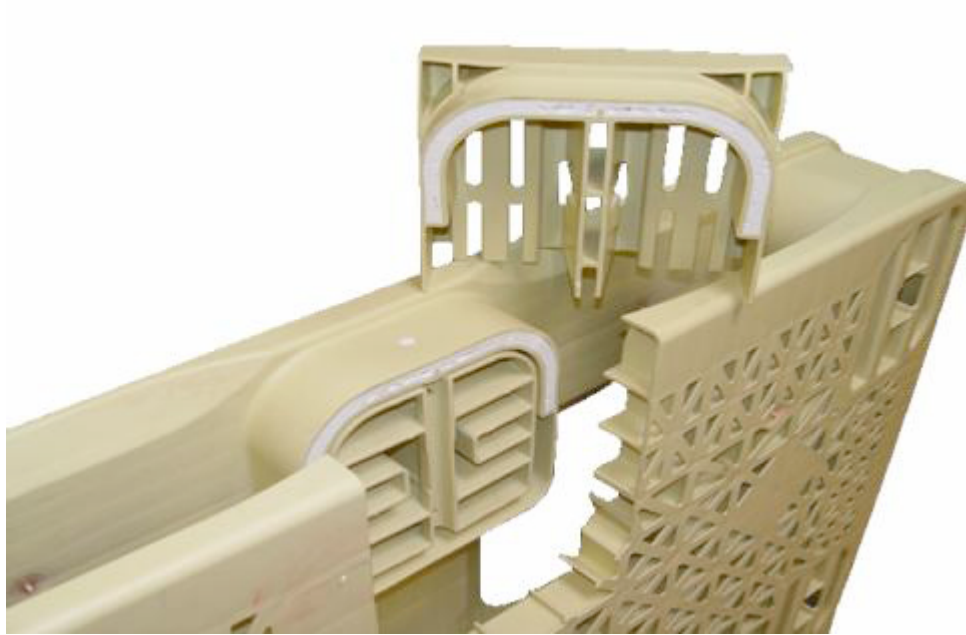


High Impact Plastic Pallet



Molder: Plásticos Técnicos Mexicanos SA de CV

Designer: Sosa Tech-Advisors LLC

Supporting Documentation:

[FEMSA project gallery](#)

[Inside Injection Foaming \(iif\) Patent](#)

[Pallet Photos](#)

Product Description

The specifications of the product are: A multitrip polypropylene pallet, with open deck, six skids, made in two parts, reinforced and assembled with iff processes (inside injection foaming). The dimension are 1100mm x 1220mm x 165mm (43.3" x 48" x 6.5") with a weight of 26Kg (57.32lb). Dynamic load 2000Kg (4400lb), Racking load 2000Kg (4400lb) and Static load 10000Kg (22,000lb). The description of the product is: Pallet made in two parts, the base and the cover, each part were injected in a 2000ton machine separately; in a special machine the parts were assembled and the 8 external columns were injected with recycling polypropylene foam according with the inside injection foaming process, iff. The description of the process is: Inside Injection Foaming is the process of injecting thermoplastic foam (normally recycle material) into



international plastics design competition



specific parts of any molded plastic product. The iif can be implemented into any conventional plastic transformation process like plastic injection, extrusion, blow molding, thermoforming, rotomolding and more. (for more information: www.SosaTechAdvisors.com)

Why is the product innovative?

Industrial Innovation, until recently, a trait of highly technological countries like United States, France, Germany, Italy or Japan is beginning a shifting to the emerging economies. Mexico one of these economies is now trying not only to manufacture at low cost for third parties, but to systematically promote creativity into industries and universities alike. This is the case of Industrial Engineer Sergio Sosa and the work he did for the FEMSA Group in Mexico: " When Mr. Jorge Mariano Montero, Director of the FEMSA Group, Vendo Division; ask me to lead a challenging project, the internal manufacture of the Group plastic pallets necessities, I asked him. Do you want a pallet development with a similar performance of the actual one you are buying, but cheaper? or Do you really want a pallet with better performance?. The immediate answer was: We want a much better pallet, but also cheaper in price" The objective of the project was simple but at the same time complicated. Sosa needed to design and manufacture a resistant plastic pallet that would tolerate high impact rates from forklifts. Also to be a pallet that could be produced to a lower cost than the ones currently in the market. There were some plastic pallets that existed at the time, which would be rigid enough to withstand forklift impacts. These pallets were being manufactured with structural foam injection. But this process requires long cycles of manufacturing that surpass 120 seconds. This is one of the reasons that these types of plastic pallets top the \$100 in price per piece. On the other hand, standard plastic pallets manufactured by traditional injection are faster and cheaper to produce. Of course, their structural resistance is lower and does not provide an ideal resilience to any kind of high impacts. Having this in mind, Sosa decided to design a new process that would combine both advantages. The structural endurance of structural foam injection and the lower cycles of the traditional plastic injection. The result of this hybrid process is called "iif", Inside Injection Foaming. Inside Injection Foaming is the process of injecting thermoplastic foam (normally recycle material) into specific parts of any molded plastic product. The iif can be implemented into any conventional plastic transformation process like plastic injection, extrusion, blow molding, thermoforming, rotomolding and more. (for more information: www.SosaTechAdvisors.com) This process allows parts and products manufacturing to be reinforced within their structure. This dramatically improves structural characteristics such as resistance, rigidity and load capacity. Also production time and final cost is reduced as the result of the iif process. Optimal results were draw to conclusion on the FEMSA Group project. Impact resistance to the pallet was increased thank to a 20mm thickness in its columns and production time was reduced to only 70 seconds. But most importantly, the cost was also reduced to way under \$100 of the other competing pallets.