LG Chem

SolutionPartner

POE Processing Guide for Foam Application

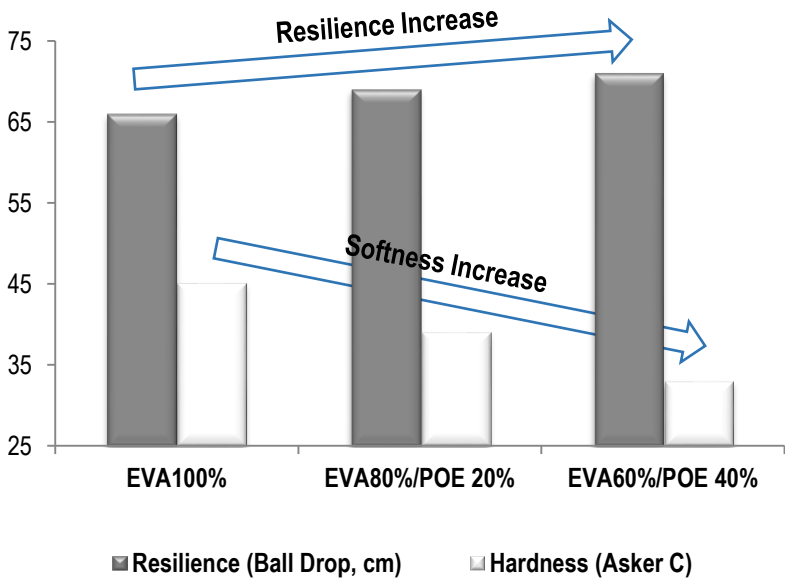
Polyolefin Division Tech Center

POE for mid-soles

High performance

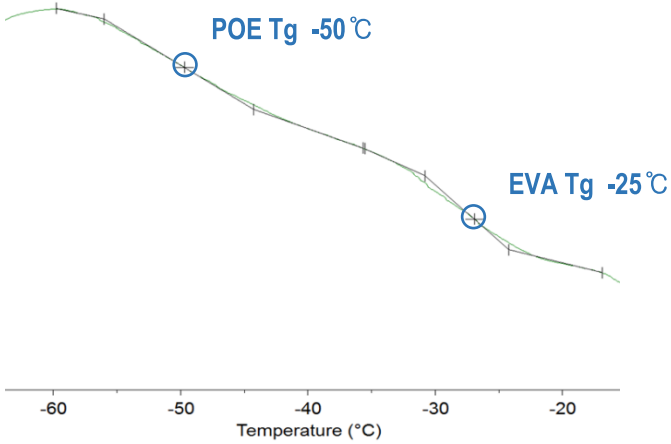
▪ **POE/EVA blend improves the performance of mid-sole compared to that of EVA alone**

- **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℃	- 25℃



■ **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, TiO_2 4phr

LC 565 Blends for Foam

Typical properties of LC565

Characteristics	Test Method	Unit	Value
Density	ASTM D1505	g/㎤	0.865
MFR(190℃,2.16Kg)	ASTM D1238	g/10min	5.0
Hardness (Shore A)	ASTM D2240	-	54
Melting Temperature	LG	℃	36

Formulation & properties

※ Basic additive(phr.) : ZnO 5phr, St/A 1phr, TiO_2 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℃, 6h), %	73	73	73	75	76	80	72
Resilience (Ball drop), %	51	53	55	54	53	54	56
T-Shrinkage (70℃, 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)