

GLOBAL POLYOLEFIN CATALYSTS

Markets, Technologies and Trends

2008-2012

Prospectus For An In-Depth Strategic Analysis

What is the current status of polyolefin catalyst market?

What is the market volume and value by region, by type for the polyolefin catalysts?

What is the industry structure for New and Refills? What is the role of licensors?

How has the industry structure changed? What are the new channels to market?

What is the role of third party suppliers-- WR Grace, BASF, Sinopec, and others?

**Will the leading PO process licensors--Univation, Basell, and others
be able to keep their advantages in the catalysts market?**



Where is polyolefins catalyst technology headed?

Cost/Benefit analysis of high throughput experimentation in polyolefins

What are the critical enablers for polyolefins catalysts by region?

Should Everyone Rush to High Throughput Experimentation?

How are polyolefins product, process, and catalysts linked?

What are the main drivers for catalyst technology?



What are the unmet needs and future trends?

How should the players participate to gain competitive edge?

What are the performance criteria and unmet needs for polyolefins catalysts?

Where are different catalyst platforms on the life cycle curve?

**How will strategic alliances between process licensors and
third-party catalysts suppliers impact market dynamics?**

What are the different market participation strategies?

**Should the catalyst remain part of a polyolefin
licensing package?**



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INTRODUCTION

Polyolefins are produced using (1) conventional catalysts - Ziegler, Ziegler-Natta, or chrome on silica, (2) more recently developed metallocene or other single-site catalysts, or (3) peroxide initiators in the case of LDPE. The catalyst represents the heart of any reactor system and can significantly change the competitiveness of a process technology. Many licensors have worked in collaboration with others to produce catalyst for process technologies of others as well as their own. In order to ensure a higher likelihood of success some "after-market" catalyst suppliers have entered into joint development agreements to integrate the new catalyst into the process.

There was a time when the catalyst sales were strictly the province of the technology licensor. That time, however, is past. More and more the technology licensor is under pressure to demonstrate that they deserve to keep the business begun at the time of the start-up of the plant. Because of the value the catalyst sale has brought to the original licensor other parties have been vying for that business. Third party producers have produced offerings they feel are incumbents to the licensor's catalyst. Not having the process technology it is a difficult sell for these suppliers; however that will change as they gain in successes. The increased sales generated by catalysts have also prompted many licensors to reconsider their approach to catalysts as an additional product offering. Metallocene catalyst is only now beginning to grow beyond the usage of the technology developers. Metallocene-based resins were initially positioned as specialties and have slowly transitioned into differentiated commodities. As such, the technology which was held by a privileged few is becoming more widespread via licensing and cross-licensing catalyst agreements.

A NEW MULTICLIENT STUDY

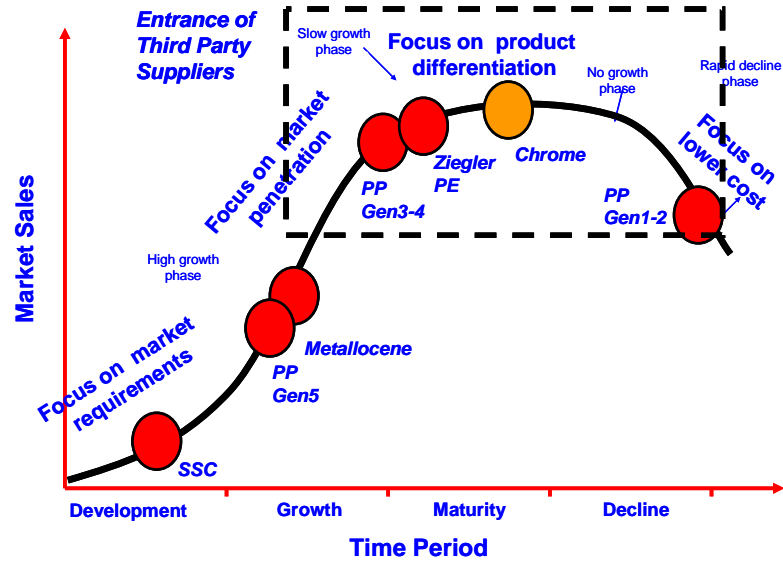
Chemical Market Resources, Inc., with our extensive experience in (1) worldwide polyolefins catalysts markets and technologies, (2) catalysts & polyolefin suppliers, and (3) global value chain analysis, is undertaking a comprehensive global strategic business/technical analysis that reports on this fast-changing arena. Our in-depth examination and methodology are designed to assist companies in monitoring the rapid developments, analyzing the trends and capitalizing on the many opportunities in these changing markets and technologies.

The report will benefit: (1) catalysts market participants, (2) polyolefins & elastomers producers, (3) technology licensors, (4) investment banks & equity research analysts, (5) other polyolefin industry participants. Technology, market managers and strategy planning managers attempting to form a market participation strategy in these global evolving markets will immensely benefit from this study.

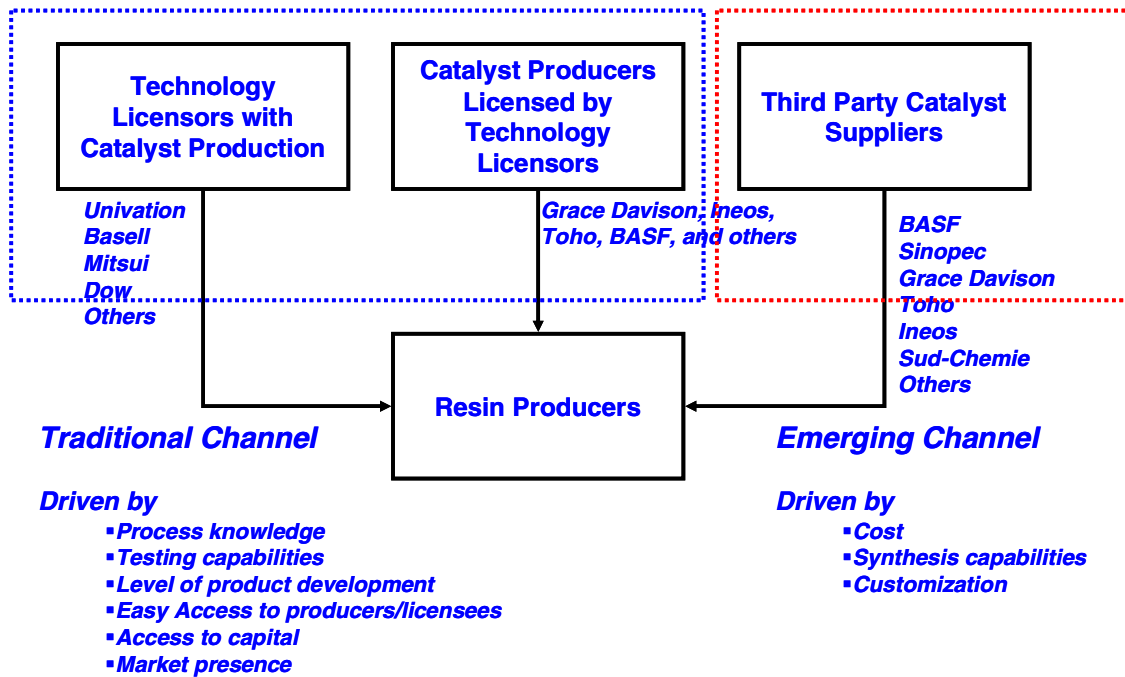


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Technology Life Cycle of Polyolefin Catalysts

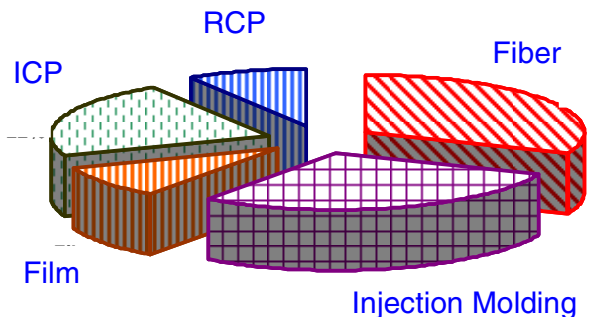


Polyolefin Catalyst Industry Structure



Source: Chemical Market Resources, Inc.

Global PP Catalyst Demand by Product/End-Use



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OBJECTIVES

- ✿ *Define the worldwide distribution system of polyolefin catalysts*
- ✿ *Assess the global catalyst technology status – Conventional ZN and Metallocenes*
- ✿ *Present the latest cost issues for polyolefin catalysts – manufacturing, distribution, intellectual property – who makes the money?*
- ✿ *Provide an accurate assessment of the future of polyethylene and polypropylenes globally and relate them to the need for innovative catalysts*
- ✿ *Assist flexible polyolefin producers, catalyst developers/suppliers and end users with an assessment of the current and future impacts on their operations, possible product substitution strategic options*
- ✿ *Assist licensors, engineering companies, retrofitters in assessing the right strategy in selecting the optimum catalysts*

KEY ISSUES TO BE ADDRESSED

- ✿ *The worldwide polyolefin market/technology status by type of polyolefin and type of catalyst and region and concerns of: (1) end users, (2) producers and (3) licensors and (4) technology developers*
- ✿ *Strategic analysis of Metallocenes vs. Conventional ZN systems without the hype*
- ✿ *Future commoditizing of catalysts to speed up the move to environmentally friendly polyolefins globally*
- ✿ *High Throughput Experimentation – Cost/benefit analysis*

TIMING & SUBSCRIPTION INFORMATION

An order form is included as the last page of this prospectus. The report is available for immediate delivery. The price per report will be \$17,000. Additional copies will be available for \$500 each. An interactive CD version with unlimited access is available for an additional \$5,000.

APPROACH

The information, data and conclusions of this analysis will be developed from sources in North America, Western Europe and China, Asia 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, public interest groups, government agencies, published articles and product promotional information*
- ✿ *Information from private experts and CMR proprietary projects (over 20 of them related to these topics in the last two years)*
- ✿ *Interviews with leading polyolefin producers, catalyst suppliers, equipment manufacturers, licensors and end users*
- ✿ *The major technology suppliers and ENC organizations*
- ✿ *The systematic approach to market quantification, assessment and opportunity analysis by end use and region*

PROJECT MANAGEMENT

As usual, this report will be a result of diligent efforts of our lead team members and a shining example of our dedication to quality and thoroughness.

Dr. BALAJI B. SINGH – President, obtained his Ph.D. in Chemical Engineering from Texas A&M University and an MBA in Marketing Research and Strategic Planning from the Ohio State University. Balaji is a registered professional engineer in the states of Texas and Ohio. He worked at Ashland Chemical Company in Columbus, OH in their New Ventures Group to develop the propylene route to MAA/MMA and evaluated both technical and commercial aspects of MMA/PMMA markets over the last 20 years. He worked as a Vice President at an established consulting company prior to founding the Chemical Market Resources Inc. His key area of expertise is in opportunity evaluation and competitive assessment for technology added products in petrochemicals and plastics. Balaji has successfully completed over 800 proprietary studies in high technology specialty products in various end use industry sectors for clients in the U.S., Europe, Japan, and South America. .



Global Polyolefin Catalysts 2008-2012

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