

PU Technical data

Soft, hard and Insulation foam



■. Concept	<p>Polyurethane foam is following crosslink reaction by isocyanate and polyester or polyether which generate active hydrogen. The following factors should be taken into accounts with balanced crosslink reaction, fully foamed in proper gelation without overflowing</p>	
	<ul style="list-style-type: none"> ◆. Amount and activity of each reactant ◆. Mutual solubility of reactants ◆. The effect of catalysts on the reaction and relative speed of each reactant. ◆. Mutual interference between reactants 	
1. Soft Polyurethane	(1) Characteristics	<ul style="list-style-type: none"> ▷ Density between 0.018 and 0.024 g/cc ▷ Suitable for cushioning due to small deformation and high compression load when compressed ▷ Excellent flexural fatigue characteristics ▷ Excellent processability and sound absorption
	(2) Use	<ul style="list-style-type: none"> ▷ It has a better position than other plastics for bedding products used in vehicles, sound absorption, furniture, packaging, miscellaneous goods, etc..
2. Hard Polyurethane	(1) Characteristics	<ul style="list-style-type: none"> ▷ Density between 0.02 and 0.08 g/cc Injection without gaps, adhesion, Excellent insulation due to seamless structure, increased mechanical strength due to increased moisture-proof density ▷ Excellent drug resistance, solvent resistance, weather resistance, electrical insulation"
	(2) Use	<ul style="list-style-type: none"> ▷ It is widely used as insulation material for refrigerators, warehouses, ships, tanks, pipes, etc. Foaming with Freon has significantly lower ductility and superior insulation. It is also used as building materials, packaging materials, flotation materials, electric insulation serial materials, etc."
3. Foamed in place	(1) Characteristics	<ul style="list-style-type: none"> ▷ It has the advantage of reducing infusion into gaps and damage during transport thus saving the cost.
	(2) Benefits	<ul style="list-style-type: none"> ▷ Convenient transport of raw materials, low transportation costs ▷ Insulation and moisture-proofing effects due to seamless structure with subjects ▷ Reduce working hours

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Integral Skin Foam (I.S.F)

Meaning of Integral	Integral Skin Foam as I,S,F
History	With ISF, skin is formed inside the mold. There were two processes before ISF
Concept	It is manufactured by forming a high density PU resin by condensing it on the mold surface with the high temperature and foaming agent's high pressure.
Characteristics	<ul style="list-style-type: none"> - Excellent formability for various shapes - Easy to control foam hardness - Improve the productivity due to excellent hardness - Excellent physical properties such as abrasion resistance
Forming skin mechanism	<p>I,S,F. uses freon as a foaming agent which generates reaction heat leading vaporization to Just-pack to Over-pack.</p> <p>At this time, the pressure rises rapidly on the mold surface with boiling point (23,7)) of Freon, Liquefaction occurs.</p> <p>Then gelation occurs, forming a high-density skin layer with less air bubbles.</p> <p>F-11 dissolved in the Skin layer is slowly volatilized into the air after deformation.</p> <p>Recently, F-11 has been regulated as the cause of ozone depletion, using substitute substances (141b or pentane).</p>
Raw Material	<ol style="list-style-type: none"> 1) Polyol (functionality : Separate mix for function and characteristics) 2) Isocyanate (Applied modified MDI suitable for chemical reaction with polyol) 3) Catalyst (Amine , tin silgle or mix) 4) Additive (Toner, Deodorant, flame retardant, etc.) 5) Silicone surfactant (use cell open and low activity)
Forming Condition	<ul style="list-style-type: none"> - Temperature : 20 ~ 30°C - Mold Temp : 40 ~ 60°C - Mold Material : Steel, Aluminium, Nickle - Vent hole : Filling cup-air and removing gas. - Deformation: Deformation suitable for mold temperature and polyol properties