



# WOLF

# Datenblatt

## Material: INKUFLON-P

## EN 02/12

Properties	Symbol   Unit	Standard	Value
<b>Information</b>			
Material code		Internal Standard	F1A
Colour			White
Density	$\rho$ kg/dm <sup>3</sup>	ISO 1183	2,14-2,18
<b>Mechanical</b>			
Compressive modulus	$E_c$ MPa	DIN EN ISO 604	-
Elastic limit	$\sigma_{el}$ MPa	Internal Standard	-
Compressive stress at yield	$\sigma_y$ MPa	DIN EN ISO 604	-
Compressive strength	$\sigma_M$ MPa	DIN EN ISO 604	-
Compressive stress at 3,5% strain	$\sigma_{3,5\%}$ MPa	DIN EN ISO 604	8
Compressive strength (0,01 h)	$\sigma_M$ MPa	Internal Standard	-
Compressive strength (100 h)	$\sigma_M$ MPa	Internal Standard	-
Compressive strength (10000 h)	$\sigma_M$ MPa	Internal Standard	-
Compressive stress at break	$\sigma_B$ MPa	DIN EN ISO 604	-
Elastic compression limit	$\epsilon_{el}$ %	Internal Standard	-
Nominal compressive yield strain	$\epsilon_{cy}$ %	DIN EN ISO 604	-
Nominal compressive strain at compressive strength	$\epsilon_{cM}$ %	DIN EN ISO 604	-
Nominal compressive strain at break	$\epsilon_{cR}$ %	DIN EN ISO 604	-
Modulus in tension (tensile modulus)	$E_t$ MPa	DIN EN ISO 527	-
Elastic limit	$\sigma_{el}$ MPa	Internal Standard	-
Tensile stress at yield	$\sigma_y$ MPa	DIN EN ISO 527	-
Tensile strength	$\sigma_M$ MPa	DIN EN ISO 527	20-30
Tensile stress at break	$\sigma_B$ MPa	DIN EN ISO 527	-
Elastic yield point	$\epsilon_{el}$ %	Internal Standard	-
Yield strain	$\epsilon_y$ %	DIN EN ISO 527	-
Elongation at maximum force	$\epsilon_M$ %	DIN EN ISO 527	-
Tensile elongation at break	$\epsilon_R$ %	DIN EN ISO 527	250-400
Modulus in flexure	$E_f$ MPa	DIN EN ISO 178	-
Outer fibre stress at 3,5% outer fibre strain	$\sigma_{f3,5}$ MPa	DIN EN ISO 178	-
Flexural strength	$\sigma_{fM}$ MPa	DIN EN ISO 178	-
Flexural stress at break	$\sigma_{fB}$ MPa	DIN EN ISO 178	-
Elongation at flexural yield stress	$\epsilon_M$ %	DIN EN ISO 178	-
Flexural elongation at break	$\epsilon_R$ %	DIN EN ISO 178	-
Creep modulus at 1% deformation after 1000h	$E$ N/mm <sup>2</sup>	DIN 53444	-
Stress at 1% deformation after 1000h	$\sigma_{1\%}$ N/mm <sup>2</sup>	DIN 53444	-
Creep resistance		Relative value	-
Ball indentation hardness H358/30 (H132/30) [H49/30]	HB N/mm <sup>2</sup>	DIN 2039	(22-32)
Shore A hardness	Shore	DIN 53505	-
Shore D hardness	Shore	DIN 53505	51-60
Impact strength Charpy not notched	kJ/m <sup>2</sup>	EN ISO 179/1eU	-
Impact strength Charpy notched	kJ/m <sup>2</sup>	EN ISO 179/1eA	-
Loss tangent (1Hz)	$\tan\delta$	1	Internal Standard
Fatigue strength at 20°C, 106 stress cycles, 1 Hz	MPa	Internal Standard	-
<b>Thermal</b>			
Continuous operating temperature (long term)	RTi °C	UL 746B	-
Short term operating temperature (3 h)	°C	Internal Standard	-
Maximum RTi temperature for bushings when pressed	°C	Internal Standard	-
Melting temperature	$T_m$ °C	DSC	-
Glass transition temperature	$T_g$ °C	DSC	-
Coefficient of thermal expansion up to 100°C	$\alpha$ 10 <sup>-5</sup> /K	ISO E 830	12,2
Coefficient of thermal expansion up to 150°C	$\alpha$ 10 <sup>-5</sup> /K	ISO E 831	-
Heat distortion temperature HDT/A 1,8 MPa	HDT(A) °C	DIN EN ISO 75	-
Thermal conductivity	$\lambda$ W/(m*K)	DIN 52612	0,23
Specific heat capacity	$c_p$ kJ/(kg*K)	DSC	-
Fire behaviour (3,2mm) UL94		UL 94 HB	-
Limiting oxygen index (LOI)	%	LOI DIN EN ISO 4589	-

Properties	Symbol   Unit	Standard	Value
<b>Electrical</b>			
Volume resistivity	$R_D$ $\Omega$ *cm	IEC 60093	-
Surface resistance	$R_C$ $\Omega$	IEC 60093	-
Penetration resistance	E kV/mm	IEC 243	-
Tracking resistance	V	IEC 112	-
Dielectric constant (110Hz)		1	IEC 250
Dissipation factor (110Hz)	$\tan\delta$	1	IEC 112
<b>PV values</b>			
Max. surface pressure v=1m/min	$p_{zul}$ N/mm <sup>2</sup>		0,5
Max. surface pressure v=10m/min	$p_{zul}$ N/mm <sup>2</sup>		0,05
Max. surface pressure v=100m/min	$p_{zul}$ N/mm <sup>2</sup>		0,002
Max. surface pressure v=200m/min	$p_{zul}$ N/mm <sup>2</sup>	Internal test radial bushing	-
Evolution of heat with v=1m/min	°C		-
Evolution of heat with v=10m/min	°C		-
Evolution of heat with v=100m/min	°C		-
Evolution of heat with v=200m/min	°C		-
<b>Friction</b>			
$\mu$ static 20° C dry operation	$\mu_{stat}$	1	Internal Standard
$\mu$ dynamic 20° C dry operation	$\mu_{dyn}$	1	inclined plane
$\mu$ dynamic 100° C dry operation	$\mu_{dyn}$	1	
<b>Wear</b>			
Wear factor at 20°C		mm/100 km	Internal test
Wear factor at 100°C		mm/100 km	periodic transla-
Wear factor at 200°C		mm/100 km	periodic movement
Wear factor at 240°C		mm/100 km	under load
<b>Available as</b>			
Tubes (hollow rods) up to $\phi$ (de)			-
Sheets up to max. thickness			✓
Rods up to $\phi$ (de)			✓
Plastic granules			-
Injection moulded parts			-
Machined parts			✓
<b>Precision</b>			
Dimensional stability with moisture absorption			Relative value
Water absorption 23°C / RMC 93%	%	DIN EN ISO 62	-
Water absorption until an equilibrium moisture content	%	DIN EN ISO 62	-
Dimensional stability with temperature variation			Relative value
High precision bushings (negative clearance)			-
Alignment adjustment			Relative value
<b>Environmental influences</b>			
Suitable for use in water			-
Resistance against hot water	°C		-
Resistance against dust, dirt, abrasive substances			Relative value
UV rays resistance			Relative value
Suitable for outdoor use			Relative value
Resistance to chemicals			Relative value
FDA compliant			-
Suitable for vacuum			-
Rate of desorption	$a_{th}$ mbar*1/(s/cm <sup>2</sup> )		-
ROHS / WEEE			-
Free from silicone			-
Free from PTFE			x
<b>Sterilization</b>			
Resistant against disinfectant			-
Moist heat sterilization			Relative value
Gamma-rays radiation sterilization			Relative value
Chemical sterilization			Relative value
UV-sterilization			Relative value



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### Legal Information

All the tests are been made with a standard conditioning atmosphere of 23°C (at the moment no other temperature is available). The specified values are established from average values of several tests and they correspond to our today's knowledge. They are only to be used as information about our products and as help for the material selection. With these values, we do not ensure specific properties, or the suitability for certain application, therefore we do not assume any legal responsibility for an improper usage. The used test pieces have been machined from extruded semi-finished material. Since the plastics' properties depend on the manufacturing process (extrusion, injection moulding), on the dimensions of the semi finished material and on the degree of crystallinity, the actual properties of a specific product may slightly deviate from the tested ones. For information about divergent properties do not hesitate to contact us. On request we advise you regarding the most appropriate component design and the definition of material specifications more suitable to your application data. Notwithstanding, the customer bears all the responsibility for the thorough examination of suitability, efficiency, efficacy and safety of the chosen products in pharmaceutical applications, medical devices or other end uses.

### Legend

- ① Low
- ⊗ High
- ✓ Applicable
- x Not applicable
- (✓) Limited
- k.Br. No break
- n.d. Not feasible
- Not determined
- n.v. Non-existent