GROWTH OPPORTUNITIES FOR ADHESIVES

Roger J. Lohman
Vice President

The ChemQuest Group, Inc.
Cincinnati, Ohio

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A large number of opportunities have made the adhesives industry an attractive market over the past two decades. When ChemQuest conducted its first comprehensive study of the U.S. adhesives industry in 1980 it revealed over 500 explicit product growth opportunities. Since 1980 the total U.S. adhesives industry has more than doubled and it matured to some extent, yet the number of product growth opportunities are still found to total an impressive 400, when measured with the same standards. A better understanding of the trends supporting these opportunities is useful to consider.

ChemQuest defines an opportunity (or better-stated a "product opportunity") as a specific raw material family (acrylic, epoxy, etc.) used in a specific formulative technology (solvent, water, hot melt etc.), which then finds use in a specific market segment. Using this definition, a growth opportunity is then defined as a product opportunity that promises an incremental increase of at least 100,000 dry pounds over a period of five years, while also exceeding an average annual growth rate of 3% per year.

The 400 growth opportunities identified is testimony to a healthy industry; but, the shrinkage from 500 opportunities to 400 over a 22 year time period also suggests a maturing of the industry and possibly some structural changes. A product opportunity can grow or shrink as a result of any one (or some combination) of three factors. 1) The raw material family can grow into new applications or come under competitive pressure from a different family due to superior properties or a better cost/performance ratio. 2) The market segments in which it finds use could be in a high growth phase or be shrinking. 3) The formulative technology in which it is supplied could be experiencing high market acceptance or be the victim of competitive pressures from these high growth competitive technologies.

For the purpose of this article we will focus on the third variable, changes in formulative technologies. The desire for higher production rates has had an impact on the various technologies. As such, hot melt adhesives have experienced high growth in the packaging industry. Also, robotics has made the use of both one-part and two-part systems more

desirable in the auto industry. These forces are expected to continue, but perhaps, at a slower rate than seen during the 1980s and the 1990s.

Water borne systems has always dominated the U.S. adhesives industry. In 1980 its market share was estimated at 67%. By 2002, this market share dropped to 61% although total demand for water based adhesives almost doubled.

Solvent borne adhesives were clearly the biggest casualty during this 22-year period due to environmental regulations and waste disposal concerns. Yet, during this period there was not a precipitous drop in demand (as measured in dry-pounds) shrinking only fifteen percent. Solvent usage experienced a far more significant drop since some end users shifted from low solids solvent borne systems to higher solid alternatives. Nevertheless, since the industry was continuing to grow, but solvent borne systems were not, they experienced a significant loss in market share. One example of the decline of solvent usage is in adhesive mastics used in the construction industry.

Unquestionably, the largest changes in market share occurred in one-part non-volatile adhesives (i.e., one-part epoxies and urethanes, cyanoacrylates, etc.). This technology experienced explosive growth and is now six times larger than it was in 1980. Similarly, two-part systems also displayed high growth, growing to 3.5 times their size in 1980. During this time, hot melt systems emerged as a major main stream technology while quadrupling in size since 1980.

While the impact on growth opportunities can be measured by changes in formulative technology demand, the major driving force is found in changing end user requirements. The need to cure at a faster rate, or with room temperature curing, or with a “cure on demand”, or with less (or no) solvent will always be driving forces. As these adhesives are developed or improved they will open new applications for adhesives.

Perhaps the strongest trend driving change is based on the need to develop adhesives that can replace mechanical fasteners. These adhesives are often called “structural adhesives” and generally take the form of a 1-part or 2-part

reactive system. In some applications these adhesives already exist but have not been fully accepted by the end user. In others, the adhesive must still be developed. But there is little question among industry participants that these applications will be the source of much of the industry growth in the coming decade.

About the Author

Roger J. Lohman

Vice President
The ChemQuest Group, Inc.,
an international strategic management consulting firm specializing in the Adhesives, Sealants and Coatings industries, with headquarters in Cincinnati, OH.

Roger joined The ChemQuest Group at its inception where he served as Senior Analyst. Prior to ChemQuest, he held senior technical positions including Technical Director for a unit of Ashland Chemical and Technical Director for Buckeye Products. As the manager of the ChemQuest databases and information services, clients constantly rely on Roger to answer difficult market and application questions. He holds a B. S. degree from Xavier University.
Contact Roger at (513) 469-7555 or Rlohman@chemquest.com

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Questions or request for additional copies of this paper may be directed to the author at:

The ChemQuest Group, Inc.
8150 Corporate Park Drive
Suite 250
Cincinnati, OH 45242

(513) 469-7555
(513) 469-7779 – FAX **www.chemquest.com**