

# **THE U.S. ADHESIVES INDUSTRY – CURRENT STRUCTURE AND FUTURE GROWTH**

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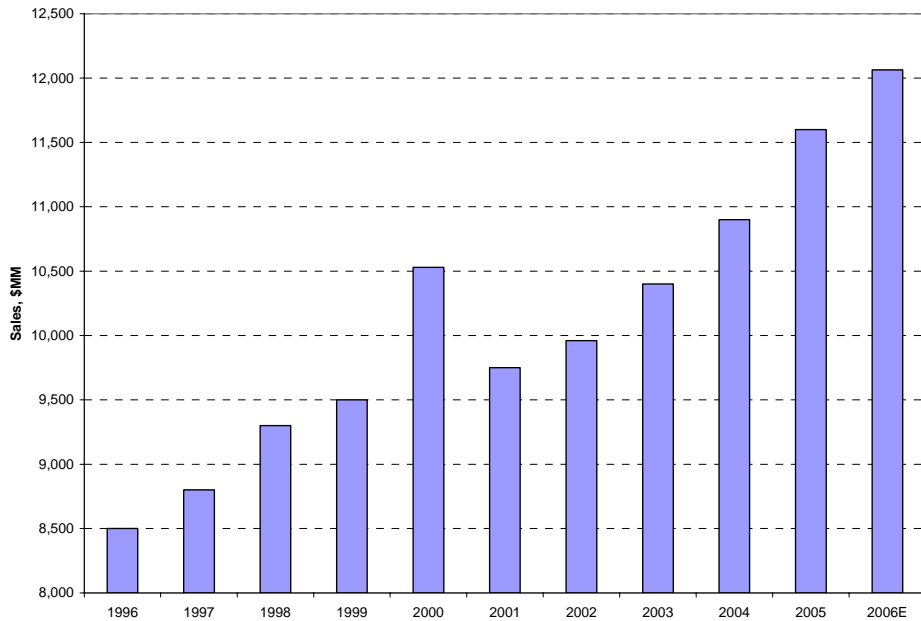
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***Adhesives & Sealants Industry (ASI) –  
“Strategic Solutions”***

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The U.S. adhesives industry experienced a good year in 2005, but not a great year. ChemQuest (The ChemQuest Group, Inc.) estimates sales increased to \$11.6 Billion, representing a 6.4% increase over 2004. Since 2001, when the industry experienced its first yr/yr decline in over 30 years, it has exhibited steady growth (See **Figure 1**). However, by viewing Figure 1 it could easily be argued that 2001 was a continuation of the steady industry growth, but 2000 was a “bubble” year. It is likely that 2006 will be one more year of steady growth, while recognizing the uncertainties accompanying a slowing economy, rising interest rates, the price of oil and geopolitical unrest. It is difficult to estimate the growth or decline in any given year; however, ChemQuest believes that the U.S adhesives industry will probably average growth of 3.0 – 3.5 %/yr. over the next 5 – 10 years.

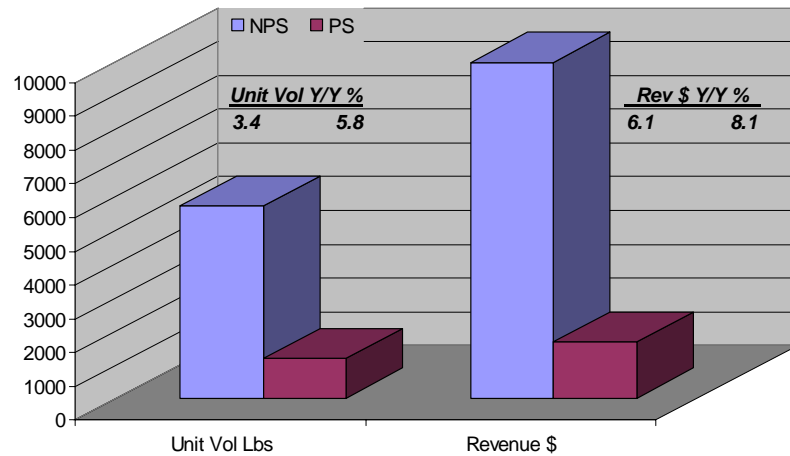
**Figure 1**  
**U.S. Adhesives Industry (excluding sealants), 1996–2006E**



When considering the two major classes of adhesives that comprise the U.S. formulated adhesives industry, non-pressure sensitive adhesives (NPS) account for 83% of industry sales, but pressure sensitive adhesives are growing faster, as shown in **Figure 2**.



**Figure 2**  
**North American Formulated Adhesives Industry**



The factors that are likely to drive growth over the coming years are the same factors that have been affecting the industry over the recent years:

- Replacement of mechanical fasteners
- Weight reduction and fuel efficiency demands resulting in down gauging, downsizing, and use of dissimilar substrates such as plastics and hybrid metal alloys in design (making it more difficult to fasten using conventional mechanical means)
- Robust construction growth
- More imports of finished goods
- Escalating raw material and labor costs
- Advancements in medical applications such as prosthetics, drug delivery, dental, and disposable medical devices
- Diffusion of computer and electronic utilization throughout new product design.

While these are positive trends, they are somewhat mitigated by globalization and geographical re-alignment of labor-intensive manufacturing to emerging regions—i.e. China, India, Vietnam, Thailand, and the Philippines—impacting businesses for textiles, wood, appliances, electronics, automotive, sporting equipment, and other product assembly applications.

Because of these drivers, the trends that will likely result include:

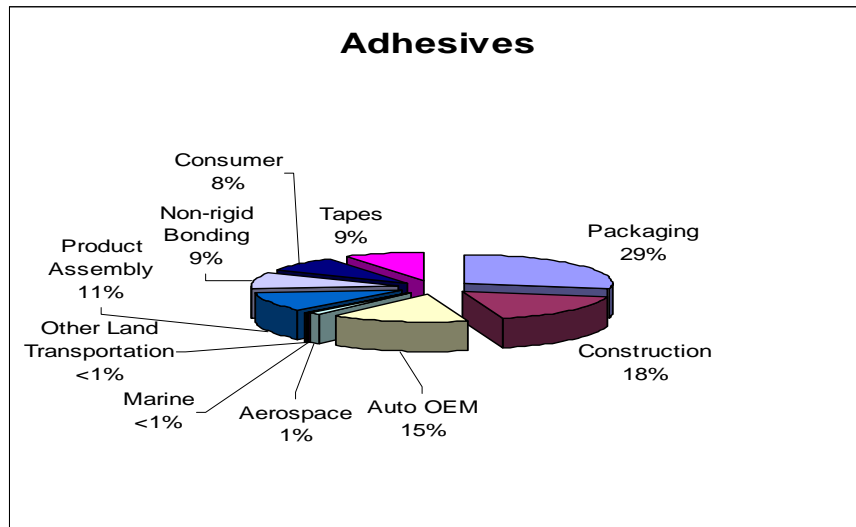
- Higher speeds and process efficiency
- Greater control in the application of adhesives
- Higher use of recycled fiber, wood and plastics
- More reformulation to reduce material costs and energy costs
- Greater use of lower cost substrates, composites and laminates
- Greater use of thinner gauge substrates



**Market Segments**

The U.S. adhesives industry is somewhat similar to the coatings industry (also based on formulated products) with many of the same drivers. However, adhesives are more fragmented than coatings with many market sectors. Since the majority of adhesive market applications involve fastening functions, adhesives should properly be considered a component of the fastening industry and will often compete with other mechanical fasteners. The detailed segmentation of the adhesives and sealants markets is shown in **Figure 3**.

**Figure 3  
Adhesives Industry Market Sectors**



In 2005, the Construction, Consumer, and Tapes segments and the food component of packaging each had a solid year. The Transportation segment moved sideways during the year while Product Assembly had a down year, primarily due to offshoring, as shown in **Figure 4**.

**Figure 4  
Adhesives Market Segments 2005 Trends**

SECTOR	TREND	COMMENT
Packaging	↑	Food packaging solid performer. Cartons for product assembly offshoring with goods.
Transportation	↔	Flat to declining builds largest driver. Replacement of mechanical fasteners strong benefit.
Construction	↑	Good all the way around.
Consumer	↑	DIY usage tracking GDP.
Tapes	↑	Construction, electronics, and medical strong performers. Product assembly, consumer and transportation lack luster.
Product Assembly	↓	Offshoring is largest negative impact. Replacement of mechanical fasteners strong benefit.



### Leading Producers

The Adhesives industry is not only fragmented by the large number of market segments that comprise it, but also by the large number of adhesive manufacturers that supply products to it. Some estimate the number of players to be more than 500! The majority of the leading producers show high-single-digit growth, a trend that reflects rapid price increases to keep pace with the rising costs of raw materials. In 2005, Henkel continued its aggressive acquisition strategy, growing its sealants business by 25% with the acquisition of OSI. The six leading producers are shown in **Table 1**.

**Table 1**  
**Adhesives Industry Leading Producers, 2005**

<u>Rank</u>	<u>Company</u>	<u>2005 Sales (M)</u>	<u>% Change Yr/Yr</u>
1	Henkel	\$5,886	12%
2	3M	2,398	9%
3	National Starch	1,573	9%
4	H.B. Fuller	1,512	7%
5	Bostik	1,451	6%
6	Rohm and Haas	727	5%



### Recent M&A Activity

2005 was a year of modest M&A activity, with the major acquisitions on the sealant side of the business, led by BASF's acquisition of Degussa's construction chemicals and sealants business, and DAP's acquisition of Illbruck's sealant business (see **Table 2**).

**Table 2**  
**Significant M&A Activity Through 5/16/2006**

Acquirer	Target	Description
BASF	Degussa's construction chemical business	Admixture systems and construction systems for concrete and building industries
Royal Adhesives and Sealants	Hardman	Elementis' epoxy and urethane products business
ITW	Permatex	Adhesives and sealants for MRO in auto aftermarket and industrial maintenance
Tremco (RPM)	Illbruck Sealant Systems	Adhesive and sealant installation systems for pre-fabricated construction and window / door applications
Henkel	Rhodia's cartridge silicone sealants	Cartridge sealants for the construction and DIY markets
Hyde Group	Roman Decorative products	Wallpaper adhesives
Sika	Sarna	Sarna concentrates on membranes for the construction industry.
Itochu	Reynolds	Will merge its business with Helmitin Adhesives.

The adhesives side of the business saw little activity, with the exception of ITW's acquisition of Permatex and Itochu's recent acquisition of Reynolds. To date, 2006 activity has been equally robust. We anticipate M&A activity to exceed 2005 barring a major economic slowdown.



### Industry Margins

Adhesives and sealants face tough raw material headwinds. Despite price increases of 50% in some regions since early 2005, adhesive pricing has lagged raw material increases by ~3-6 months and gross margins have fallen, down ~6%-9% since early 2005. Although raw materials appear poised to stabilize after rising an estimated 6%–8% in Q2' 06, they should do so at a higher level than current prices, which should further pressure adhesives. It is important to note that shortages for key raw materials such as isoprene and dicyclopentadiene (DCPD), among others, are also hurting growth. Key feedstocks experiencing significant escalation and/or shortages include:

- Rubber – natural and synthetic
- Ethylene – acetal value chains
- Propylene – acrylic value chains
- TDI/MDI
- Tackifiers and plasticizers

Raw material costs for the adhesive companies are the largest component, representing about 53%-59% (See **Figure 5**) of revenue or more than three quarters of COGS.

**Figure 5**  
**Typical Adhesive Formulator Income Statement In 2005**

<b>Income</b>	100%
<b>Cost of Goods Sold</b>	
Raw Materials	53-59%
Labor	5-7%
Energy	2%
Ovehead, Taxes, Ins., Dep., Pkg.	7%
<b>Total</b>	67-75%
<b>Gross Margins</b>	25-33%
<b>SG&amp;A</b>	19-25%
<b>EBIT</b>	6-8%

While adhesive formulators generally suffer a margin squeeze during times of rapid raw material price increases, they tend to do well on the back side of the economic cycle. Therefore, they may experience an expansion of margins of 6 – 9% in 2007 and into 2008 when additional crude oil capacity comes on stream.



## About The Author



**Dan Murad**

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an international strategic management  
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Adhesives, Sealants and Coatings industries,  
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Dan joined The ChemQuest Group, Inc. in 1996 from the Rohm & Haas Company where he was most recently European Director, Industrial Coatings. Prior to R&H, he spent thirteen years with Unocal Polymers where his career took him from technical service positions to Director of Marketing. He directed the sale of the Unocal Polymers Business to Rohm & Haas, working closely with Morgan Stanley, numerous attorneys, as well as the FTC. His entire career has been dedicated to the Coatings and Adhesives Industries. His particular strengths lie in strategic assessment and value creation on behalf of clients. He holds degrees from Wabash College (BS Chemistry) and William & Mary (MBA).

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