Green Smart Technology

HB-EPP

Hanwha Bead Foam – Expanded Polypropylene

Know–How of weight lightening materials

The cutting–edge EPP packaging material market is now expanding to meet the demands of consumers for high–end packaging materials with better surface appearance and stability as the replacement for common bead–shaped packaging materials. Hanwha started in the EPP business in the early 1990s and went on to develop its own CO_2 foaming technology in 2008. It now produces HB–EPP (Hanwha Bead Foam) and HB–EPE with innovative technology for better product price and quality. Now it is expanding its sales in both domestic and global overseas markets.

Eco–Friendly Product

- Higher fuel–efficiency through weight lightening
- Minimization of environmental pollutants
- Viable recycling for non–crosslinked foaming agents

Superior Property

- High resistance to repeated impacts
- High insulation system
- High resistance to weather, grease, and chemicals

Various Application

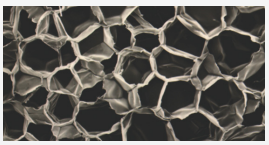
- Viable selection among many expansion ratios
- Viable formation in complexed shapes
- Viable manufacturing in various colors

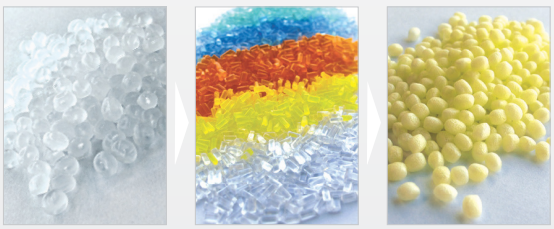
HB–EPP Manufacturing Process

Mini Pellet Process	Forming Process	Molding Process
Mixing	Preparation	Pre–pressuring
Extruding	Heating Up	Feeding
Cooling	Holding	Heating
Cutting	Forming	Cooling
Sifting	Drying	Ejecting
Packing	Storage	Drying

What is EPP ?

Expanded Polypropylene





Mini–Pelletizing Expanding

Hanwha
Bead Foam
Expended Polypropen

Properties of HB-EPP

EPP is superb foaming agent in general properties and especially has continuous cushioning ability. The characteristics are intrinsic to PP resin, the raw material for foaming agents. Thus, EPP is highly resistant to cell destruction and deformation originating from external impacts.

		HB-EPP	HB-EPE	EPS
Density (g/cm³)		**0.09 – 0.012**	0.09 – 0.03	0.2 – 0.013
Expansion Ratio		**10 – 75**	10 – 30	5 – 75
Cell Structure		**Closed**	Closed	Closed
Properties	Compressive Strength	○	△	◎
	Resistance of Damage	○	◎	×
	Elastic Stability	○	◎	△
	Flexibility	○	◎	△
	Tensile Strength	◎	△	△
	Chemical Resistance	◎	◎	△
	Heat Resistance	◎	△	△
	Precision of Size	◎	△	◎

Physical Properties HB-EPP

Properties		Test Method	Unit	15X	30X	45X
Density		ISO 845	g/L	60	30	20
Compressive Strength	25%	ISO 844	kPa	380	115	85
	50%		kPa	510	200	150
	75%		kPa	1010	430	360
Tensile Strength		ISO 1798	kPa	820	400	280
Compression Set		ISO 1856C	%	16	17	20

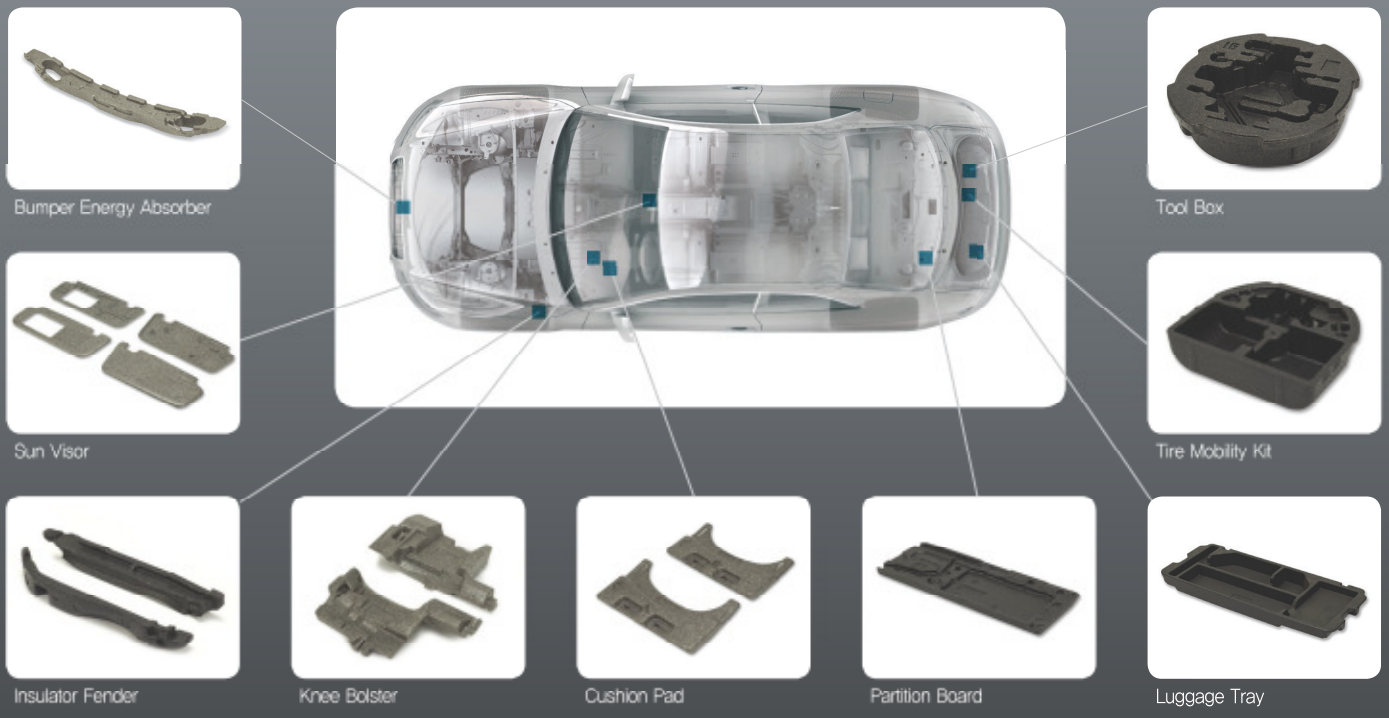
* Above-mentioned data may vary by test condition methods.
* Other than above-mentioned grades, optimized special grade products are available.

HB - EPP

Application

For automotive use

HB–EPP, with its lightness, high repeated cushioning, sound–absorbing quality, and other features, is widening its application in internal and external decorative materials according to the weight–lightening trend of automobiles. It is widely applied to partition boards, seat cushions, door pads, etc, in addition to current applications as energy absorbers and tool boxes.



New Product Development Plan

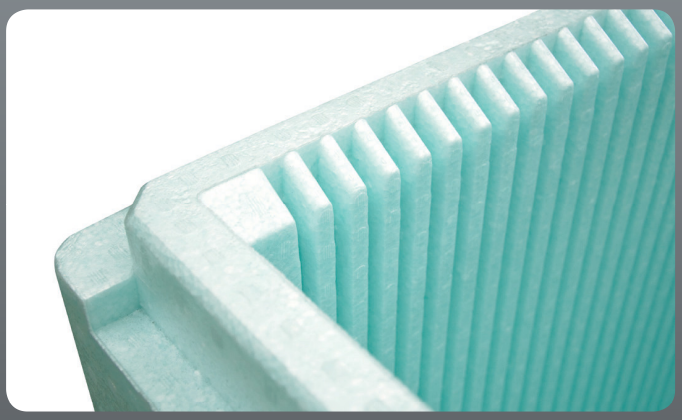
HB–EPP, with various advantages, including its eco–friendliness, extends it use into diverse applications including automotive and packaging material functions. It widens its scope to include general living products, such as insulation pads and soundproof walls, construction meterials, artificial turf, sports and leisure products, safety mats for childern, and cushioning materials for furniture.

Major Application Field

- Sports/Leisure : Artificial Pad for Soccer and Baseball Fields
- Construction Material : Insulation Pad / Soundproof Wall / Cushioning Material for Furniture
- Packaging : LCD/LED Panel Box / General Reusable Box
- Others : Buoy for Fishfarming / Defense Industry

For packaging material use

The application of HB-EPP to packaging materials is on the rise to serve the demands for surface appearance protection and high quality product packaging. HB-EPP is an environmentally friendly material with high continuous cushioning, sound dead-ening, perfect resistance to corrosion, and use in a wide range of temperatures, which differentiate it from other products.



Disk Box 1

Disk Box 2

Cell Box

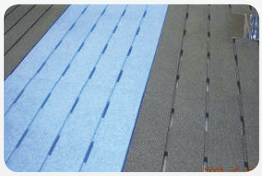
Glass Tray 1

Glass Tray 2

Field track

Sound Insulation Pad

Infant's mat



Step Board

Artificial turf

Farm buoy