



# A Sea Change: Plastics Pathway to Sustainability Special Report Prospectus

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[www.ihsmarkit.com/plastics](http://www.ihsmarkit.com/plastics)

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# Introduction

Plastics sustainability is one of the biggest potential disruptors on the policy front and an issue that could lead to greater regulation (including bans) and/or deselection by consumers, retailers and brand owners. The issue of plastics waste, especially ocean pollution, has come to the forefront of topics guiding decisions for the entire value chain.

	PRODUCERS	PROCESSORS	CONSUMER GOODS COMPANIES	GOVERNMENT & RECYCLING INFRASTRUCTURE
ISSUES & HURDLES	<ul style="list-style-type: none"> <li>– Uncertainty driven by sustainability impacts both near term product line planning as well as longer term investment decisions.</li> <li>– Industry leaders are actively adjusting business models to incorporate sustainability.</li> </ul>	<ul style="list-style-type: none"> <li>– Seek to understand how policies and regulations will impact future material options as well as capital investment decisions for equipment.</li> <li>– Product design now needs to address life cycle dynamics.</li> </ul>	<ul style="list-style-type: none"> <li>– Need to optimize consumer perceptions while setting practical goals.</li> <li>– Comprehensive insight and analytics produce optimal sustainable material choices in order to set and achieve internal sustainability goals.</li> </ul>	<ul style="list-style-type: none"> <li>– Need to set realistic goals to meet constituent needs.</li> <li>– Need for a comprehensive recycling infrastructure - what is the optimum system and who pays?</li> </ul>

**The Challenge - A complex mix of market drivers impact the entire value chain.**

The demand for plastics effects upstream petrochemical demand (olefins, aromatics, ECU) that is critically important to the petrochemical value chain as well as for integrated oil companies seeking refuge in petrochemicals from uncertain refining markets.

The petrochemical value chain is global and dynamic with shifting drivers. Dramatic shifts in crude creates broad based uncertainty and a pause in making major investment decisions. North America Shale gas significantly shifted the geographical balance of supply and trade for many base chemicals and plastics, with a less pronounced effect on the global market demand. Changes in China environmental policies, including bans on imported scrap materials, as well as protectionist trade policies have an immediate and significant impact on polymer trade patterns.

Plastics sustainability is no less a fundamental driver and is perhaps one of the least understood from a demand, supply, regulatory and technology standpoint. It's a challenge that involves every participant of the value chain – from energy to consumer and encompassing both the private and public sector.

As trends develop participants through the value chain are re-assessing their business models and either considering or already implementing vertical and/or horizontal integration plans. Examples today included polymer producers adding recycling assets, brand owners adding processing that includes use of PCR. Plastics sustainability has the potential to change the total demand and demand growth rate for virgin plastics and significantly impact the viability of present assets (plants) and future expansions both in plastics, upstream chemicals, and feedstocks.

For these reasons, IHS Markit believes it is time to bring its core competencies to bear with the vision to help stake holders move progressively to understand the issues of plastics sustainability.

# Study Objective and Scope

## The study will focus on achieving the following

- An in depth understanding of how sustainability initiatives on plastic packaging and short-lived products (i.e., one-time use plates, straws, bags, cotton buds, plastic stirrers, etc.) will impact both the demand for virgin and recycled resins, and the potential increased supply of recycled materials.
- Identification and assessment of the current status and trends for global and regional regulatory and industry policies affecting plastics demand and recycled plastic availability.
- An assessment of supply vs demand disconnects for post-consumer recycle (PCR), including overall constraints and quality/specification requirements.
- Translate the in-depth analyses into an assessment of future supply/demand changes for both polymers and upstream monomers and feedstocks.
- How demand and supply changes impact future polymer prices.

## The study will cover In-depth demand risk profiles for major polymers:

- Polyethylene (HDPE, LDPE, LLDPE)
- Polypropylene (PP)
- Polystyrene (PS)
- EPS (Expandable Polystyrene)
- PET
- Polyvinyl chloride (PVC)

## Study will assess segments for:

- Potential for displacement via bans or alternative material
- Potential for increased use of PCR

## The study will cover major markets:


- China
- Europe
- India
- US/Canada

## The study content will be delivered via:


- Detailed PowerPoint slide decks
- Excel files containing the data that forms the basis of the analysis with capability to run demand scenarios
- Optional, complimentary interactive 1.5 day study presentation where subject matter experts provide detailed insight and commentary

# Key Questions the Study Address

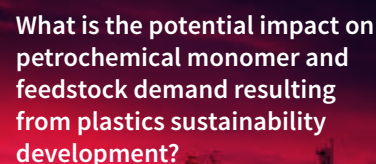
## The study will address the following key issues:



What is the current and future impact on virgin and PCR plastics demand from sustainability initiatives?



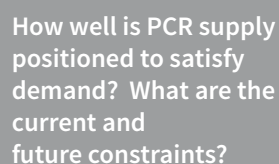
How will various end-use demand segments be impacted by sustainability developments?




What is the potential impact on petrochemical monomer and feedstock demand resulting from plastics sustainability development?



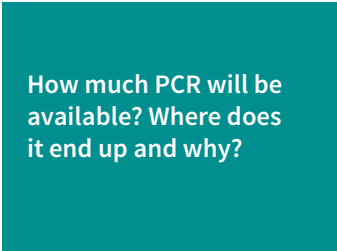
How do global and regional regulatory trends impact plastics demand?



How well is PCR supply positioned to satisfy demand? What are the current and future constraints?



How do sustainability initiatives affect future plastic prices?



How much PCR will be available? Where does it end up and why?

# Deliverables

Plastics sustainability has the potential to change total demand and the demand growth rate for virgin plastics, significantly impacting future expansion in plastics, upstream chemicals and feedstocks. The study will have the following deliverables:

- Review of current and evolving government regulations and Consumer Product Companies’ policies for plastics sustainability initiatives for major consuming geographies
- An in-depth review of the infrastructure disconnect between post-consumer recycle demand and supply.
- Demand analysis by detailed end-use segment for major polymers (LDPE, LLDPE, HDPE, PP, PS, EPS, PVC, PET) for the time period 2018-2030 for major demand centers (Europe, U.S. & Canada, China, India). The demand analysis compares a Base Trendline to a Maximum Viable Threshold view by assessing the potential for:
  - de-selection via bans or alternative material
  - increased use of post-consumer recycle content
- Global integrated supply/demand views for the major polymers base chemicals and associated feedstocks for 2018 - 2030 reflecting the changes associated by the Maximum Viable Threshold demand compare to the Base Trendline.
- Profile of major technologies for plastics recycling and the potential impact on PCR resin supply volumes.
- Assess the impact of PCR chemical recycling technologies on monomer and/or hydrocarbon supply.

# Methodologies

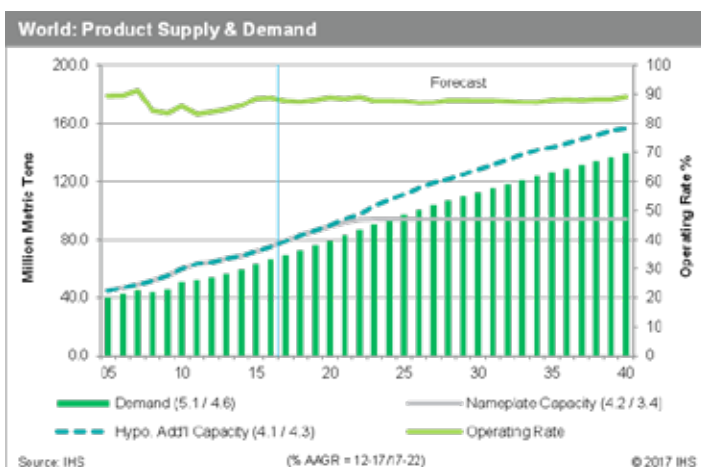
IHS Markit will employ its standard and well proven methodologies for the execution of this Study. The core elements of our approach for this assignment include market research building upon our internal knowledge base, followed by thorough analysis and a critical retesting of our initial assumptions and findings before the finalization of our conclusions and recommendations.

The approach envisioned will be along “traditional” market research lines, augmented by the integration of IHS Markit’ proprietary chemical business area analysis in chemical markets, industry assessment techniques, and proprietary business tools.

IHS Markit’ extensive experience in market research, chemical business analysis, and technology/economic assessment provides a sound foundation for this proposed study.

IHS Markit provides an assessment of the major trends and factors affecting growth, end uses, trade flows, and effect on price cycles. Specifically, IHS Markit will highlight in detail the key demand drivers in these markets as well as discuss inter-material competition and substitution issues.

Supply/Demand Forecasting Methodology - IHS Markit utilizes Supply and Demand Models for analysis on a wide variety of petrochemicals. In order to prepare historical and forecast demand for the basic petrochemicals, such as ethylene, propylene, and benzene, we first prepare demand and production forecasts for all of the derivatives. For example, by first completing a comprehensive worldwide balance for polypropylene, country by country, we can determine the amount of polypropylene that will be manufactured in each country and, therefore, the amount of propylene that will be required for production of polypropylene. This model has been developed for a wide variety of petrochemicals.



## Price Forecast methodology

IHS Markit utilizes multiple in-house developed models to supplement experienced consultants covering short, medium and long term periods. This study will provide price forecasts from 2018 through 2030. Price forecast for various products are fully integrated from derivative to energy taking into account many factors including demand, production technologies and cost positions. For 2030 projections global price setting mechanisms are established utilizing ROI on assets deemed to be the incremental source of supply to meet global demand. Regional export and domestic prices are then set based on knowledge of arbitration fundamentals and local market conditions.

# Proposed Presentation Agenda

## Morning Day 1

### **Introductions and review of study objectives, methodologies**

- The study will incorporate IHSM's approach to providing industry leading analytics and insight.
- The project team consists of 29 formal members supported by a regional network of consultants and analysts and key partners.
- As always, the study will be fully integrated from plastics to feedstocks.

### **Global policies and regulations trends**

This section will include a global and regional picture of current policies/regulations for both government and private sector and a well-supported view of potential shifts.

### **Lunch**

### **A review of recycling and recovery options**

- This topic will provide attendees with practical insight into the current state of the recycling/recovery technologies.

## Afternoon Day 1

### **Demand-supply disconnect**

This section will provide a picture of the current PCR infrastructure and clearly identify disconnects from a volume, quality and fit-for-use perspective.

### **Product Demand Risk Assessments, Forecasts, End Use Disposition, Supply/Demand Balances and Long-Term Price Implications**

- Each product will include demand segmentation, impact assessments and forecasts This section will provide in-depth demand analyses including a base trend line and a "Maximum Viable Threshold" view according to 2 variables:
  - The potential for prime displacement via bans or shift to alternative materials.
  - The potential for increased use of post-consumer/post commercial resin.
  - LDPE, HDPE, LLDPE, PP /Olefins/ Naphtha/NGLs
  - PS/EPS/BX

### **Concluding remarks**

## Morning Day 2

### **Product Demand Risk Assessments, Forecasts, End Use Disposition, Supply/Demand Balances and Long-Term Price Implications, continued**

- PVC/CI
- PET/PX
- General Q&A
- Feedback/Future Pathways
- Concluding Remarks
- Lunch/Depart

# Meet Our Study Contributors

## IHS Markit



**Todd Dina**  
Research and Analysis Director

Todd Dina joined IHS Markit in 2016 as Director, Global Olefins and has more than 29 years' experience focused on olefins. Todd began his career with MW Kellogg in 1988 in design engineering and environmental consultant roles. He later joined Lyondell Petrochemicals where he held roles of increasing responsibility in ethylene oxide/glycols operations, business analytics, sales, and commercial management. He then joined TPC Group where he held positions in sales, commercial management and finally feedstock procurement.



**Katie Elliott**  
Research and Analysis Associate Director

Katie joined IHS Markit in 2014. Her focus is primarily in aromatics and the analysis of the benzene, toluene, mixed xylenes, orthoxylene and phthalic anhydride markets. Prior to joining IHS, Katie had an 11 year career with BP, serving as commercial product manager for base aromatics products with a particular focus on mixed xylenes and paraxylene as well as in a variety of commercial positions, including refinery optimisation, business development, gasoline logistics and shipping.



**Ana Gamboa**  
Associate Director, Inorganics - Global - Chlor Alkali, Vinyls

Ana is the Associate Director for Chlor-Alkali/Vinyls and Inorganics and specializes on the PVC, VCM and EDC markets in North America. She joined IHS Markit in 2010 and her prior experience includes three years with ICA Fluor, followed by seven years with Pemex international trading company (PMI) in Mexico City dealing with petrochemical commodities commercial operations as well as market analysis. Ana has an intimate knowledge of engineering project execution as well as petrochemical commodities markets.



**Dewey Johnson**  
Research and Analysis Vice President

Dewey joined IHS Markit in 2009 and is responsible for global insight and research covering the major chemical value chains including aromatics and fibers, olefins and derivatives, inorganics (chlor-alkali, vinyls, and soda ash), plastics and polymers, and syn-gas chemicals (methanol, acetyls, and ammonia). His experience in the petrochemical industry covers all aspects of the business — financial, commercial, operations, research, strategy design and business planning, business development, as well as consultancy.



**Tison Keel**  
Research and Analysis Director

Tison joined IHS Markit in 2008 and serves as the Director of Ethylene Oxide and Derivative Studies. Tison had a distinguished career with Union Carbide Corporation, then The Dow Chemical Company following the merger of those two companies in 2001. His background is in Product Management, Sales, Sales Management, and Marketing, with deep management experience in ethylene glycols, ethanolamines, ethoxylated surfactants, ethyleneamines, and vinyl acetate. He spent six years in Asia working on the formation and start-up of two Joint Ventures.



**Eddie Kok**  
Executive Director, Global Vinyls

Eddie joined IHS Markit in 2004 and has over 25 years of experience in the chemical industry, holding various responsibilities including regional sales, marketing, business development and product management.



**Brian Lee**  
Research and Analysis Associate Director

Brian joined IHS Markit in March 2014. He is responsible for covering Styrene, Phenol and Acetone market analysis and Asia market report. He also contributes to various market advisory publications and support consulting activities. Brian has had a distinguished career spanning close to 20 years in the Petrochemical Industry. He has a Chemical Engineering background and started his career with Samsung C&T Corporation and worked with them for 16 years both in Asia and Europe. He was responsible for trading and marketing BTX, Styrene, PX and PTA to global customers.



**Steve Lewandowski**  
Research and Analysis Executive Director

Steve is the Global Business Director - Light Olefins at IHS Chemical, a leading global provider of information and insight and consulting services to the global chemical, petrochemical and refining industries. During a career spanning 25 years in the refining and chemical industry, Steve has experience across the spectrum of refining and petrochemical hydrocarbon value chains covering a wide array of financial, strategic, technical and commercial issues at TOTAL Petrochemicals & Refining, Inc.



**Kaushik Mitra**  
Research and Analysis Director

Kaushik recently joined IHS Markit as the Director of Polyolefins EMEA. Kaushik has more than twenty-two years of experience in the Petrochemicals business, working in Top Global companies' leading global teams in functions like Business Management, Market Development, Market Intelligence and Strategy. In his last job with Petrochemicals giant SABIC he was leading the Global Strategy team for the Polymers business, shaping long term ambitions in terms of growth, business improvement, innovation, pricing and creating a framework for Strategy execution and deploying performance metrics.



**Mark Morgan**  
Global Director

Dr. Morgan joined IHS Markit in 2011 and has dedicated over 21 years to consulting in specialty chemicals, process technology and industrial biotechnology. In addition, to chemicals consulting, he supports work in other IHS Markit business units where chemicals and materials are involved, in particular Aerospace, Defense and Security (AD&S). Previously, he was with Chem Systems, a leading boutique consulting firm serving chemicals and allied industries. His work covered lenders advisory work, M&A due diligence, project feasibility, technology validation and valuation, legal work and more. Following service in the army, he began his chemicals career with BP undertaking blue sky research as well as plant support, together with taking new ideas from concept to commercialization.



**Javier Ortiz**  
Associate Director, Polyolefins

Javier joined IHS Markit in 2007 and is the Associate Director for the Polyolefins market research group, covering the plastic resins markets in the United States and Latin America. Javier previously was the global leader of the IHS Markit senior research analyst group.



**Anthony Palmer**  
Vice President

Mr. Anthony J. Palmer is vice president of Chemical Consulting at IHS Markit and directs diverse client engagements related to the business, technical, and financial aspects of the energy, chemicals, plastics, and associated industries. His expertise includes strategic business management, financial and acquisition analysis, technology assessment, capital project planning, manufacturing strategy, international project development, expert witness/litigation support, and material supply strategy. Previously, Mr. Palmer worked at CMAI (acquired by IHS in 2011) now part of IHS Markit, as well as CPI Consulting Associates, Chem Systems, and Exxon Corporation.



**Ashish Pujari**  
Senior Director

Ashish joined IHS Markit in 2009 and currently has the responsibility of Asian Aromatics business and Global Fibers and Feedstock business. Apart from regular market and outlook update, Ashish also leads our effort in creating and updating the long-term outlook for the polyester value chain. Ashish has also been involved in numerous consulting studies in the past four years covering the Aromatics & Polyester value chain.



**Utpal Sheth**  
Research and Analysis Director

Utpal joined IHS Markit in 2007 in the Dubai office to develop market insights for the Middle East and Indian Subcontinent markets for Polyethylene, Polypropylene and Polyvinyl Chloride. He has relocated to Singapore in 2014 to head the regional Polymers group. Currently his focus is to lead market insight group for the PE and PP business in Asia – Middle East for hundreds of global clients who are interested in understanding the dynamics of this most vibrant and fastest demand growth region.



**Daniel Siow**  
Principal Research Analyst

Daniel has over 15 years of experience in the plastics industry, holding various responsibilities, ranging from regional sales and marketing, business development to management. He joined IHS Markit in 2010 as Director of Styrenics and Engineering Resins – Asia. He contributes to numerous market advisory publications and supports business consulting activities.



**Matthew Thielke**  
Research and Analysis Director

Matthew Thielke has responsibility for Olefins and Derivatives reporting in the Europe, Middle East and Africa region. Along with regional responsibilities, he also has global oversight for long term forecasting within the IHS Chemical olefin sector of the petrochemical industry. With 16 years of experience in chemical consulting, he has worked across a wide range of product areas with a broad client base.



**Nick Vafiadis**  
Vice President

Nick is a twenty-five year veteran of the chemical industry who joined IHS Markit in 2002. Nick is responsible for the global plastics practice. Prior to joining IHS Markit, Nick spent twelve years with Vista Chemical Company (Condea Vista Chemical Company).



**Bingli Wang**  
Director

Bingli joined IHS Markit in 2006 with more than 30 years of experience in the petrochemicals. Bingli's prior experience was managing director of Hansol Information Consulting and editor-in-chief for Chemease. At Concord Oil & Petrochemicals Holdings Co. he supported the establishment of a grassroots refinery.



**Henry Warren**  
Director, Inorganics – Vinyls

Henry has vast experience in the hydrochloric acid, chlorinated solvents, caustic potash, caustic soda, and vinyls sectors. He joined Harriman Chemsult in 2001 (acquired by IHS Markit) and has in-depth understanding of this industry built up over several years with strong industry relationships to match. Henry entered the field of chemical market analysis in 1996, working in areas including feedstocks and several polyolefin value chains in Europe, the US and Latin America.



**Robin Waters**  
Director, Plastics Planning and Analysis

Robin joined IHS Markit in 2012 and brings to his role over 30 years of experience including working for DuPont, Montell Polyolefins, and Basell/LyondellBasell. Robin held various roles ranging from technical service, strategic planning, and product and commercial management.





**Martin Wiesweg**  
Director

Martin joined IHS Markit in 2008 as Director - Europe, Middle East and Africa Aromatic Polymer Studies. Martin has twenty years of experience in the chemicals industry and plastics working at companies such as HUELS AG, BP, Innovene, and Nova Innovene.



**Jinsu Yim**  
Research and Analysis Director

Jinsu joined IHS Markit in February 2008 as Director – Asia Olefins. His focus is primarily in olefins and the analysis of the propylene and propylene derivatives markets for hundreds of global clients. Jinsu regularly travels throughout the world to discuss olefin markets with producers, consumers, traders, bankers, engineers, and transportation companies.



**Wei Ding**  
Research and Analysis Associate Director

Wei is a specialist in polyester and feedstock markets, with expertise in polyester fiber, PET bottle resin and upstream PTA/MEG. Wei Ding is responsible for business advisory studies on PTA and derivative polyester markets in China as well as MEG and PET markets in Asia, tracking industry trend and changes in supply/demand fundamentals. Before joining IHS Markit, he worked with SAMYANG CORP, taking advantage of his years of experience in chemical products trading to promote the company's PTA business in China.



**Lauren Zeiss**  
Research and Analysis Associate Director

Lauren Zeiss joined the global chlor-alkali market advisory services team of IHS Markit in July 2018 as associate director for chlor-alkali covering Europe, the Middle East, and Africa. She has more than 20 years of experience in the petrochemicals, chlor-alkali and vinyls, oil, fuels, gas, and mining and metallurgical industries. Ms. Zeiss has extensive experience in the fields of market research/intelligence and analysis, business development, strategic planning, marketing, and consulting.

## More Recycling



**Nina Bellucci Butler**  
CEO, More Recycling

Nina is CEO of More Recycling, a research and technology firm with a mission to provide forward-thinking programs, tools (e.g., PlasticsMarkets.org), and services to accelerate the transition to a society that manages resources sustainably. Nina has been a visionary, leading industry, building collaboration, and shedding light on the information necessary to overcome barriers to plastic recycling for nearly 20 years.



**Nathan Jeffay**  
Sustainability Consultant, More Recycling

Nathan joined More Recycling in early 2016 with previous experience in plastics supply chain management for a manufacturer. At MORE, Nathan leads the research and survey logistics for scrap plastic surveys and reports covering the collection, recycling and end market demand for post-consumer plastic bottles, non-bottle rigid plastic, plastic bags & film, in the U.S. and Canada.



**Stacey Luddy**  
COO, More Recycling

Stacey spearheads operations and data analytics at More Recycling, a research and technology firm providing programs, tools, and services to the sustainability industry, NGOs, government and brand companies. During her career, spanning 10 years in the plastics recycling industry, Stacey has gained critical insights and deep knowledge of the full value chain of plastics recycling.

## Environmental Packaging International



**Victor Bell**  
President, Environmental Packaging International (EPI)

Victor started EPI in 1998. He is a Certified Packaging Professional with more than 35 years of experience with environmental issues associated with packaging and products. In April 2018, Victor received the Sustainable Packaging Coalition (SPC) Outstanding Person of the Year award. Victor is considered a leading expert in global packaging and product regulations and Extended Producers Responsibility (EPR).

# IHS Markit Chemical Qualifications

## Single-Client Consulting Work

The following projects are examples of single client work that IHS Markit Chemical has conducted in the last couple of years – this list is not intended to be exhaustive:

**Plastics Converter Growth Strategy** - Identified transformational growth opportunities for a leading supplier of decorative products with goal to double revenue in 3-5 years. Identified key capabilities and defined growth platforms. Leveraged targeted research, brainstorming sessions, and rigorous analysis to identify and select preferred investment opportunities.

**Industrial Platform Market Monitoring Study** – IHS Markit was engaged to provide an insight of the four industries e.g., automotive, electronics, packaging and textiles, the key polymers used in these industries, and the impact on the petrochemical business of the client.

**Business Evaluation of Global Electrical and Electronics Industry** - To help the client develop a targeted strategy for addressing the attractive Electronics and Electronic Industry market, IHS Markit completed a rigorous two-part screening process of the E&E segments and sub-segments focused on 5 resins that the client should consider producing or acquiring technology capabilities in for entering the E&E industry.

**North America Polyethylene Market Analysis with a focus on Shale Gas Ethane** - IHS Markit assisted a global energy and petrochemical company develop plans to build a world-scale cracker with integrated derivative units in the Appalachian region of the United States. The client requested an in-depth market analysis of the North America polyethylene market, with a specific focus on the North Eastern market opportunities and the concentration of resin converters in this region.

**Middle East and Asia - Film & Sheet Market Analysis** - IHS Markit was retained by a U.S. based client seeking to identify the best strategic path forward with respect to Middle East opportunities in the film & sheet market. IHS Markit performed cost analyses according to four different purchasing and production scenarios. Through this analysis, IHS identified Middle East resin material costs for polyolefins, the cost structure of a Middle East film & sheet manufacturer, freight and custom fees, potential suppliers of resin pellets as well as extrusion partners.

**North American Polyolefin Market Entry Strategy** – A major North American resin supplier engaged IHS Markit to develop a polyolefin market entry strategy capitalizing on shifting global trade patterns. IHS Markit developed an analysis of the global and regional polyolefin markets to determine the viability of overseas supply to the North American market. Market entry options were determined, including addressable market segments, supplier requirements and associated competitive value propositions, and market positioning.

**Strategic Resin Sourcing** – A leading North American plastics converter with a focus on value-added flexible packing conversion markets engaged IHS Markit to investigate global feedstock supply options, capitalizing on increased resin supply availability in the Middle East as well as global expansion ambitions. This project encompassed supply of the client's existing manufacturing facilities as well as supply chain extensions into the Middle East and Asia. IHS Markit identified opportunities for expanding the client's existing supplier base as well as supply options for future Middle Eastern and Asian manufacturing locations.

**North American Polyolefin Market Entry Strategy** – A major North American resin supplier engaged IHS Markit to develop a polyolefin market entry strategy capitalizing on shifting global trade patterns. IHS Markit developed an analysis of the global and regional polyolefin markets to determine the viability of overseas supply to the North American market. The market analysis included the supply, demand, and margin environment; detailed market segmentation; and the market opportunity for imported resins. This project also included a detailed analysis of the polyolefin value chain in North America. Key players and prevalent business models were identified with an emphasis on resin producers, plastics converters and distributors. Buying behavior and buyer decision criteria were determined for each end use market segment. Market entry options were determined, including addressable market segments and supplier requirements.

**Packaging Resin Market Assessment, Competitive Positioning and Strategic Options** – IHS Markit was engaged by a North American packaging resin producer to develop strategic options for maximizing shareholder value. Key options under consideration were continuation as a standalone company and potential M&A options for enhancing shareholder value. Based on the packaging resin industry analysis, a competitive map for the North American packaging resin market was developed. Potential industry evolution along alternative paths was identified as well as the implications for shareholder maximization options.

**Market Survey Study for Polypropylene Woven Bags & Jumbo Bags Plant in Oman** – An investment company was investigating the feasibility of setting up a Polypropylene (PP) Woven Bags and Jumbo Bags plant in Sohar, Oman, utilizing either domestic or imported PP resin. To determine feasibility of pursuing this project, the client requested that IHS Markit conduct a marketing feasibility study.

**Opportunities in the PE & PP Downstream Industries** – A large Saudi Arabian company that engages in the establishment, management, operation, and acquisition of petrochemical and chemical projects, and markets their products interested in exploring growth opportunities in the PE & PP downstream industries engaged IHS Markit to assist with the downstream opportunities. The focus of the report was on export oriented opportunities with high growth perspective, good economics for Saudi manufacturer, Europe and Asia target markets, premium products. IHS Markit conducted a screening analysis and recommend a short list of 10 to 15 opportunities with priorities. For a short list, IHS Markit identified economical size, capital cost, operating cost, manpower requirement, lot requirements and technology.

# IHS Markit Family of Chemicals Products

IHS Markit also publishes a wide range of products that provide chemical industry data insights, analytics, and solutions, including the World Analysis program and the Market Advisory Service.

## World Analysis

Global chemical markets, while increasingly integrated, often suffer from short-term volatility. As a result, stakeholders must make decisions in a rapidly-changing market environment with low forward visibility. This service allows clients to place their questions and concerns about current and future market development within a longer-term context.

Each World Analysis provides a detailed global and regional market outlook for a particular product or product group over a 16-year period (five-year history, base year, ten-year forecast). Clients depend on our expert analysis and forecasts supported by our extensive data collection to assist in their most important planning and investment decisions.

### The World Analysis Service is the right tool for:

- Supply chain and portfolio optimization
- Expansion and investment decisions
- Competitive analysis
- Product and market evaluation
- Merger & acquisition validation

## Market Advisory Service

The Market Advisory Services provide accurate current near-term market data and analysis for five basic chemical families. Depending on content and client needs, the services distribute daily, weekly, bi-weekly or monthly reports and/or data supplements.

## Report Contents

- Market prices, costs, and/ or margins (historical, current, forecast)
- Extensive expert commentary on prices, margins, trade, market conditions, operational issues and future trends impacting markets
- Quarterly supply/demand balances and trade flows

## Process Economics Program

New chemical manufacturing technologies can pose an opportunity or a threat. Whether you are acquiring a new technology or responding to a rival, the ability to quickly compare technical designs and production costs is a competitive advantage.

The Process Economics Program (PEP) has provided in-depth, independent technical and economic evaluations of more than 1,500 commercial and emerging technologies used to manufacture over 600 chemicals. The only source for new process analysis, PEP Reports and Reviews allow you to uncover the impact of changes in processes, feedstocks, energy prices, and government regulations on chemical and fuel production economics. In addition, with the iPEP Navigator, you can generate process economics tailored to your project needs.

Chemical, energy, engineering and investment firms use PEP to:

- Reduce the time and cost it takes to collect and assess new technology information
- Make investment and production decisions based on unbiased, expert assessments
- Customize process economics data to specific project needs
- Compare production costs and technical designs to optimize technology selection
- Keep pace with technology, market and regulatory developments
- Exploit on market shifts and mitigate competitor threats

# Contact Information

To make an inquiry about this study, please reach out to the IHS Markit Chemical Special Reports team at [ChemicalSpecialReports@IHS Markit.com](mailto:ChemicalSpecialReports@IHS Markit.com)

## IHS Markit Chemical Special Reports

IHS Markit Chemical Special Reports address topical issues in the chemicals industry. Please find a list of available Special Reports below. If you would like to learn more about any of these products, please contact the Special Reports team at [ChemicalSpecialReports@IHS Markit.com](mailto:ChemicalSpecialReports@IHS Markit.com)

## Available Special Reports

- Ammonia and Urea Strategic Report
- Light Linear Alpha Olefin Market Study
- C5: "C5 Value Chain Study: From Cracker to Key C5 Derivative Applications for Isoprene, DCPD and Piperylene"
- Polyethylene: "Latin America Polyethylene Market: Supply Shortfalls, the Growing Opportunity"
- "Chemical Industry Capital Costs: A Global Spending Outlook"
- US Bulk Chemical Industry Trade & Logistics in the Shale Gas Era
- Coal: "China Coal Chemical Industry Analysis (2015 Update)"
- Lubricants: "Lubricants in Brazil"
- Methanol: "Methanol into Fuels Applications: New Sources of Growth?"
- Propane: "Propane Dehydrogenation in China - Disruption on the Horizon?"
- Propylene: "North America Propylene Supply Study"
- Renewables: "Chemical Building Blocks from Renewables"

## About Our Collaborators



Environmental Packaging International (EPI) is a consultancy specializing

in environmental compliance, product stewardship and sustainability related to packaging and products. EPI works with US-based and multinational companies (retailers, producers, manufacturers and brand owners), including Fortune 500s and smaller startups, to help them achieve their sustainability goals and comply with Extended Producer Responsibility and other global requirements. EPI provides techniques and tools to assist companies in tracking their progress towards corporate sustainability goals and assists clients with integrating aspects of environmental compliance into their supply chain management, product design processes and other business systems. Located in Jamestown, RI, EPI's 20 years of experience in packaging and product stewardship provides high-quality consulting services that advance sustainability.



More Recycling (MORE) is a research and technology

company that provides forward-thinking programs, tools, and strategic planning services to accelerate the transition to a society that manages resources sustainably. With over 25 years of experience in the recycling of postconsumer materials, specifically plastics, MORE offers a deep understanding of the complex and ever-changing lifecycle of plastic packaging—from collection to recycling infrastructure to end-use markets. The company serves as a liaison between industry, public agencies, and NGO's and prioritizes accurate information and neutrality in the marketplace.

[www.ihsmarkit.com/plastics](http://www.ihsmarkit.com/plastics)

## About IHS Markit

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 85 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.