



Introduction to Modified MDI

▲ What is modified MDI

As a derivative of the MDI series products, modified MDI is currently commonly used technical extension of pure MDI and polymeric MDI, which could be widely used in such sectors as slab polyols, elastomers, coatings and adhesives by providing its special properties of usage and processing due to differences of product structure design and synthesis process.

There are various kinds of modified MDI, and several MDI manufacturers giants have also been stepping up the research and development of modified MDI, which has enriched modified MDI types. And the products that have been produced and used in a large scale are as followed:

1. C-MDI

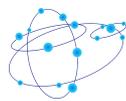
C-MDI, which is also called liquefaction MDI in the market, is formed by the self-aggregation of 44-MDI. Currently, various MDI manufacturers have their own products and brands, such as 100LL of Wanhua Chemical, MM103C of BASF and 2040 of Huntsman which all belong to this series. (This kind of modified MDI is excluded and is called liquefaction MDI according to general understanding in the market.)

2. Polyols Modification

Polyols Modification is also known as carbamate modification and is formed by reaction of 44-MDI and 24-MDI in a certain proportion.

3. Blended Modification

Blended Modification is usually formed by the mix of polymeric MDI and pure MDI, 24-MDI and polyols modification MDI or C-MDI in a certain proportion.



China Modified MDI Market to Have a Prospective Growth

▲ Comparison between modified MDI and TM system

Modified MDI has higher production-tolerance level and lower odour than TM system. In current context of requirement for low-odour automobile interior, the modified MDI has very bright application prospects. Though with a low expansion ratio, modified MDI can fully meet the requirement for the density of car seats of 40-45 kg/m³. In addition, thanks to its resistance to low- temperature crystallization and high safety level, modified MDI can make up for pure MDI's deficiency of inconvenience in storage and transportation.

The big obstacle to application of modified MDI is its high costs. In the formulation, modified MDI has lower proportion of PMDI to polyol mixture than the TM system. But which one is cheaper under the circumstance that prices of both PMDI and TDI are at high level? The following is the cost calculation of raw materials aimed at figuring out which one is cheaper.

Comparison between raw-material costs of modified MDI and TM system(Take the prices on September 12 as an example)

Modified MDI	TM system (taking TM50 as the example)
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Price of polyol mixture (RMB 1,000 /ton)	15	15
Price of PMDI (RMB1,000 /ton)	32	TDI 40 + MDI 42
Proportion of PMDI to polyol mixture	100 : 60	100 : 45
Raw materials cost	21.375	23.068

From the comparison, it can be seen that modified MDI is cheaper than TM. If the high price level of MDI and TDI stays, the advantage of using modified MDI will become more prominent.

Demand Side

Change in demand for modified MDI for 2012-2017(note: the demand in 2017 is based on estimation)

Year	2012	2013	2014	2015	2016	2017E
Consumption/kt	43	47	70	78	87	105
Growth rate	16.22%	9.30%	48.94%	11.86%	10.01%	20%

From the table, it can be seen that first, modified MDI has seen rapid growth in recent years, with double-digit growth most of the time; Second, the explosive growth in 2014 was a result of the increased investment in MDI production capacity by manufacturers. Only when the supply is expanded, can the demand for modified MDI be spurred; Third, new capacities of Tosoh Silica, Wanhua Chemical and Huntsman will be released in 2017, resulting in an estimated growth of over 20%.

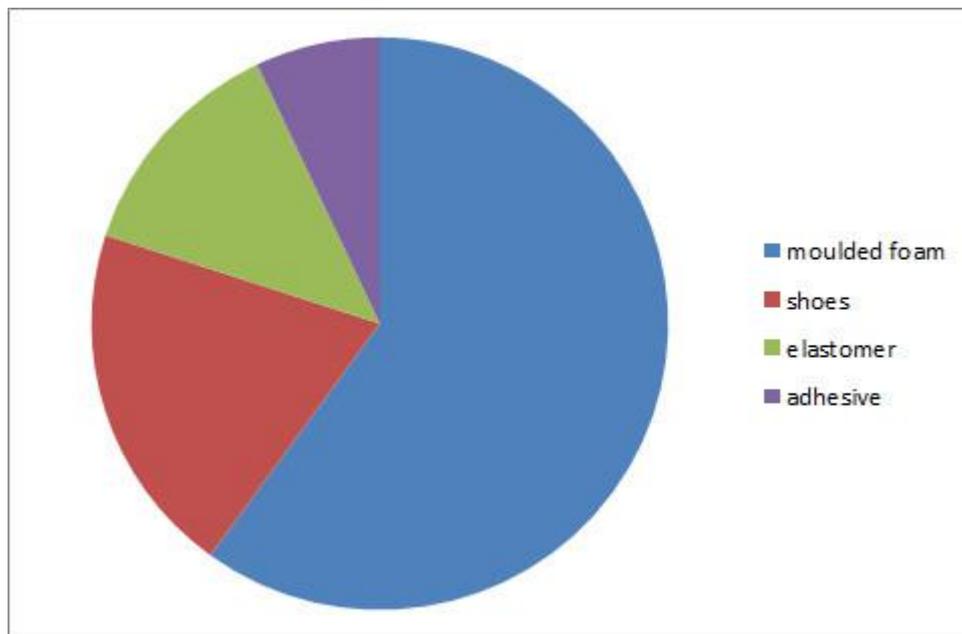
Supply Side

Over the past few years, BASF and Covestro have firmly occupied the first and second places in supplying modified MDI by relying on the imports from abroad. With Wanhua Chemical's ongoing release of its new production capacity of modified MDI, the company will overtake BASF as the largest supplier of modified MDI in China in 2017. And Huntsman, a well-known modified MDI producer, is also making continuous efforts to overtake its rivals. Its new MDI capacity will be released at the end of the year. Thus it is expected that the company will overtake BASF as the second largest supplier of modified MDI in China. Besides, some of the domestic manufacturers with mature polyurethane technologies, such as Dongda Inov and Dongguan Hongdi, have a relatively stable market share and are still expanding.

Downstream Application

Modified MDI is mainly used for producing moulded foam, which is primarily used to make car seats, high-grade toys, furniture and cushions. In addition, it is used for making shoes as well as adhesive and elastomer. With strict downstream requirement for odour and VOC (volatile organic compounds), there is large room for the growth of modified MDI, particularly in the field of water blown polyurethane foams.

Modified MDI's downstream application areas and proportion



To sum up, both the continuous release of new capacities and the growing downstream demand indicate a bright prospect for the growth of modified MDI.

From the above analysis, it can be seen that the domestic modified MDI market is developing rapidly. But how about the current market demand for the modified MDI? You need a detailed report! To meet the requests of our customers and let them know more about the market of modified MDI, PUdaily specially prepares the Research Report on the Market of Modified MDI. It will give more detailed analysis of the present and future modified MDI market, thus enabling you to have a comprehensive understanding of the market with "one book"!

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CHINA MODIFIED-MDI MARKET

YEARLY REPORT CONTENT



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 - Name of Distributors
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- a) Pricing Strategy
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