

VESPEL® SP21

Chemical Designation :	Polyimide
DIN–Abbreviation:	PI CS15
Colours, fillers:	black, 15% graphite

Main features

- | high strength and elongation
- | wear resistant
- | good radiation–resistance
- | good sliding properties even in dry running conditions
- | good long term thermal stability

Preferred Fields

- | automotive engineering
- | transport and conveyor technology
- | mechanical engineering
- | aircraft and aerospace industries

Applications

For lubricated or non–lubricated, low friction and wear applications, valve seats, seals, bearings, washers, seal rings.

Properties

Mechanical	dry / moist	standard
Tensile strength at yield	0	MPa
Elongation at yield		%
Tensile strength at break	66	MPa ASTM D 1708
Elongation at break	4,5	% ASTM D 1708
Modulus of elasticity in tension		MPa

Modulus of elasticity after flexural test 3790 MPa ASTM D 790

Hardness

Impact strength 23° C (Charpy) KJ/m²

Creep rupture strength after 1000 h with static load MPa

Time yield limit for 1% elongation after 1000 h MPa

Co-efficient of friction 0,30
p = 0,05 N/mm²v=0,6 m/s
on steel, hardened and ground

Wear μm/km
p = 0,05 N/mm²v=0,6 m/s
on steel, hardened and ground

Thermal

dry / moist

standard

Crystalline melting point °C

Glass transition temperature °C

Heat distortion temperature 360 °C
HDT, Method A

Heat distortion temperature 360 °C
HDT, Method B

Max. service temperature

short term 360 °C

long term 300 °C

Thermal conductivity (23° C) 0,87 W/(K·m)

Specific heat (23° C) J/g.K

Coefficient of thermal expansion 4,9 10⁻⁵1/K ASTM D 696
(23–55°C)

Properties

Electrical	dry / moist	standard
Dielectric constant (10^6 Hz)	13,4	ASTM D 150
Dielectric loss factor (10^6 Hz)	0,01	ASTM D 150
Specific volume resistance	10^{12} – 10^{13} Ω *cm	ASTM D 257
Surface resistance	Ω	
Dielectric strength	9,84 kV/mm	ASTM D 149
Resistance to tracking		

Miscellaneous	dry / moist	standard
Density	1,51 g/cm ³	ASTM D 792
Moisture absorption (23°C/50RH)	1,1 %	
Water absorption to equilibrium	%	
Flammability acc. to UL standard 94	V0	

(1) Testing of semi-finished products

The above information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of chemical resistance, of certain properties and the suitability of our products and their applications. Our products are not destined for use in medical and dental implants. Existing commercial patents must be observed. Unless otherwise stated, these values represent averages taken from injection moulding samples, dry as moulded. We reserve the right to make technical alterations.
