

PRESS RELEASE

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Use the global adhesives life cycle to gain a competitive edge

Spotlight on automotive interior applications



The global market for adhesives is expected to grow by 4% p.a. until 2020. At 6% p.a. the segment of adhesives developed especially for automotive interiors is growing at an above-average rate. However, this segment is experiencing a fast dynamic change – especially with regard to adhesive types, usage and its raw materials. Thus the question arises: How can an adhesive producer position itself to exploit this trend with the aim of gaining a competitive edge in the automotive interior business?

A key question in the assembly process is how to attach parts and how to keep them in place.

Historical development

In the early days of industrial assembly, the answer was quite simple. Mechanical fastening, e.g. welding, stitching or sewing, or bolting, was the method of choice. As the number of materials and material combinations increased, these possibilities were quickly maxed out. New advances in adhesives development followed. In the late 1920s, PVC-based adhesives were patented. Then came acrylates, 2-component epoxies and hot melts in the period up until the 1960s. These were followed by more advanced solutions (e.g. 1-K PU or UV curing acrylates) from the 1970s until now. This wide variety of available adhesives offers manufacturing companies a multitude of options for attaching and fastening parts in the assembly process.

Focus on automotive interior applications

In automotive interiors a variety of different adhesive types are used. Depending on the function of the glued part, almost every kind of adhesive is applied. Also cost saving potentials, due to more efficient assembly processes, play an important role. Despite the complexity and variety of the adhesives used, a clear *life cycle of gluing* depending on the level of technological

competence, degree of automation, customer expectations and regulations can nevertheless be observed.

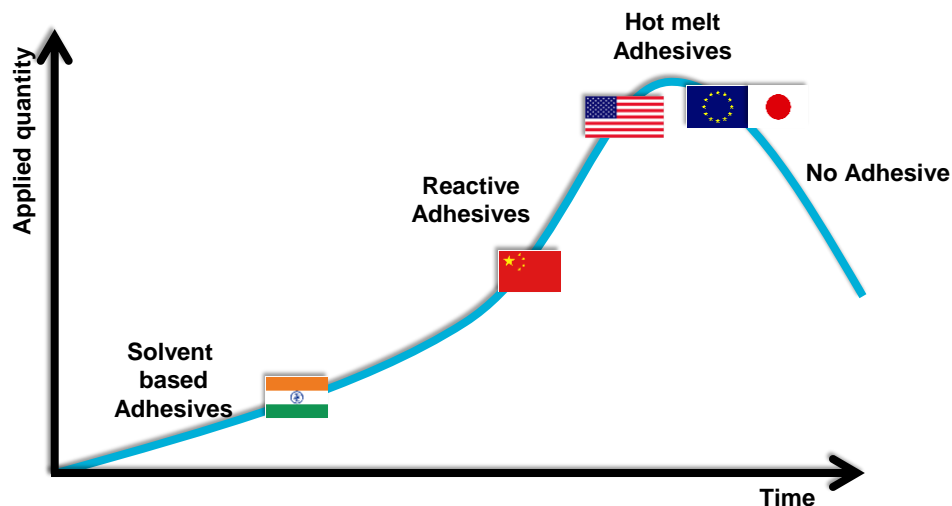
From a global perspective, the life cycle of gluing reveals country-specific affinities and preferences.

Southeast Asia: above all cost-efficient

In the first phase, mechanical attachment (e.g. by sewing) is replaced by gluing. Solvent-based adhesives are used as they are cheapest and highly versatile in their application. They can be used for many non-structural parts and are very easy to handle, e.g. due to their long open time. These adhesives are usually applied manually and can be readily handled by unskilled workers. They are still very popular in automotive construction in South and South East Asia.

Reasons:

- low cost
- low degree of automation needed
- and low awareness of VOC
(=Volatile Organic Compounds)



The next level of adhesive application is seen in the Chinese automotive industry. A higher level of automation and greater awareness with regard to the adverse effects of VOC are the main drivers for use of more advanced adhesive solutions: i.e. reactive and simple (EVA) hot melt adhesives.

For the highest level of automation and lowest VOC emissions, modern polyolefin-based (PO) hot melt adhesives are often the best choice. Therefore, in mature markets, OEMs show a greater tendency to use hot melt adhesives rather than other adhesive solutions.

The use of adhesive always incurs additional costs for the adhesive itself and dispensing machinery as well as the risk of VOC exposure – even if at a low level

with modern hot melt solutions. Therefore, adhesive-free assembly will most likely experience a renaissance. The maximum of the life cycle of gluing might have already been reached in the developed countries. In particular, our analysis has shown that ultrasonic bonding of thermoplastic materials and more advanced mechanical bonding methods will become even more relevant. Nevertheless, increasing production output especially in Asia will lead to an increase of 6% p.a. in the use of adhesives in automotive interior applications.

A similar trend is observed in a price-sensitive market: namely diapers. This particular industry is also a very good example of how to simultaneously handle consumer expectations and efficient production. Especially in Europe, the awareness of VOC is very high. The shift from smelly high-VOC adhesives to the latest (PO) hot melt adhesives with low VOC content took place a long time ago. Now, more and more parts of the diaper are assembled without any glue. Even elastic parts, which used to rely heavily on adhesives, are now attached by mechanical bonding methods.

So what does all this mean for the adhesive-producing industry?

- Emerging Asia is a growing market for reactive and standard (EVA) hot melt adhesives for automotive interiors and can be targeted with current standard products.
- In the mature markets of the USA, Japan and Europe, high performance products with low VOC content need to be offered (e.g. PO hot melts) to stay competitive with adhesive assembly technologies.
- There is need to convince OEMs in emerging Asia that the adhesives currently sold in the USA, Japan and Europe are the first choice when the market moves ahead in the life cycle curve.

Schlegel und Partner supports clients in the adhesives industry in identifying growing potential and in evaluating “value argumentations” in different application fields. Despite the trend to avoid adhesives, previous analyses have shown that in particular fields there will be an overall increase in the use of adhesives and attractive new segments have already been discovered.

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