 53504
Tensile strength	2.4 N/mm <sup>2</sup>	DIN 53504

### 1.1 Heat resistance

The heat resistance of Dirko™ can be determined by simulating the extreme elongation behavior of the sealing compound. Several important results of such tests are shown below. The elongation simulated here does not occur in practice when used as a surface sealant.

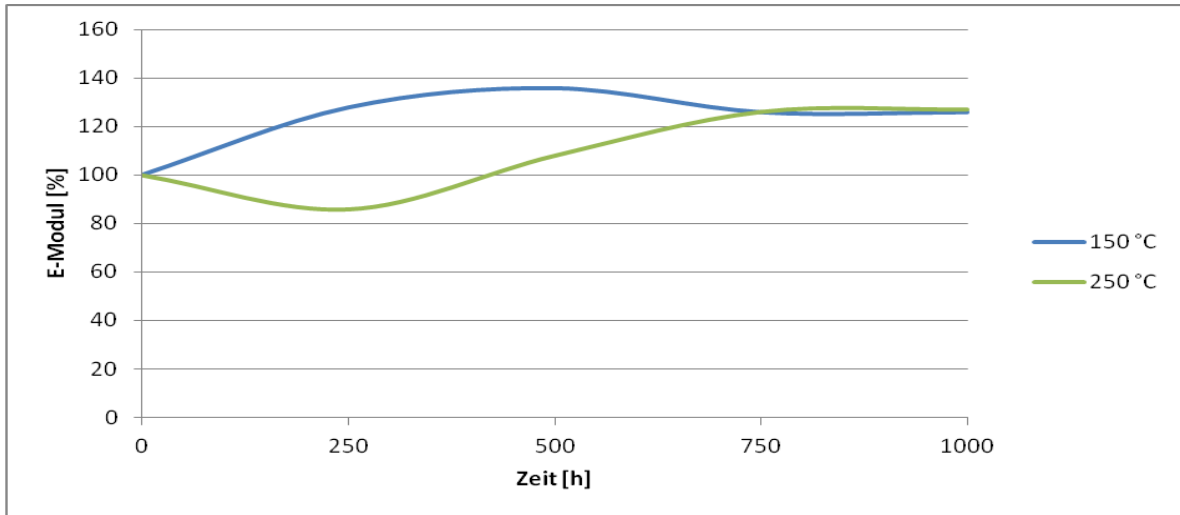
#### Elastic modulus

To determine the elastic modulus, the cured sealing compound is fixed in a clamping device and is stretched 100%. The force required for this elongation is measured. The following diagram shows the development of the elastic modulus (DIN 53504) as a function of the pertinent temperature and time. The elastic modulus is shown as a percentage by comparison to the value without temperature stress.

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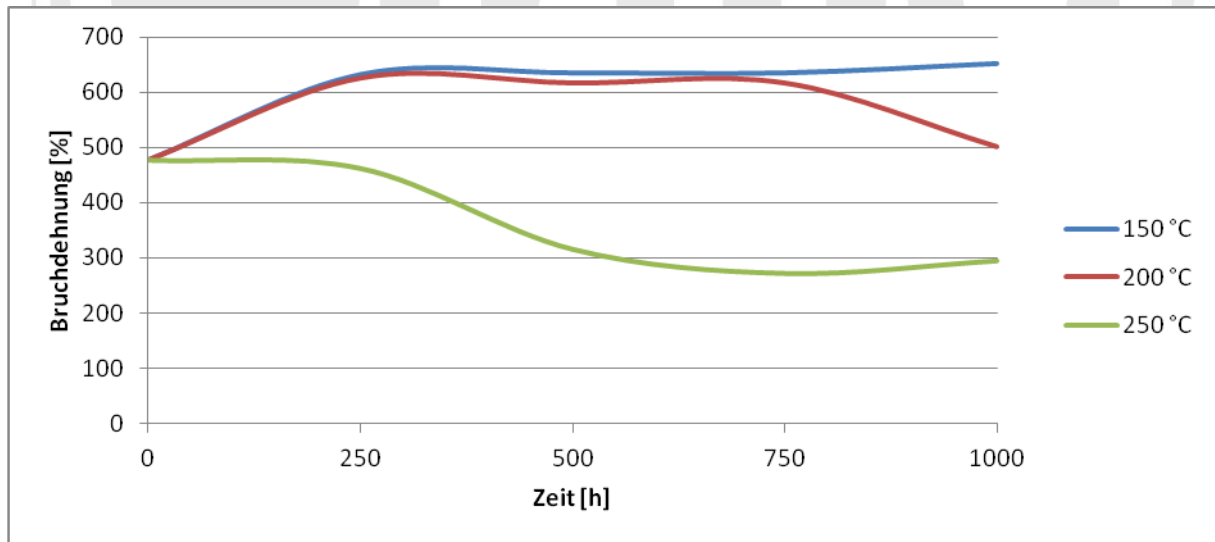


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## 1.1.1 Elongation at break

To measure the elongation at break, the sealing compound is stretched until an inner breakage occurs. The percentage elongation until break is measured. The following diagram shows the development of the elongation at break (DIN 53504) as a function of the pertinent temperature and time.



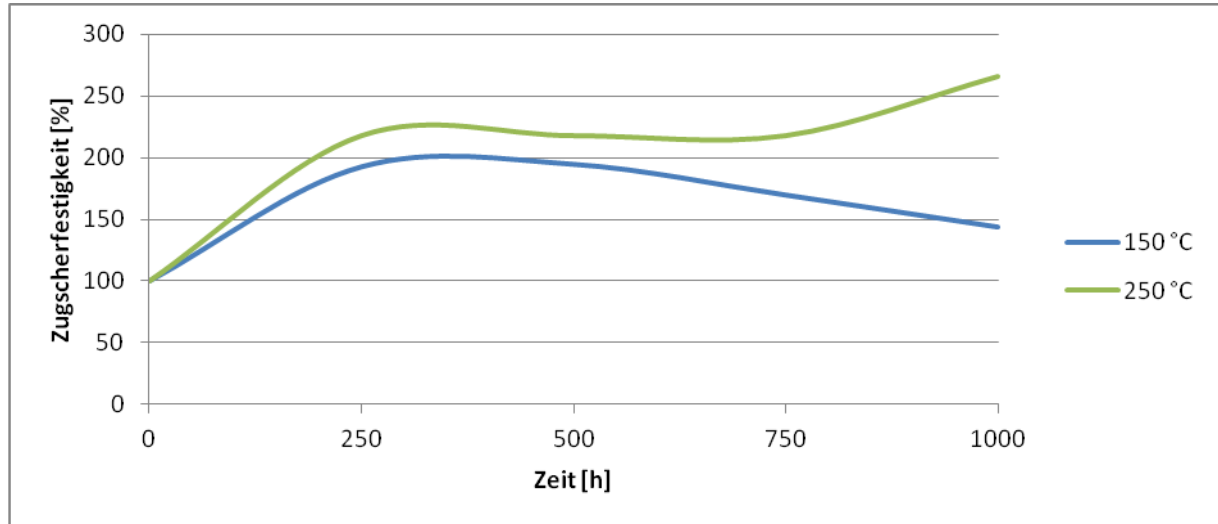
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## 1.1.2 Combined tensile and shear strength

The combined tensile and shear strength defines the inner strength of the sealing compound and the adhesion to the substrate. The following diagram shows the development of the combined tensile and shear strength (ISO 4587) as a function of the pertinent temperature and time.



## 1.2 Media resistance

The table below shows the media resistance of the sealing compound. For this, the test item was submerged in the pertinent medium for the time stated. The combined tensile and shear strength (ISO 4587) is then determined. The following table shows the percentage deviation in the combined tensile and shear strength to the initial value without the effect of the medium and the temperature. An estimation of the media resistance can be made on the basis of the determined values.

	Temperature [°C]	Deviation to the initial value [%]		
		100 h	500 h	1000 h
<b>Gearbox oil (ATF)</b>	120	80	77	67
<b>Engine oil (5W30)</b>	120	119	35	36
<b>Water/Glycol (50/50)</b>	100	63	61	67
<b>Water/Glycol (50/50)</b>	120	48	69	69
<b>Water</b>	60	219	106	108
<b>Water</b>	90	90	75	86

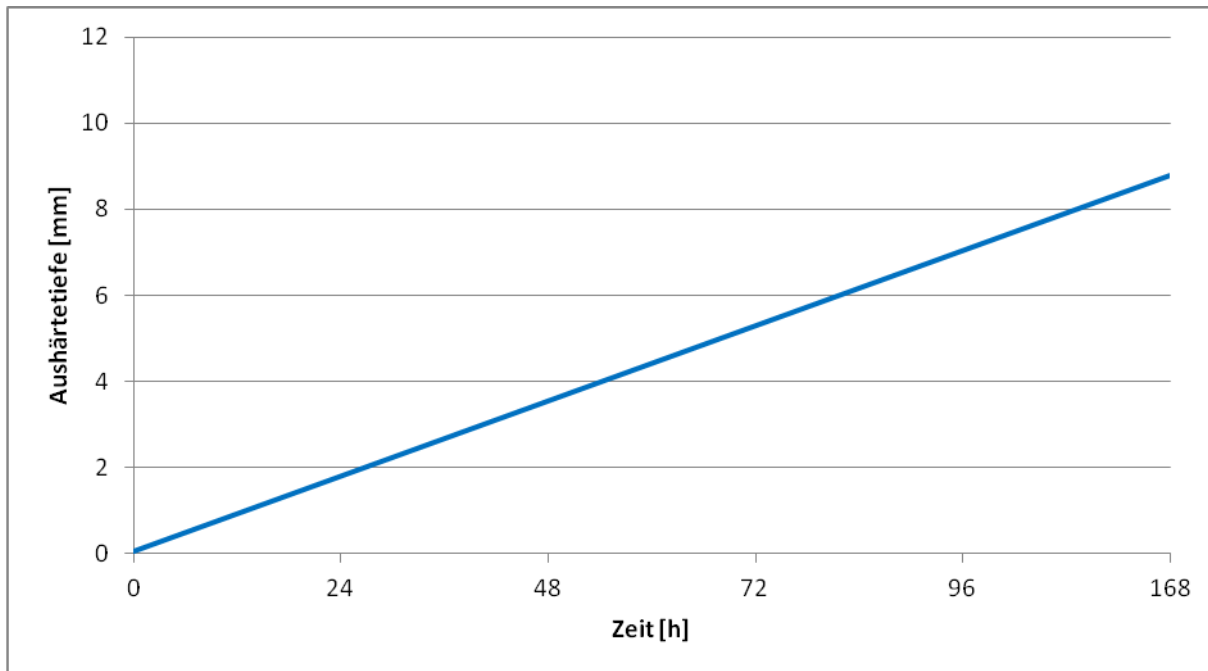
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## 1.1 Rate of cure

The rate of cure depends on the temperature and humidity. The higher the temperature and humidity, the faster Dirko™ black cures. The chart below shows the development over time of the cure rate in a standard climate (23°C/50% relative humidity).



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## 1.2 Surface adhesion

The adhesion of Dirko™ black on various surfaces is of subordinate interest when used as a surface sealant. The following values indicate the measured combined tensile and shear strength for a sealing gap of 2 mm (ISO 4587).

Surface	Combined tensile and shear strength [N/mm <sup>2</sup> ]
Copper	0.30
Steel	0.32
Steel (galvanized)	0.36
Aluminum	0.36
Brass	0.42
Stainless steel	0.45
Steel (electrolytically galvanized)	0.56
GRP	1.23

## 3. Usage instructions

- Remove sealant residues and clean the sealing surfaces with solvent.
- The sealing surfaces must be clean, dry and free from oil and grease before the sealant compound is applied.
- Apply the sealant compound continuously and uniformly. The discharge velocity can be adjusted by actuating the lever.
- Immediately remove excessively applied sealing compound, as there is a risk that this may drip inside.
- Fit components in accordance with the manufacturer's specifications.
- An immediate sealing function applies.
- Safety and technical data sheet at [www.elring.de](http://www.elring.de).

## 4. Storage

- Optimum storage conditions: cool (+5°C to +25°C) and dry
- Minimum shelf life: 12 months in unopened containers
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## 5. Type of delivery

Article No.	Type of packaging	Filling quantity	Packaging unit	Languages (warnings for hazardous materials)
006.55 2	Tube, long and short nozzle, tube key	70 ml	12 pieces	BG/DK/DE/ EN/FR/EL/IT/ HR/LT/LV/ NL/PL/PT/ RO/RU/SE/ SK/ES/CZ/ HU

Large containers on request

## 6. Exclusion of liability

The details provided above in this technical data sheet, in particular proposals for the processing and range of use of our products, are based on our current knowledge and experience. Due to the range of possible applications and the conditions of use and work which are beyond our control, we do not accept any liability for the suitability of our products for the relevant production processes under the specific operating conditions as well as for the intended processing purposes and results. To ensure such suitability, in any event we recommend carrying out adequate prior suitability trials and tests.

Any liability arising from the information in this technical data sheet and from other written or verbal advice for this product is expressly excluded, unless something else was contractually agreed individually, where loss of life, injury or damage to health exists, unless caused by us intentionally or due to gross negligence, or liability applies according to mandatory product liability regulations.



Das Original

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