

## Zell-Metall Engineering Plastics Zellamid 1100 OIL

Category : Polymer , Thermoplastic , Nylon , Nylon 6

### Material Notes:

**Zellamid® 1100 OIL:** A new type of cast nylon produced by addition of a special oil to the polymer structure. By laboratory test it was proven that this second generation oil filled product reduces friction in comparison to standard cast nylon. This means that Zellamid® 1100 OIL is particularly well suited for sliding parts under high load and increased speed. The specific advantages of Zellamid® 1100 OIL against Zellamid® 1100 are as follows: High degree of self lubrication. Low static coefficient of friction. Low dynamic coefficient of friction. Reduced heat build-up. Better wear and enormously increased part life due to less heat build-up in the area of friction. Reduced moisture absorption (about 5% for Zellamid® 1100 OIL vs. 6-7% for Zellamid® 1100). Increased dimensional stability. Zellamid® 1100 OIL features a homogeneous distribution of the lubricating oil during polymerization. Therefore the improved sliding properties remain, even after machining and part wear. The p. v. value may be used as a guideline to determine the loading capacity of slide bearings at a certain velocity. The values mentioned in the attached data sheet apply for the material combination of Zellamid® and metal for continuous use when heat is well conducted and environmental temperature is normal. Higher are permissible when on is intermittent. When using additional lubricants with Zellamid® 1100 OIL, the external lubricant influences the coefficient of friction to a very high degree. It can be reduced to 0.05. Consequently, the p. v. value may be increased. The advantages of the integrated lubrication of Zellamid® 1100 OIL are particularly noticeable when there is a combination of static and dynamic friction, especially when external lubrication is insufficient or impossible. Zellamid® 1100 OIL is supplied in yellow colour for easy identification.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Zell-Metall-Engineering-Plastics-Zellamid-1100-OIL.php](http://www.lookpolymers.com/polymer_Zell-Metall-Engineering-Plastics-Zellamid-1100-OIL.php)

Physical Properties	Metric	English	Comments
Density	1.14 g/cc	0.0412 lb/in <sup>3</sup>	
Moisture Absorption at Equilibrium	2.0 - 2.5 %	2.0 - 2.5 %	Saturation at 50% RH
Water Absorption at Saturation	4.0 - 5.0 %	4.0 - 5.0 %	23°C

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	80 - 82	80 - 82	DIN 53505
Ball Indentation Hardness	135 MPa	19600 psi	DIN 53456
Tensile Strength at Break	64.0 - 66.0 MPa	9280 - 9570 psi	DIN 53455
Elongation at Break	40 - 60 %	40 - 60 %	DIN 53455
Tensile Modulus	3.20 GPa	464 ksi	DIN 53457
	0.700 GPa	102 ksi	DIN 53457
	@Temperature 100 °C	@Temperature 212 °F	
Charpy Impact Unnotched	NB	NB	DIN 53453

Charpy Impact, Notched Mechanical Properties	8.00 - 10.0 J/cm² Metric	38.1 - 47.6 ft-lb/in² English	DIN 53453 Comments
Coefficient of Friction	0.050 - 0.10	0.050 - 0.10	to steel, added lubrication
	0.15 - 0.29	0.15 - 0.29	to steel, no lubrication; ISO/DTR 7147
Abrasion	55	55	mm³; DIN 53516

Thermal Properties	Metric	English	Comments
CTE, linear	80.0 µm/m-°C @Temperature 20.0 °C	44.4 µin/in-°F @Temperature 68.0 °F	
Specific Heat Capacity	1.67 J/g-°C	0.399 BTU/lb-°F	
Thermal Conductivity	0.280 W/m-K	1.94 BTU-in/hr-ft²-°F	DIN 52612
Melting Point	205 °C	401 °F	
Maximum Service Temperature, Air	100 - 120 °C	212 - 248 °F	long time operation
	120 - 140 °C	248 - 284 °F	medium time operation
	160 °C	320 °F	a few hours operation
Minimum Service Temperature, Air	-40.0 °C	-40.0 °F	

Descriptive Properties	Value	Comments
Permissible Unit Pressure	18 - 23 MPa	
Time yield limit	up to 4	s1/1000; DIN.53444

## Contact Songhan Plastic Technology Co.,Ltd.

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