



SK 921

Sealing material (PI) for lubricated and dry-running applications

SK921 is a sealing material based on Polyimide (PI) and it is widely used in lubricated service as well as in dry-running systems (e.g. pressure breakers, backup rings). A typical application is the compression of gases like Hydrogen, Nitrogen and Hydrocarbons mostly by reciprocating systems. The very good properties of the matrix material as well as an optimized content of Graphite filler ensures high service life-times, increased mechanical properties and an improved chemical resistance.

TRIBOLOGICAL PROPERTIES

The tribological properties are defining the wear behavior of the material. The wear rate (k) and friction coefficient (μ) of SK921 are identified by tribological characterization.

Under Hydrogen	
Wear rate:	$k = 3.6 \cdot 10^{-7} \text{ mm}^3/\text{Nm}$
Friction coefficient:	$\mu = 0.08$

The following conditions were applied during the test of SK921:

Gas:	Hydrogen
Average velocity:	2.7 m/sec
Pressure:	20 bar
Dew point:	-90 °C
Counter surface:	steel with tungsten carbide coating
Lubricant:	none

The lower the wear rate the higher are the wear resistance and the expected service life-time at the field application.

STASSKOL provides state-of-the-art equipment for tribological characterizations under reciprocating and rotating movement. An unique reciprocating tribometer was used to investigate the wear behavior of SK921.



The material performance strongly depends on the test conditions. Therefore measurements at the parameters of the customer's application are recommended. Please use the characterization and development capabilities of STASSKOL.

MECHANICAL PROPERTIES

SK921 shows a high stiffness in combination with a high thermal stability due to the outstanding properties of Polyimide and the optimized content of Graphite filler. The mechanical properties have been investigated using a tensile testing machine under standard (DIN EN ISO 527-1) conditions.

Elastic modulus:	3,550 MPa
Tensile strength:	57.6 MPa
Elongation at break:	2.2 %
Density:	1.40 g/cm ³
Hardness:	87.2 Shore D

CUSTOMER GUIDELINE

Operating Conditions:

Lubricated or dry-running service
Pressure up to 350 bar
Temperature up to 200 °C
Average velocity up to 4.5 m/sec
Dry Gases

References:

Refinery applications
Hydrogen compressors
Ethylene compression
Biogas applications

Please contact STASSKOL to get additional information about SK921. You will be supported by choosing the best sealing material according to the operating conditions of your application.

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