
POE Processing Guide for Foam Application



Polyolefin Division Tech Center

POE for mid-soles

High performance

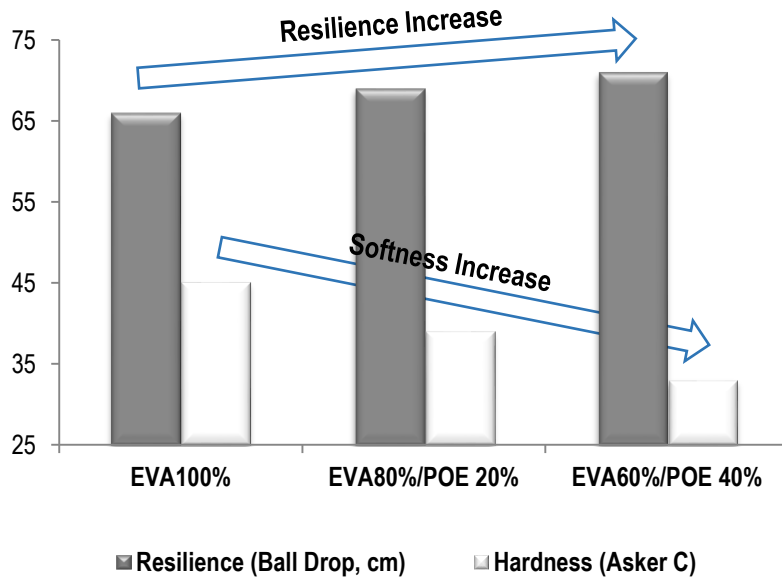
POE/EVA blend improves the performance of mid-sole compared to that of EVA alone

- Resilience & Softness

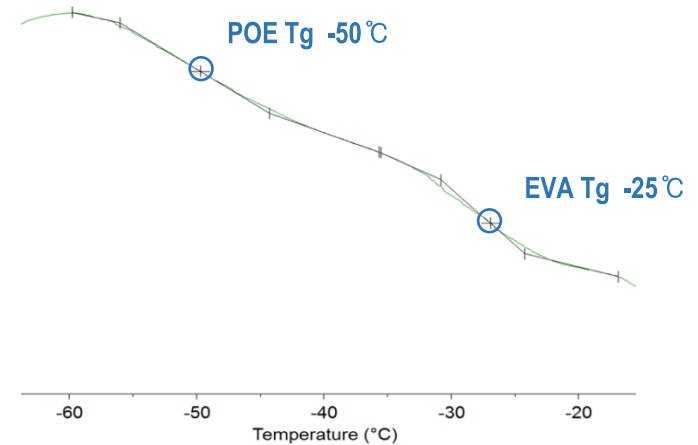
: The higher POE ratio of POE / EVA blended products, the better rebound resilience is achieved, while the hardness is decreased (Improved softness).

- More flexible winter shoes when blended with POE & EVA

: The characteristics of low glass transition temperature of POE make the product more flexible at sub-zero temperatures.



	POE	EVA
Glass transition Temp.	- 50 °C	- 25 °C



DSC Graph for foamed midsole of EVA/POE Blends

※ Polymer : EVA (VA 28%, MI 5), LC565 (ρ 0.865, MI 5)

※ Additive Formulation (phr.) : DCP 0.8phr, Foam agent 4phr (50%, M/B), ZnO 5phr, St/A 1phr, TiO₂ 4phr

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LC 565 Blends for Foam

Typical properties of LC565

Characteristics	Test Method	Unit	Value
Density	ASTM D1505	g/cm ³	0.865
MFR(190 °C, 2.16Kg)	ASTM D1238	g/10min	5.0
Hardness (Shore A)	ASTM D2240	-	54
Melting Temperature	LG	°C	36

Formulation & properties

※ Basic additive(phr.) : ZnO 5phr, St/A 1phr, TiO₂ 4phr

	#0	#1	#2	#3	#4	#5	#6
ES28005 (%) (VA28%, MI 5)	100			80			60
LC565 (%)	0			20			40
DCP (phr)				0.8			
Foaming Agent (phr. 50% M/B)	4.0	3.0	3.5	4.0	4.5	5.0	4.0
Expansion ratio, %	163	150	157	165	169	175	164
Hardness (C)	46	49	44	39	35	33	33
Specific gravity	0.199	0.244	0.212	0.197	0.170	0.150	0.195
Tensile strength, kgf/cm ²							
Elongation, %							
Tear strength, kgf/cm							
Split tear, kgf/cm							
Compression-set (50 °C, 6h), %	73	73	73	75	76	80	72
Resilience (Ball drop), %	51	53	55	54	53	54	56
T-Shrinkage (70 °C, 60min), %	2.5	2.0	2.6	3.1	3.5	4.3	3.3

Properties (2-skin off) ; except for Expansion ratio & Shrinkage (2-side on)

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