

Recommendation of Compounds for Grips using SEPTON™ BIO-series

- Excellent grip performance & High bio-based content -

Elastomer R&D department
Elastomer division

kuraray **Septon™** BIO-series

Compounds using SEPTON™ BIO-series with high grip & high bio-based content



			1	2	3	Ref.1	Ref.2	Ref.3
Elastomer	SEPTON™ BIO-series SF904 (Bio-based cont.=50 wt%)	wt%	70	80	85	-	-	-
	SEPTON™ 4055 (Bio-based cont.=0 wt%)	wt%	-	-	-	25	35	-
	HYBRAR™ 7125 (Bio-based cont.=0 wt%)	wt%	-	-	-	-	-	100
PO	Bio-LDPE (Bio-based cont.=95 wt%, MFR=30 g/10 min)	wt%	30	20	15	34	-	-
	Random PP (MFR=20 g/10 min)	wt%	-	-	-	-	17	-
	Paraffin oil (90 mm ² /s at 40 deg. C)	wt%	-	-	-	41	48	-
	Antioxidant	phr	0.1	0.1	0.1	0.1	0.1	0.1
	Anti-blocking agent	phr	0.1	0.1	0.1	0.1	0.1	0.1
	Total bio-based cont.	wt%	63.5	59	56.8	32.3	0	0
	Coefficient of static friction (Aluminum)	Dry	4.8	6.3	10	1.5	1.9	4.0
	Specimen: Injection molded sheet (2 mmt)	Wet	3.1	4.2	3.9	1.4	1.5	1.4
			MD TD	MD TD	MD TD	MD TD	MD TD	MD TD
	Hardness	Type A	60	55	48	76	61	56
100% modulus	MPa	2.2 1.9	1.6 1.2	1.1 0.9	2.7 2.6	2.1 1.5	2.4 1.1	
Tensile strength	MPa	4.6 5.3	4.0 5.2	3.7 4.9	3 5.7	11 14	5.7 12	
Elongation	%	425 680	440 730	540 760	200 670	880 920	520 890	
MFR (230 deg. C, 2.16 kg)	g/10 min	90	84	76	40	0.1	6.2	
Compounding conditions ¹⁾ : Cylinder temp.	deg. C	200	200	200	200	200	-	
Injection molding conditions ²⁾ : Cylinder temp./Mold temp.	deg. C	200/40	200/40	200/40	200/40	200/40	230/40	
Moldability		Excellent	Excellent	Excellent	Excellent	Excellent	Fair	

1) ZSK26Mc φ26mm,L/D=56 (Coperion GmbH), 2) EC75SX 75ton (Shibaura Machine Co., Ltd.)

Excellent Wet Grip Performance of SEPTON™ BIO-series

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Excellent Grip performance

- SEPTON™ BIO-series shows excellent wet grip performance compared to general HSBCs.

Formulations: SEPTON™ BIO-series SF904/Bio LDPE (80/20) (Hs=55A)
SEPTON™ 4055/Oil/Homo-PP (100/170/50) (Hs=59A)

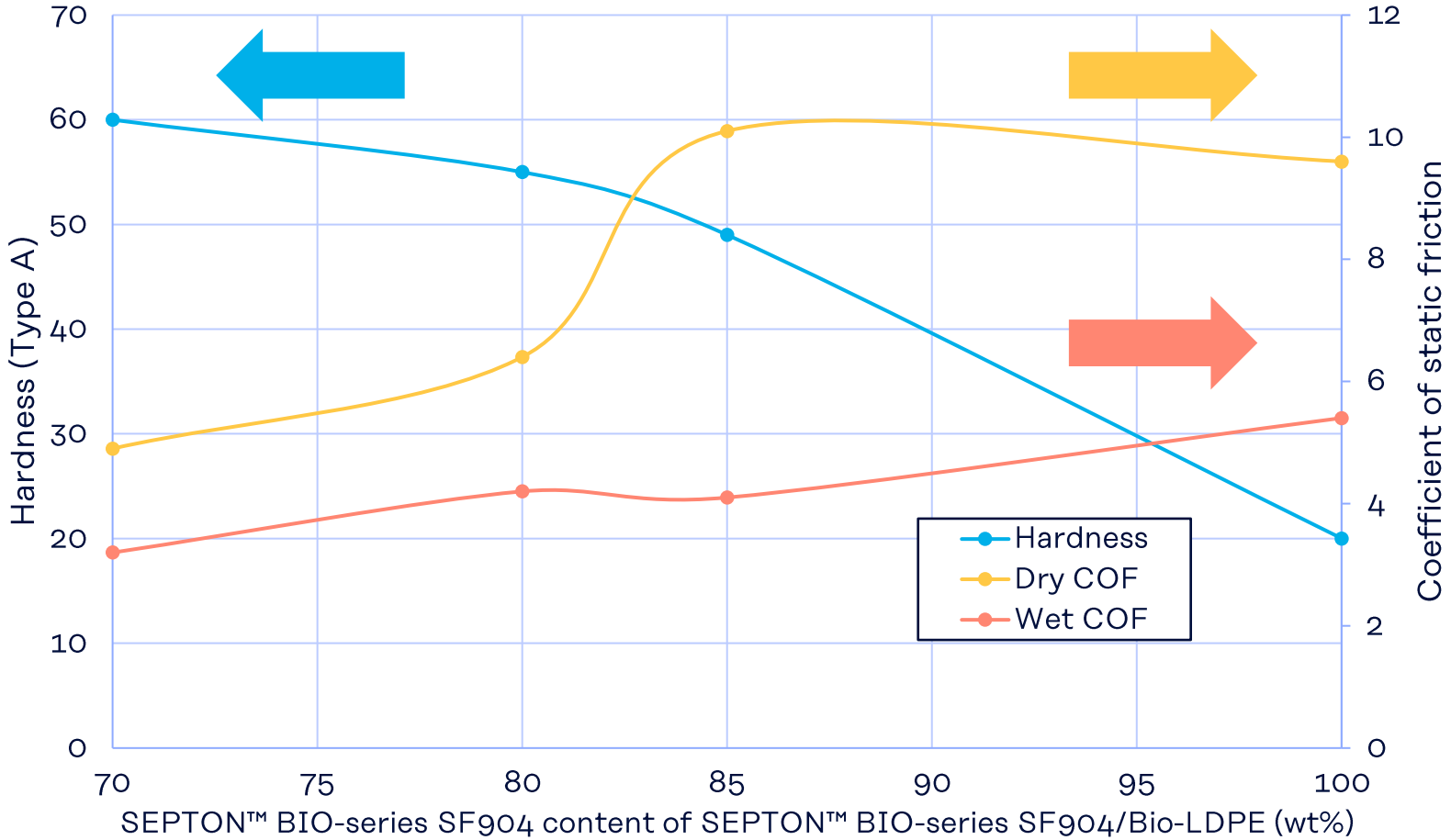


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[RRF11 005 E1 Wet grip of SEPTON BIO series](#)

Relations between SEPTON™ BIO-series SF904 content and Hardness or SEPTON™ BIO-series SF904 content and COF (Dry, Wet)



*COF = Coefficient of static friction

Injection molding conditions

- Injection molding conditions at low speed and low to middle pressure are recommended.

Injection machine (Clamp force:80 ton)		
Mold shape	Golf grip	
Hopper temperature	deg. C	< 60
Cylinder temperature	deg. C	C1:180, C2-C5:200
Mold temperature	deg. C	20
Injection pressure	MPa	130 (Hold pressure: 38)
Injection speed	mm/s	8.8
Injection time	sec	13
Cooling time	sec	22
Charging stroke	mm	90
V-P Switching position	mm	9

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