

**INTERMATERIAL COMPETITION OF  
APP/APAO, SPECIALTY POLYOLEFINS vs.  
SB COPOLYMERS**

**NORTH AMERICA, WESTERN EUROPE & JAPAN  
MARKETS, TECHNOLOGIES & TRENDS  
1995-2000**

**Prospectus For  
An In-Depth Market/End Use Economics Study  
Completed March, 1995**

**Market Situation and Outlook • Market Structure and Analysis  
Resin Suppliers • Consumers/Volumes • Resin Grades  
Intermaterial Competition with Other Polymers  
Competitive Pressures • New Opportunities  
Manufacturing Cost Economics  
Price/Performance Trade-off  
Strategic Analysis  
Prices**

- Byproduct APP
- Recoverable APP
- On-Purpose APAO Copolymers
- SB Rubbers
- Metallocene Based Polyolefins
- Elastomeric Polyolefins
- Styrenic Block Copolymers  
SBS, SIS, SEBS, SEPS
- Modified Bitumen Roofing
- Asphalt Pavement Modification
- Adhesives & Sealants
- Wire & Cable Insulation/Flooding
- Paper Lamination
- Polymer Modification
- Carpet Backing



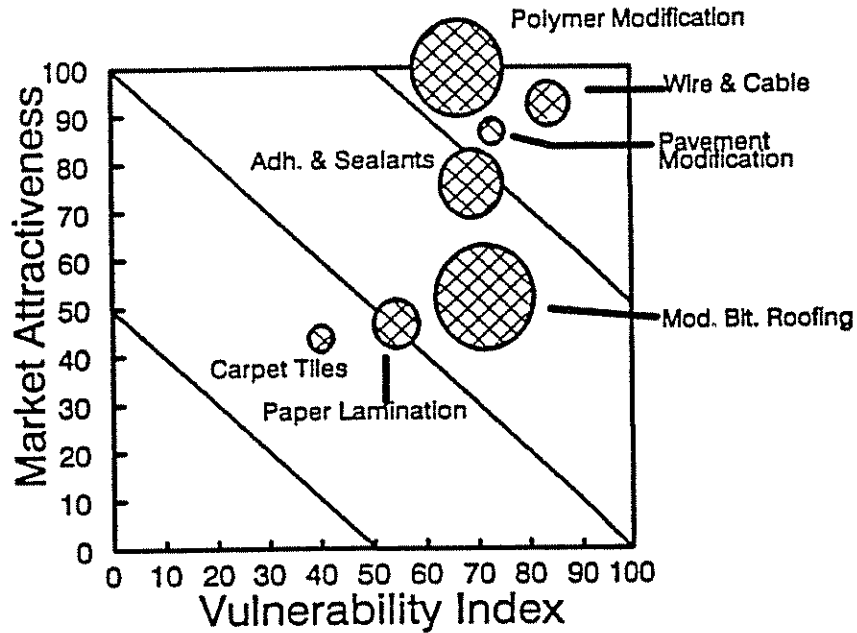
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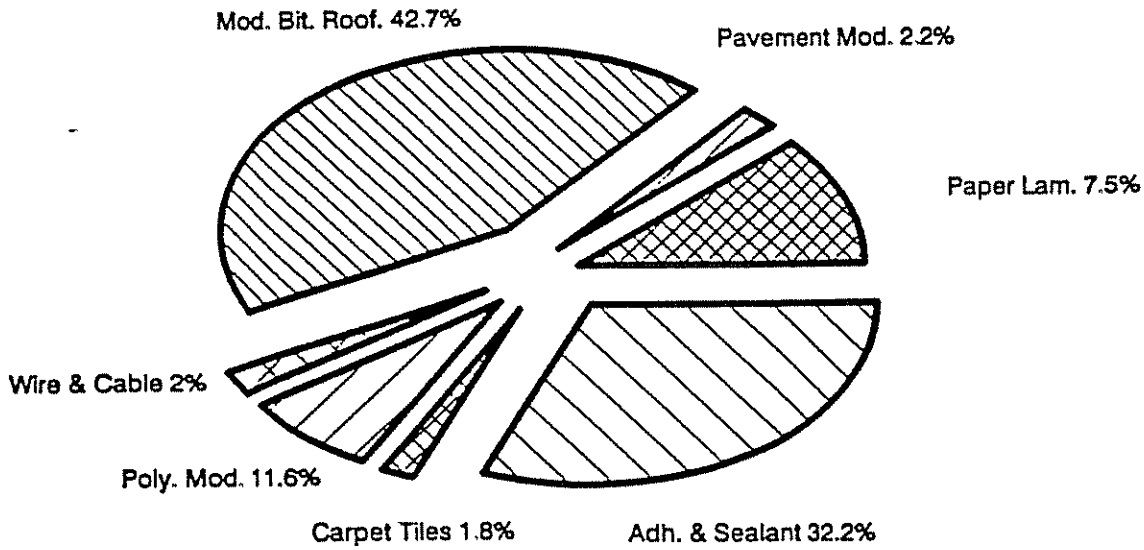
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APP/APAO, Specialty POs vs. SB Copolymers  
 North America, Western Europe and Japan  
 Intermaterial Competition of Selected End Uses



The worldwide common markets of 920 million pounds for APP and SB copolymers are potential candidates for the new generation elastomeric polyolefins



# APP/APAO, SPECIALTY POLYOLEFINS vs. SB COPOLYMERS MARKETS, TECHNOLOGIES & TRENDS NORTH AMERICA, WESTERN EUROPE AND JAPAN 1995-2000

## INTRODUCTION

The atactic polypropylene (APP) and other amorphous polyolefins (polypropylene and copolymers) have undergone drastic changes from 1983 to 1993 - from being undesirable by-products with excessive supply and disposal problems, to specialty chemicals with double digit growth rates. The core applications for amorphous polyolefins: (1) modified bitumen roofing, (2) adhesives & sealants, (3) pavement asphalt modification and (4) cable flooding are also the core applications for SB copolymers. APP and SB copolymers compete in these applications based on price/performance. In addition, the other markets for both SB copolymers and APP compete with flexible polyolefins. The total worldwide market of 920 million pounds is at stake for the flexible polyolefins.

Most of the current flexible polyolefin developments are focused on replacing plasticized PVC and EPDM/EPM rubbers. However, the markets for APP and SB copolymers present a much better target in terms of: (1) polyolefin processing, (2) growth potential and (3) synergy with traditional polyolefin applications. Chemical Market Resources, Inc. based on several proprietary studies conducted over the last five years and a continuous monitoring of industry trends in APP/APAO and SB markets and metallocene technologies, undertook this comprehensive business/technical strategic analysis that reports on the in-depth intermaterial competition in these products/markets.

*Chemical Market Resources Inc. strongly believes the arena of intermaterial competition in these market sectors has just begun and will provide immense potential for new developments in the next five years.*

## WHO CAN BENEFIT ?

This study offers to: (1) polyolefin producers, (2) SB copolymer producers, (3) compounders and (4) end users, an in-depth, quantified analysis of the future opportunities and strategies on how to capture them.

- *The (1) APP/APAO suppliers/processors, (2) SB copolymer suppliers and (3) the present and future polyolefin market participants attempting to get a share of this market.*
- *The detailed market attractiveness analysis we conducted has been and will be a powerful tool for short/long range planning for most of the participants.*
- *The study will benefit individual end users, entrepreneurs, and organizations attempting to capture the future growth in markets such as asphalt pavement modification which are expected to grow at greater than 20% in the next five years.*

## **KEY ISSUES ADDRESSED**

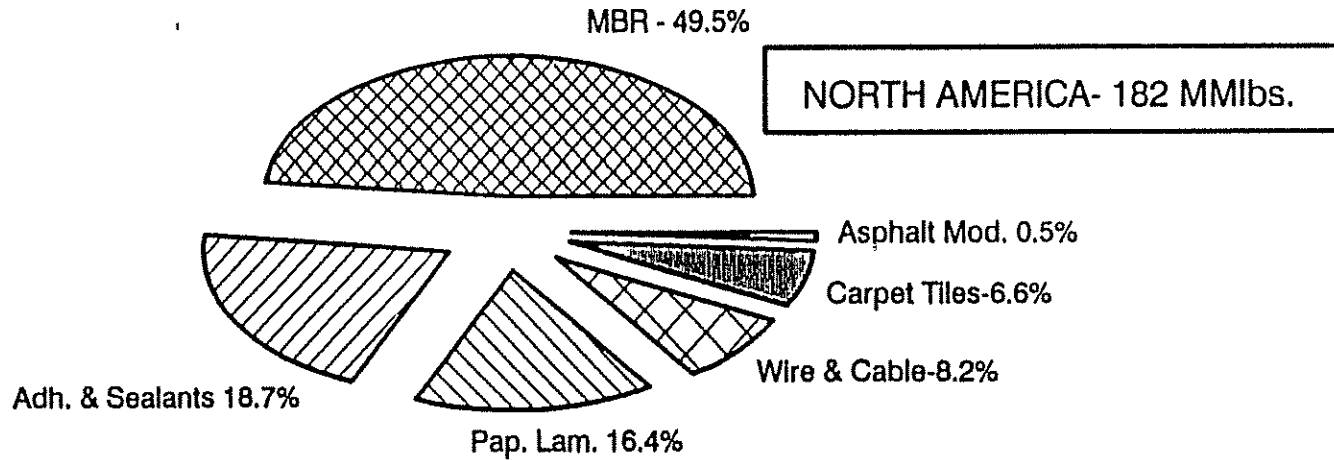
- *Outline of the North American, Western Europe and Japanese markets for Specialty Polyolefins /APP/APAO and SB copolymers - market needs, translatable into opportunities*
- *Developments in new generation elastomeric polyolefins including: (1) PE & copolymers - both metallocene and conventional, (2) PP copolymers, (3) PP elastomeric homopolymers and (4) developments in cationic SB copolymer technologies and application technologies that can impact the selected markets*
- *In-depth analysis of the end use markets with intense intermaterial competition of APP/SB copolymer/Specialty Polyolefins in different parts of the global region: (1) Adhesives & Sealants, (2) Modified Bitumen Roofing, (3) Asphalt Pavement Modification, (4) Polymer Modification, (5) Paper Lamination, (6) Wire & Cable and (7) Carpet Backing*
- *Requirements for producing metallocene based APP/APAO - and who has the ability to manufacture - company by company analysis. The impact of polyolefin developments on core applications of SB copolymers and APP - How vulnerable are the markets?*
- *Strategic opportunity analysis:*
  - *Polyolefin Producers - Better APP using metallocene technology?*
  - *APP/APAO Producers/Distributors - How do we keep the markets?*
  - *SB Copolymer Producers*
    - *What is the impact of the Shell explosion on supply?*
    - *How vulnerable are the SB copolymer markets to metallocenes?*
    - *Growth strategies for asphalt modification*
    - *Specialty SB copolymer markets - films, fibers, viscosity modifiers*
  - *End Users - How to save money without compromising performance*

## **APPROACH**

The information, data, and conclusions of this analysis were developed from sources in North America, Western Europe and Japan and are based upon, but not limited to, the following methods:

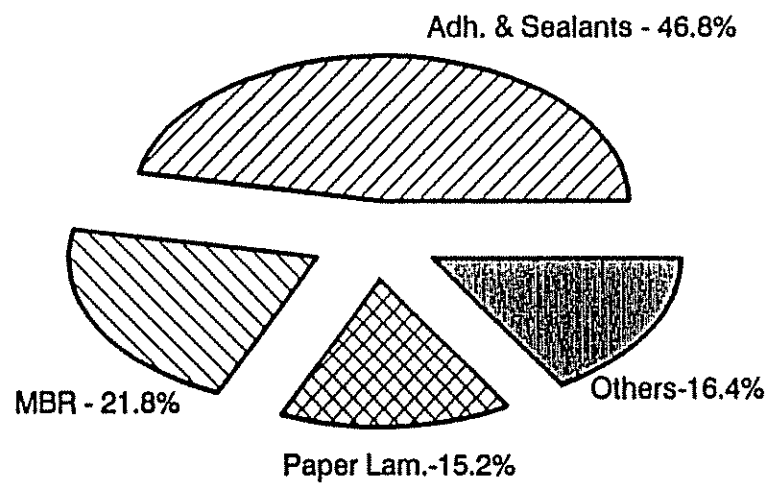
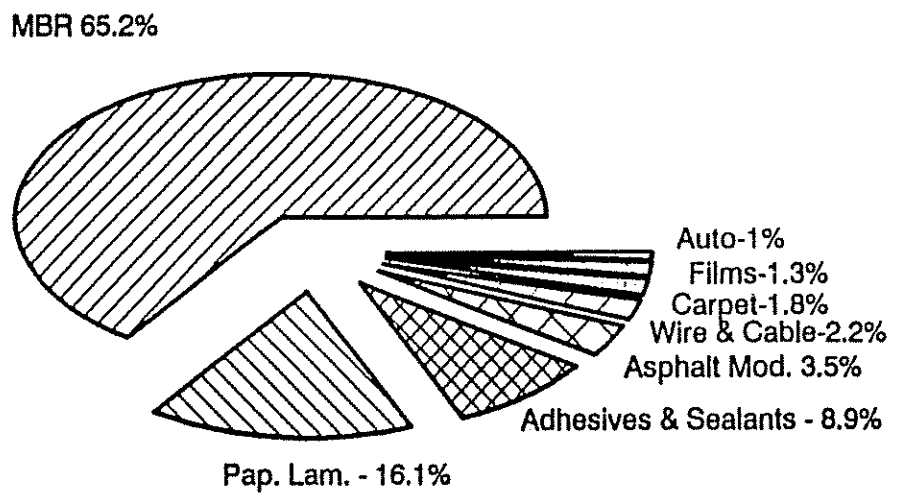
- *Search, review and interpretation of information from government sources, trade and industry groups, published articles and product promotional information*
- *Information from private experts and CMR proprietary projects (over 50 of them related to these topics, in the last two years.*
- *Interviews with leading APP/APAO, SB copolymer and polyolefin suppliers, end users and distributors*
- *Interviews with all of the major end users, current and potential*
- *Other multiclient studies completed by Chemical Market Resources*
- *Interviews with government agencies (DOT)*

1994 DEMAND FOR APP/APAO NORTH AMERICA, W.EUROPE & JAPAN



**WESTERN EUROPE - 247 MMlbs.**

**JAPAN - 35 MMlbs.**



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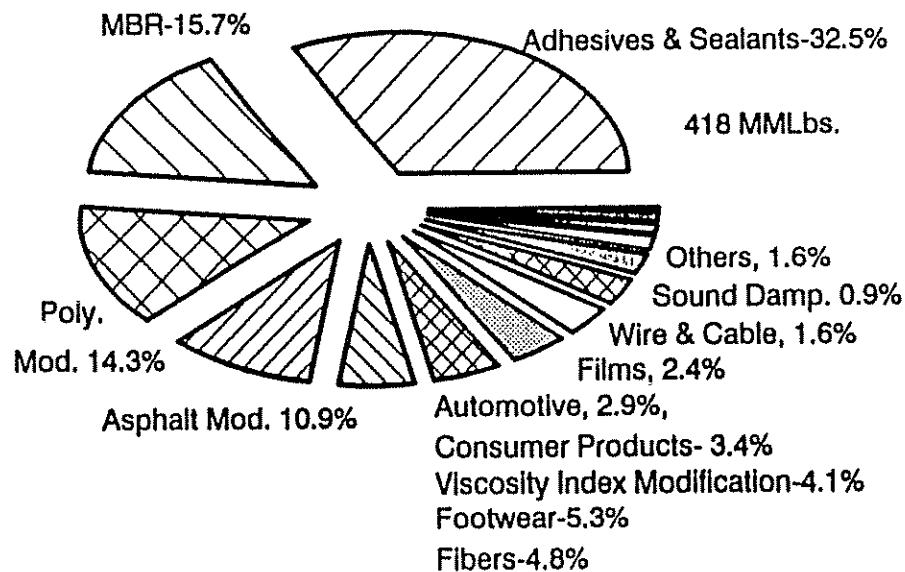
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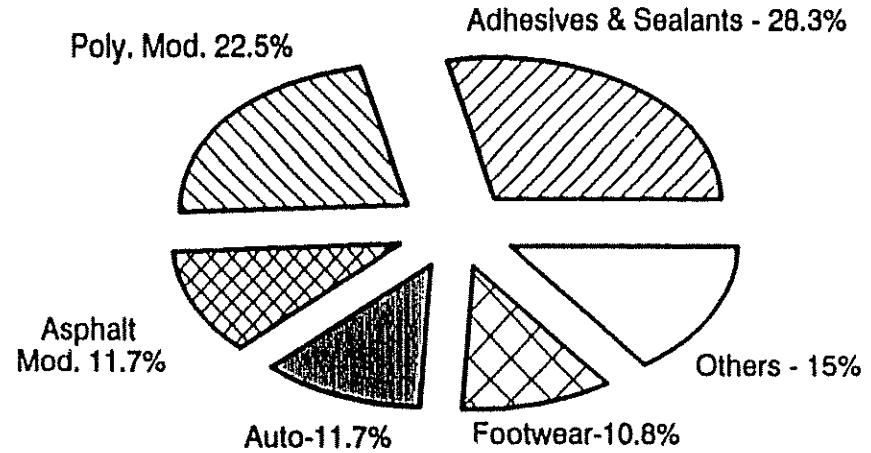
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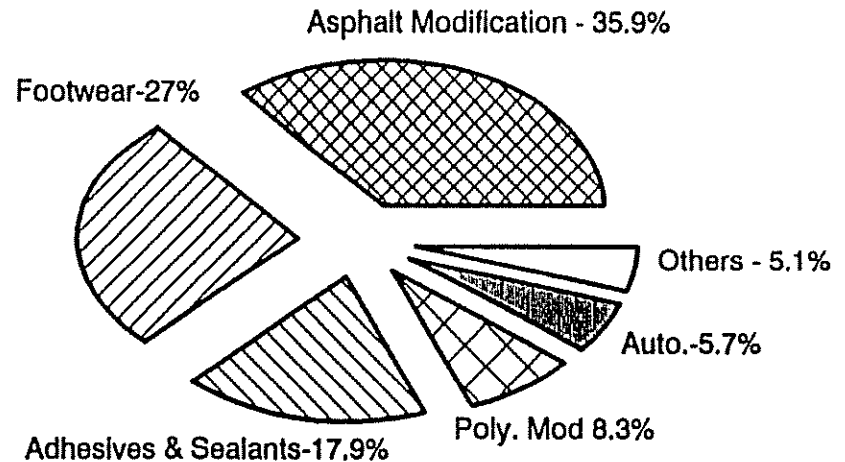
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