

The Post-Recession State of the Cast Polyurethane Industry

A Study Commissioned by the
Polyurethane Manufacturers Association

PMA Polyurethane
Manufacturers
Association

Our strengths. Your gains.

A Word from the President

The Polyurethane Manufacturers Association (PMA) commissioned an independent market research study that sheds light on the post-recession state of the cast polyurethane industry.

I am excited to report a renewed sense of optimism among both processors and suppliers on the future of the industry and business opportunities into 2011. The majority of cast polyurethane processors and suppliers have survived the recession with their businesses intact and their sights set on growth and greater profitability. Processors and suppliers alike envision an increase in future business opportunities.

However, the industry is not without its challenges, as our research reminds us. Facing a slow economic recovery, pricing pressures and other issues, cast polyurethane processors and suppliers must continue to diversify their products and services across an expanded customer base while continuously emphasizing the long-term cost benefits of using such a tough, versatile material.

By proactively identifying growth markets that align with cast polyurethane's core physical properties, processors and suppliers will continue to build their customer base and capitalize on new market opportunities.

Mike Katz

President, Polyurethane Manufacturers Association
President, Molded Dimensions

Parameters and Methodology

Participants – Qualitative Interviews

Management-level decision-makers involved in the identification and implementation of cast polyurethane into materials. Each decision-maker is employed by a PMA member cast polyurethane processor or supplier.

- 6 participants: Cast polyurethane processors and suppliers

Participants – Quantitative Survey

- 21 participants: Cast polyurethane processors and suppliers

Data Analysis

Using key findings on growth opportunities and challenges of selling cast polyurethane from interviews with member representatives, the PMA commissioned an independent market research firm to develop and implement a quantitative survey to validate qualitative results.

The charts and analysis that follow detail how research participants responded to a range of questions about trends, challenges, business outlook and other issues. Results are classified as "Key Findings" based on recurrent themes in qualitative research responses and the quantitative online survey data.

About The PMA

PMA is a trusted resource for the latest technology, practices and expertise about cast polyurethane – one of the most versatile, durable manufacturing materials in the world. Bringing together the best companies and the most comprehensive knowledge in the industry, PMA provides networking, research and advocacy that accelerate the success of individual members while advancing the industry as a whole.

To learn more about the PMA and how we're responding to what we've learned in our research, visit www.pmahome.org.

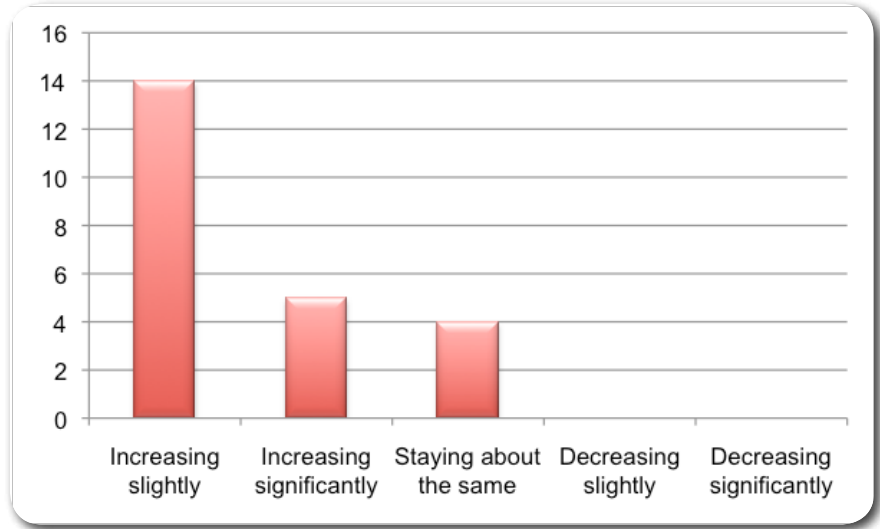
Processors and suppliers see growth opportunities increasing in 2011.

The vast majority of cast polyurethane processors and suppliers are optimistic about the future. Despite challenges, they are confident in the return of business and their ability to expand into new markets to predict future growth.

Even though the majority of processors believed business opportunities would slightly increase, several processors still believe that business would remain the same year-over-year. Unlike processors, cast polyurethane suppliers only predicted business to grow in 2011. Some suppliers even envisioned their business' growth opportunities to increase significantly.

The data suggests that the cast polyurethane industry is coming out of the recession strong and is eager to capitalize on new market opportunities. This positive industry news is on pace with several other manufacturing reports that show increased sales and continued optimism for recovery and growth within the sector.

How do you envision your business' growth opportunities in 2011?



Markets for Cast Polyurethane

- Tires / Wheels
- Oil and Gas
- Mining
- Defense
- Entertainment (Recreation / Amusement)
- Medical
- Electronic
- Automotive
- Food Processing
- Packaging

Pricing pressures and lead times are the top challenges in the recovery.

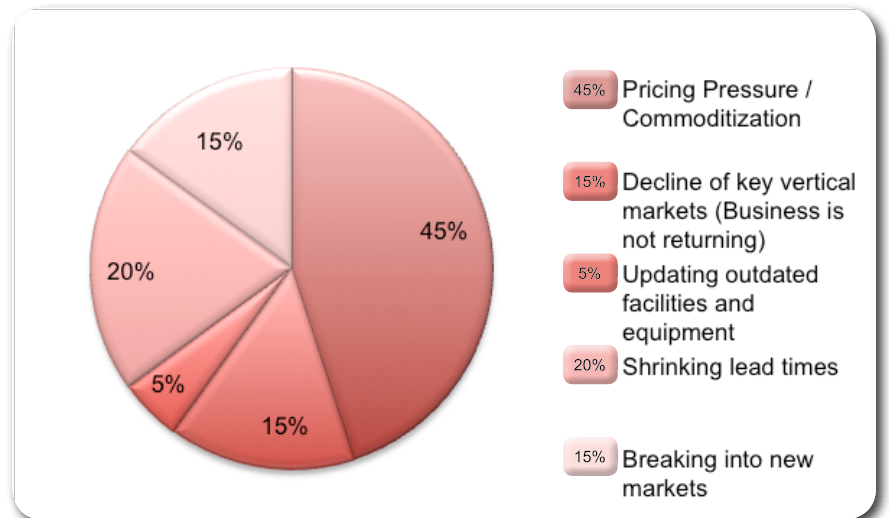
Processors and suppliers both identified pricing pressures as the greatest challenge coming out of the recession.

To fight commoditization, processors and suppliers must continue to translate cast polyurethane's primary benefits (greater durability and longer wear attributes) into long-term cost savings.

Shrinking lead times is another challenge that is greatly affecting manufacturers. As customers demand more and more from their partners, manufacturers are pressured to reduce lead times without sacrificing quality.

Adopting lean and efficiency practices to offset these shrinking lead times will help increase polyurethane manufacturers' ability to meet customer demands and grow their business.

What is the most challenging aspect of your business coming out of the recession?



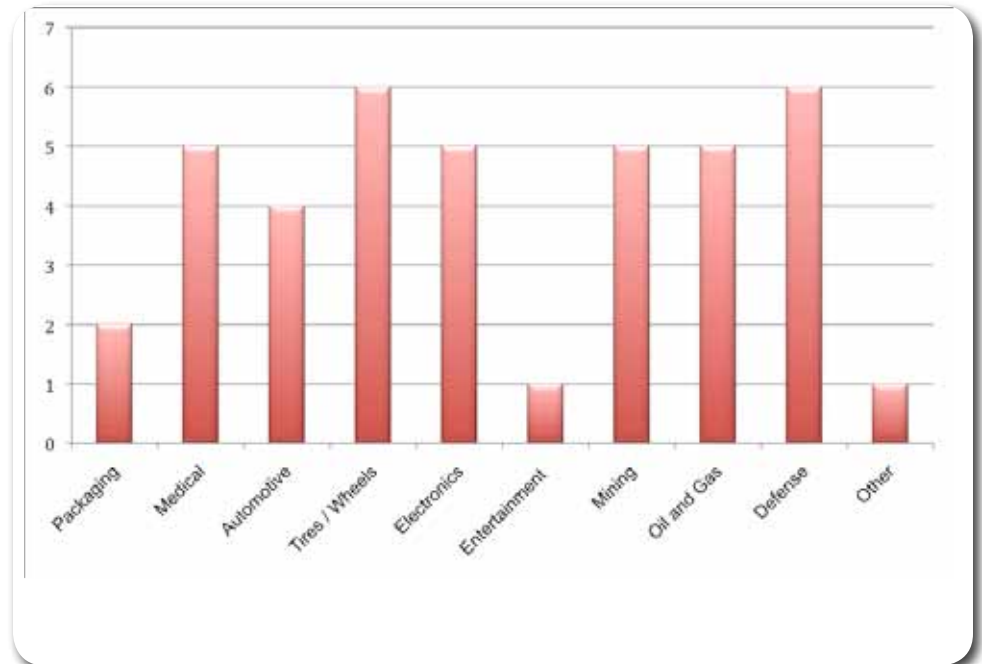
Major Reasons to Use Cast Polyurethane

- High abrasion resistance
- High cut and tear resistance
- Superior load-bearing capacity
- Thick section molding without a curing gradient
- Cut resistance
- Long-term stability in outdoor environments (No cracking or hardening over time)
- Soft materials that stretch up to 10 or more times their length
- Hard materials that are not brittle, even at temperatures below zero

The current cast polyurethane market is dominated by Tires / Wheels.

Today, cast polyurethane is used heavily as a material in several industries including tires and wheels, mining, oil and gas, packaging and medical, among others. Tires and wheels was the market most selected as the current industry served by processors.

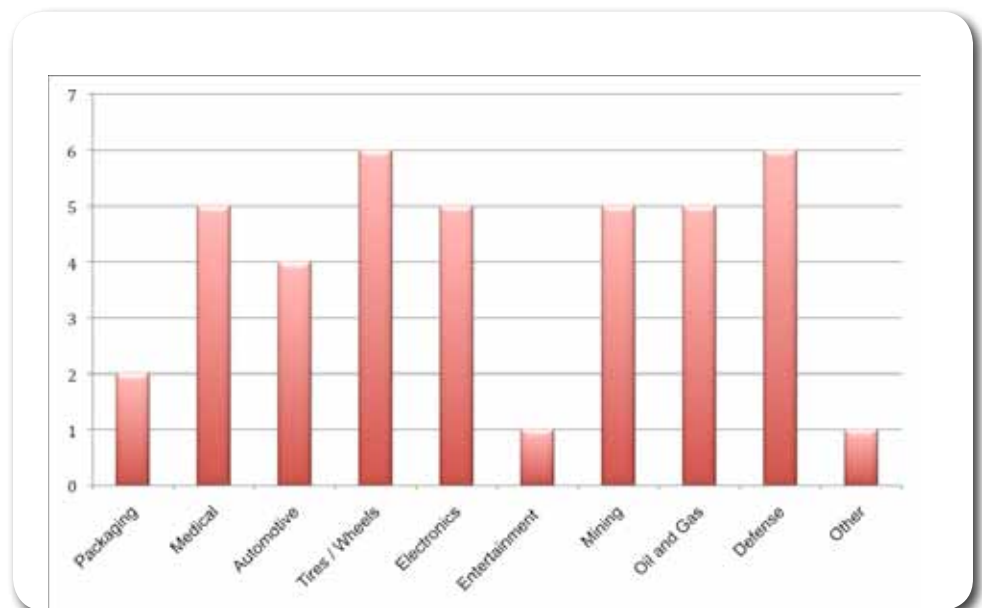
Which markets does your company currently serve?



The future cast polyurethane market is predicted to be more diverse.

In the future, participants believe that a broad array of markets will offer the greatest potential for growth. For processors, the Tires / Wheels market will continue to be a dominant industry that drives increased usage of cast polyurethane. Defense could offer suppliers the most growth opportunities.

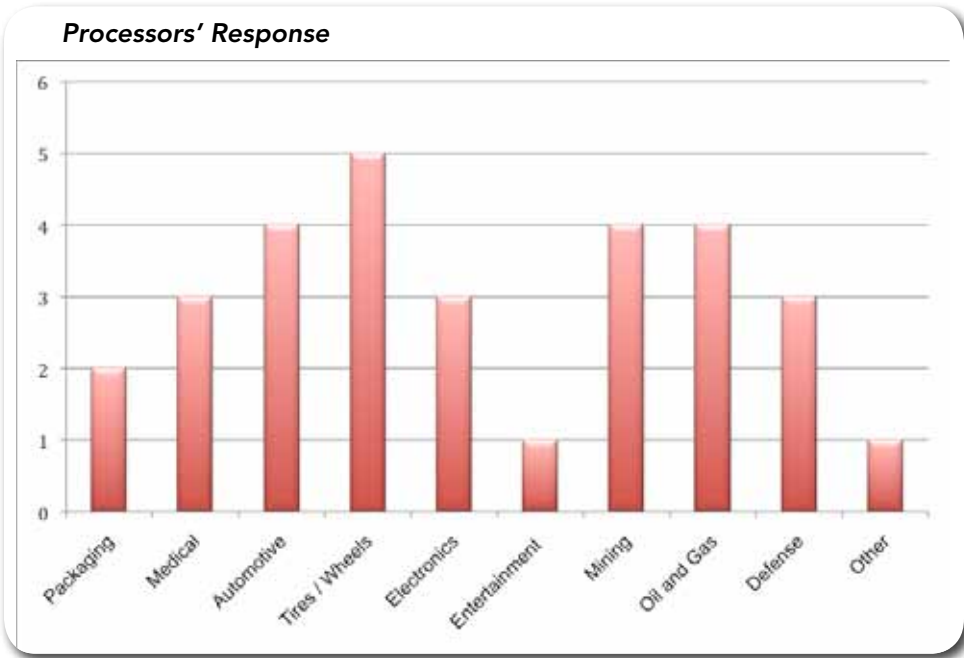
Which industries offer the greatest potential for growth or new business opportunities in the future?



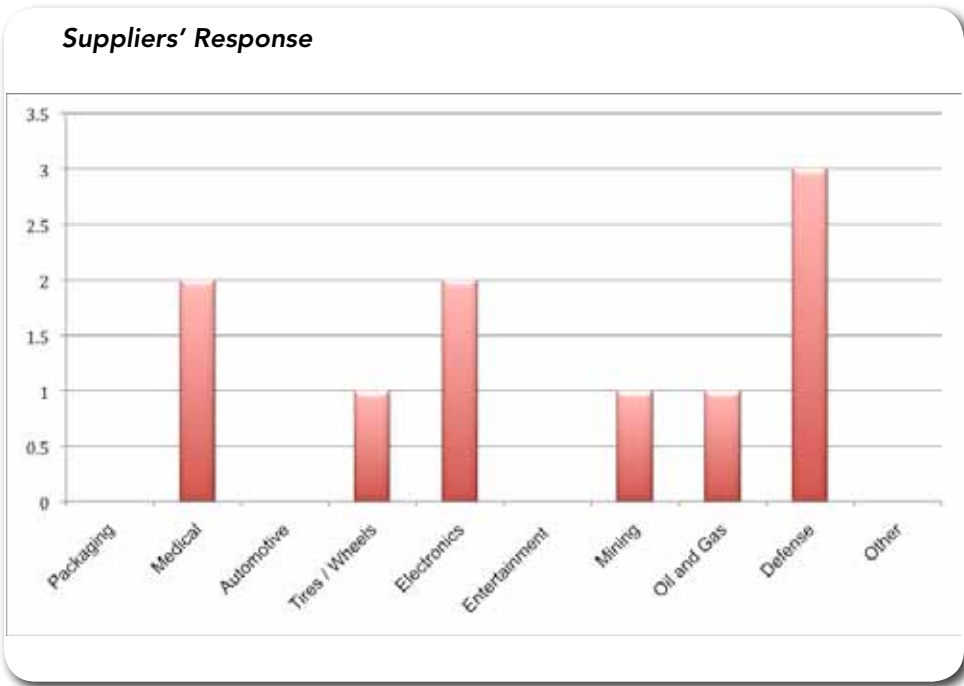
Growth market predictions vary among processors and suppliers.

As shown below, processors and suppliers have varying opinions on future cast polyurethane markets. The shift between the charts suggests processors and suppliers will continue to diversify their businesses and expand into new markets. As growth continues, cast polyurethane will have strong representation across a wide spectrum of industries.

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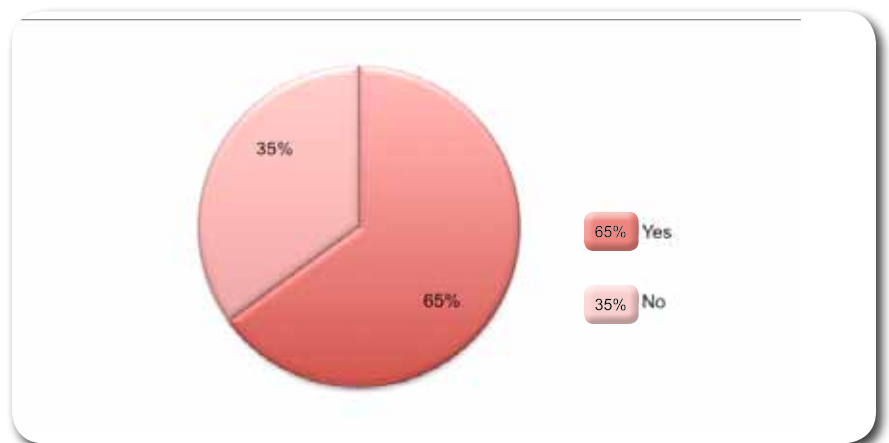


65% of participants have customers who switched or are considering switching from other materials to cast polyurethane.

The majority of cast polyurethane processors and suppliers have had customers or prospective customers consider a switch from rubber/plastic/metal to cast polyurethane. In the case of suppliers, that figures goes up to 100%.

In the past year, cast polyurethane manufacturers and the PMA have launched several initiatives to increase awareness of cast polyurethane to not only penetrate existing markets, but to capitalize on new market opportunities. With the majority of processors and suppliers experiencing a potential shift in customers' material selection, cast polyurethane manufacturers have been successful in increasing usage of the material in current markets. Processors' and suppliers' marketing efforts have also been effective in expanding the material's use into new markets.

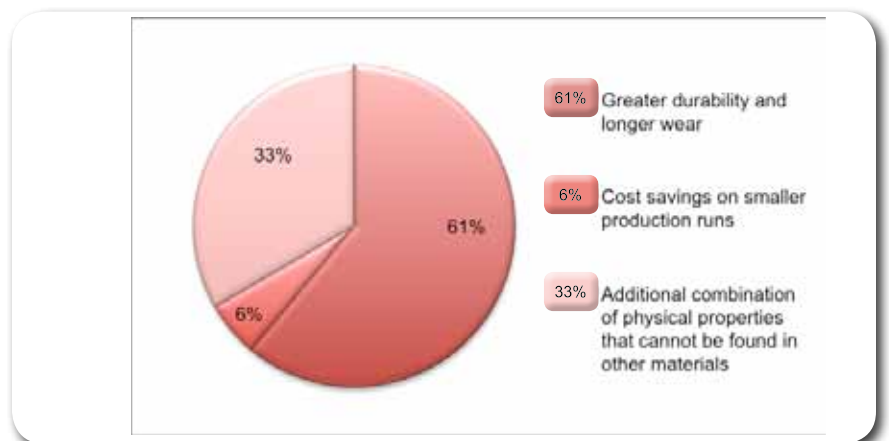
Have any of your customers or prospective customers recently considered switching from rubber / plastic / metal to cast polyurethane?



Greater durability and unique physical properties are the main drivers for switching to cast polyurethane.

Cast polyurethane's greater durability and longer wear are the top reasons customers switch from alternative materials to cast polyurethane. Research also shows that customers switch materials for cast polyurethane's diverse combination of physical properties that cannot be found in other materials. Varying by material and application, cast polyurethane has high tensile strength, load-bearing capacity and a greater tolerance to environmental challenges such as greases and oils. The material's rugged durability and longer wear lead to greater cost efficiencies on the initial material investment.

If yes, why are customers switching to cast polyurethane?

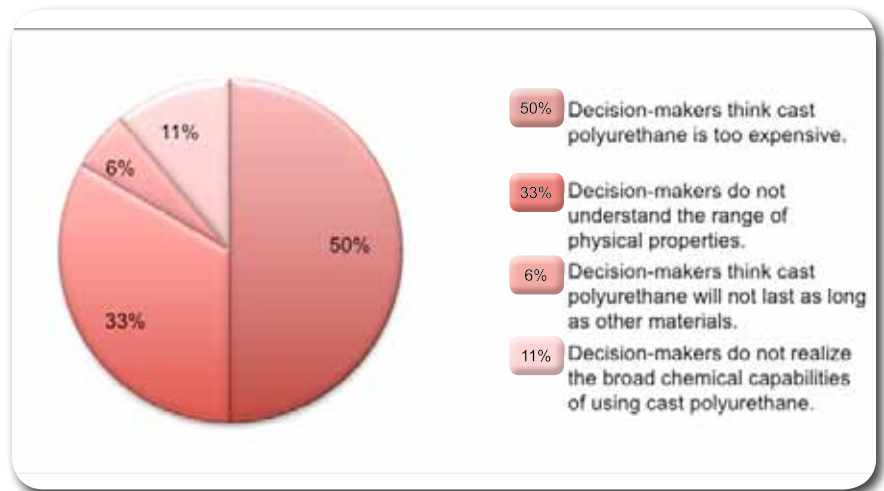


There are misconceptions regarding overall value in relation to price.

The number one barrier in getting customers to use cast polyurethane is price. Many decision-makers think cast polyurethane is too expensive to use in their applications. This insight strongly correlates to processors' and suppliers' greatest challenge coming out of the recession: pricing pressures/commoditization.

In our online survey, 33% of participants believe that decision-makers do not understand the range of physical properties for cast polyurethane. Decision-makers' limited view on the material results in cast polyurethanes being overlooked as an option. Cast polyurethane has come a long way in achieving greater identity among engineers and decision-makers, but processors and suppliers still must continue educating customers on the material's unique properties and advantages.

What are the primary barriers to getting customers to use cast polyurethane as a material?



Advantages of Cast Polyurethane over Rubber

- Higher load-bearing capacity
- Greater tear strength
- Better compression set
- Tolerance of greases, oils and ozone

Conclusion: Signs of positive progress abound.

Despite material pricing challenges and the need for further education on cast polyurethane, the future is bright for processors and suppliers to grow and expand their businesses into new markets.

- Cast polyurethane processors and suppliers envision their **business slightly increasing in 2011**. Not a single cast polyurethane processor or supplier sees their business decreasing in 2011.
- 65% of processors or suppliers have had customers/prospective customers **change or consider changing materials in the last year**.
- Cast polyurethane manufacturers and processors will continue to **diversify their business and expand into new markets**, with representation across a wide spectrum of industries.
- Customers who switch to cast polyurethane do so most often for its **greater durability and unique physical properties**.
- While progress has been made, the industry must continue to educate the marketplace to **counter misconceptions regarding cast polyurethane's overall cost advantage**.

Any Questions?

As the market for cast polyurethane continues to evolve and grow, look to the PMA as a trusted resource for the latest technology, practices and expertise surrounding polyurethane.

Visit www.pmahome.org to discover more.

Manufacturing and Business Media: What the Research Means To You

A strong recovery is predicted.

- The majority of cast polyurethane processors and suppliers are expecting a boost in business in 2011. This positive industry news is on target with several other manufacturing reports in past months.
- Cast polyurethane processors and suppliers are confident in their ability to penetrate existing markets and expand into new markets to increase sales.

Cast polyurethane is finding new fans.

- With more OEMs and product designers switching from rubber/metal or plastic materials to cast polyurethane, more products are made out of cast polyurethane than ever before.
- As cast polyurethane's popularity grows, OEMs and product designers will be looking for more information and expertise on the material.

The material is making inroads into a variety of new markets.

- No longer narrowly focused on a few verticals, today's cast polyurethane manufacturers are reaching out to new markets and expanding their relationships in existing ones.
- Look for cast polyurethane to play a greater role in applications involving tires/wheels, defense, medical, automotive, mining and oil and gas production.

Processors and suppliers continue to advance the physical properties of cast polyurethane.

- The industry is focused on creating cast polyurethane formulations that make products more durable, more resistant to chemicals and more abrasion resistant, all while enhancing performance and speed in their applications.
- Manufacturers have made significant advances in increasing the material's ability to withstand high temperatures.



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