



**KEPLOY 9925M7**  
(HMWPE Grade for Injection Molding)

**R&D Center**

## 1. Characteristics

- (1) KEPLOY 9925M7 is HMWPE(High Molecular Weight Polyethylene) for applications requiring high friction & wear resistance in contact with steel.
- (2) KEPLOY 9925M7 has better flow-ability than normal HMWPE, which makes it possible to injection mold and compound smoothly.
- (3) In addition, this grade has an equivalent level of wear resistance to UHMWPE.
- (4) KEPLOY 9925M7 can be applied to applications requiring impact strength and friction & wear resistance.

## 2. General properties

General properties of KEPLOY 9925M7 grade are shown in Table 1

**Table 1. General properties**

Classification		Test Method	Unit	KEPLOY 9925M7	General HMWPE	UHMWPE
Physical properties	Density	ISO 1183	g/cm <sup>3</sup>	1.13	0.95	0.93
	Water absorption	ISO 62	%	< 0.1	< 0.1	< 0.1
	Type	-	-	Pellet	Powder	Powder
Thermal properties	Melt flow rate	ISO 1133	g/10min	13.1	1.4	-
	Melting temperature	ISO 11357	°C	135	135	135
	HDT (1.8 MPa)	ISO 75	°C	70	44	42
Mechanical properties	Tensile strength	ISO 527	MPa	31	21	17
	Strain at break		%	>100	>100	>100
	Flexural strength	ISO 178	MPa	33	-	17
	Flexural modulus		MPa	2000	-	600
	Notched Charpy impact strength	ISO 179	kJ/m <sup>2</sup>	>100	>100	>100
Other	Mold shrinkage (t 3 mm, ø 100mm)	KEP (Flow direction)	%	1.7	-	-

### 3. Tribological properties

Tribological properties are highly affected by driving conditions such as pressure on contacted surface, velocity, temperature, surface roughness, etc. KEPLOY 9925M7 grade has a better friction & wear resistance than general HMWPE

#### [Ring-on-Ring Type(Thrust Washer) friction & wear test]

Test method using a Thrust Washer is shown in Figure 1. Friction & wear test result is also shown in Table 2~3.

You can recognize that KEPLOY 9925M7 has superior friction & wear resistance contacting S45C and Aluminium.

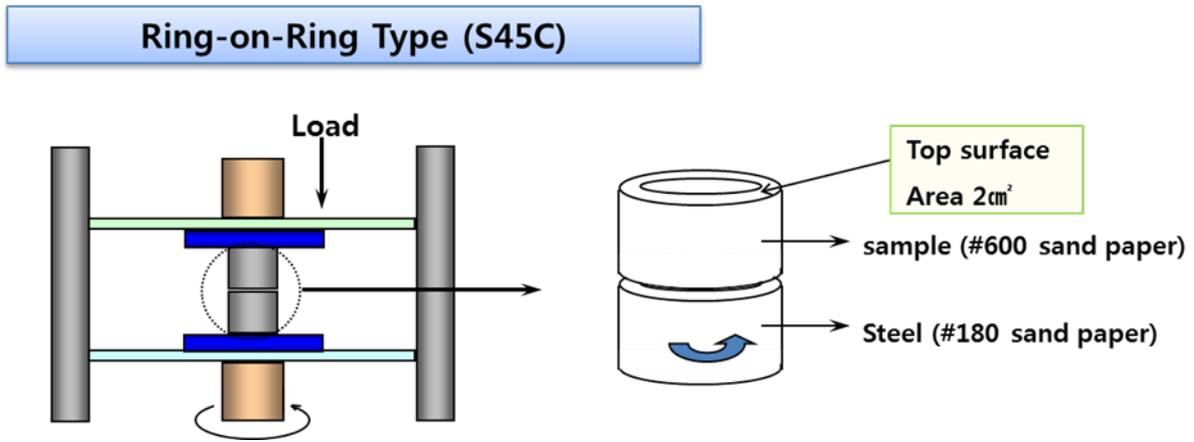


Figure 1. Thrust washer test method

Table 2. Friction & wear properties contacting Steel(S45C)

Classification	Dynamic friction coefficient(-)	Specific wear rate (mm <sup>3</sup> /N·km)
KEPLOY 9925M7	0.20	0.00
General HMWPE	0.22	0.03
UHMWPE	0.20	0.00
POM friction & Wear Grade	0.23	0.04

1. Test condition : 11.8 kgf(Force), 100 mm/s(Line speed), 2 h (Test time)

Table 3. Friction & wear properties contacting Aluminium

Classification	Dynamic friction coefficient(-)	Specific wear rate (mm <sup>3</sup> /N·km)
KEPLOY 9925M7	0.15	0.00
UHMWPE	0.14	0.00
POM friction & Wear Grade1	0.23	0.03
POM friction & Wear Grade2	0.20	0.01

1. Test condition : 11.8 kgf(Force), 100 mm/s(Line speed), 2 h (Test time)

**[Pin-on-Disk Type wear test]**

Test method using Pin-on-Disk type(reciprocating motion) tester is shown in Figure 2. Friction & wear test result is also shown in Table 4.

KEPLOY 9925M7 doesn't cause dust.

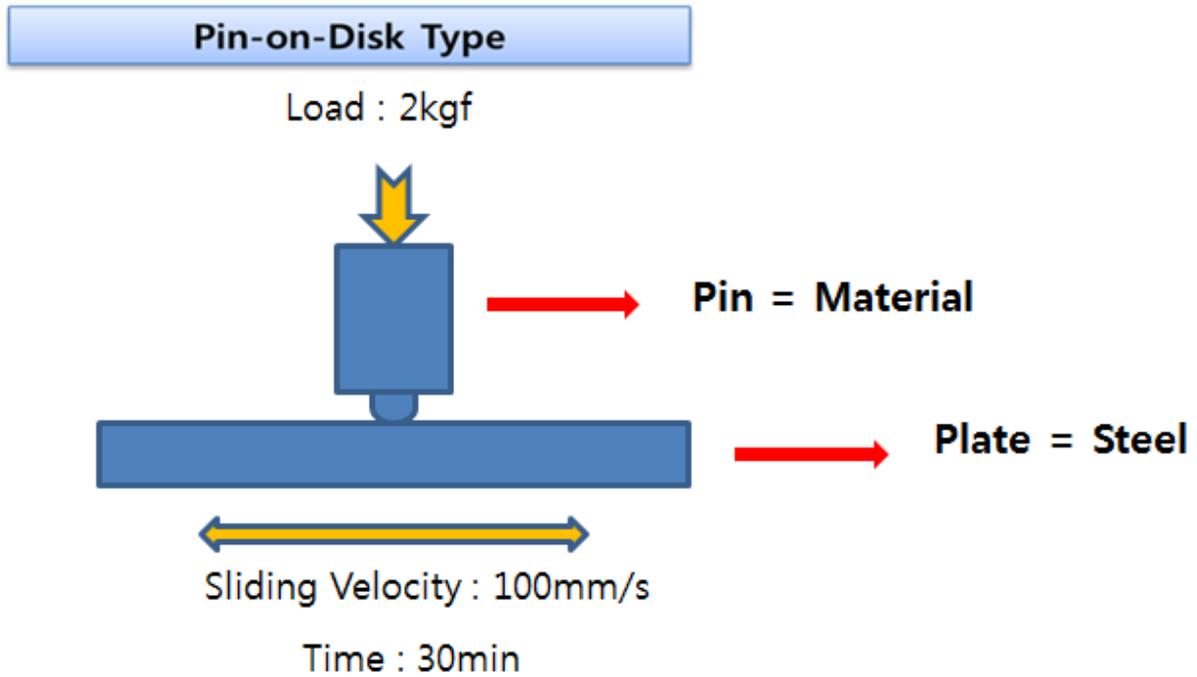


Figure 2. Pin-on-Disk type test method

Table 4. Friction & wear properties contacting S45C (Pin-on-Disk)

Classification	Dynamic friction coefficient(-)	Specific wear rate (mm <sup>3</sup> /N·km)
KEPLOY 9925M7	0.30	x
POM friction & Wear Grade	0.31	o

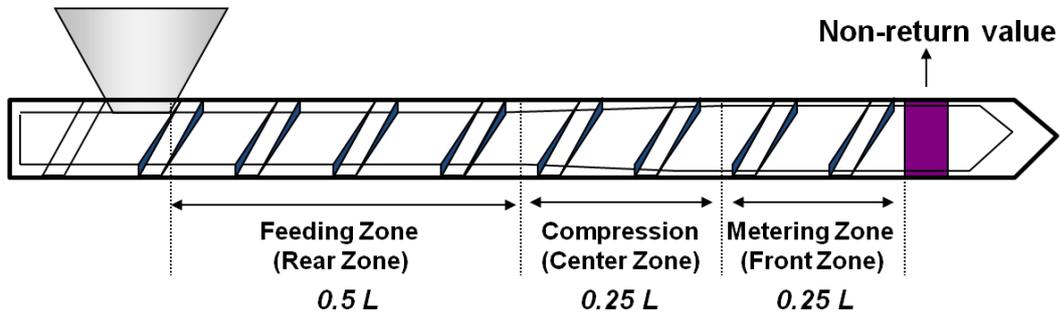


<POM friction & Wear Grade>

<KEPLOY 9925M7>

Figure 3. Surface state after Pin-on-Disk test

#### 4. Standard Molding Condition



Classification		Celsius	Fahrenheit
Pre-drying		80 ~ 100 °C (3~4h)	175 ~ 212 °F (3~4h)
Cylinder Temperature	Rear	170 °C	338 °F
	Center	180 °C	356 °F
	Front	190 °C	374 °F
	Nozzle	180 ~ 210 °C	356 ~ 410 °F
Mold Temperature		60 ~ 80 °C	160 ~ 175 °F

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