



IHS CHEMICAL

Latin America Polyethylene Market: Supply Shortfalls, the Growing Opportunity

Special Report Prospectus

In Partnership with



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Introduction

How will the growing shortfall of polyethylene supply in Latin America affect trade in the region both in general and for specific resin types? What will it mean for market participants both inside and outside of the region?

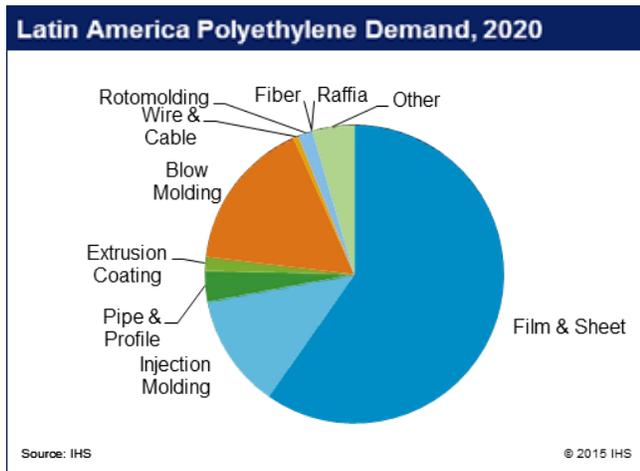
Demand for polyethylene in Latin America is growing significantly. Currently, regional demand is more than 7 million metric tons per year; by 2020, this volume is expected to exceed 8.6 million metric tons. Latin America is already a significant net importer of polyethylene resin, importing approximately 4 million metric tons of the resin in 2014.

Looking forward, only one significant production capacity addition for polyethylene is planned in the region. This means that imported polyethylene material – especially from new capacity that is being added in the United States – will become increasingly important to the market. Polyethylene imports into Latin America are expected to exceed 5 million metric tons by 2020.

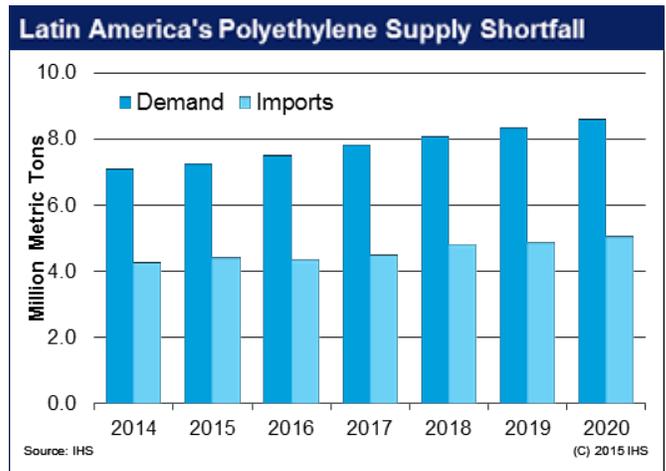
A deep understanding of the Latin American polyethylene market requires country-by-country data and analysis. End-use and consumption patterns change throughout the region.

The favorability of importing materials varies by country. The Pacific Coast is more open to imports due to low duties, while countries such as Brazil and Argentina impose relatively high import duties on products manufactured outside the region. The competitive landscape and the constellation of players change between sub-regions and countries.

For market participants new to the Latin America region, this report will provide crucial details on the location and type of demand that could be satisfied from growing imports. For players inside the region, this report will highlight areas of growth and market shifts that may represent new opportunities in the local market. Moreover, this report will provide market detail that is not usually found in IHS conventional periodical publications, such as a breakdown by co-monomer type and end-use markets.



Total Demand = 8.6 million metric tons



Study Objective

This report will provide a deep-dive examination of the polyethylene market in the key Latin American countries (Argentina, Brazil, Central America, Chile, Colombia, Mexico and Peru), offering a unique level of detail, such as:

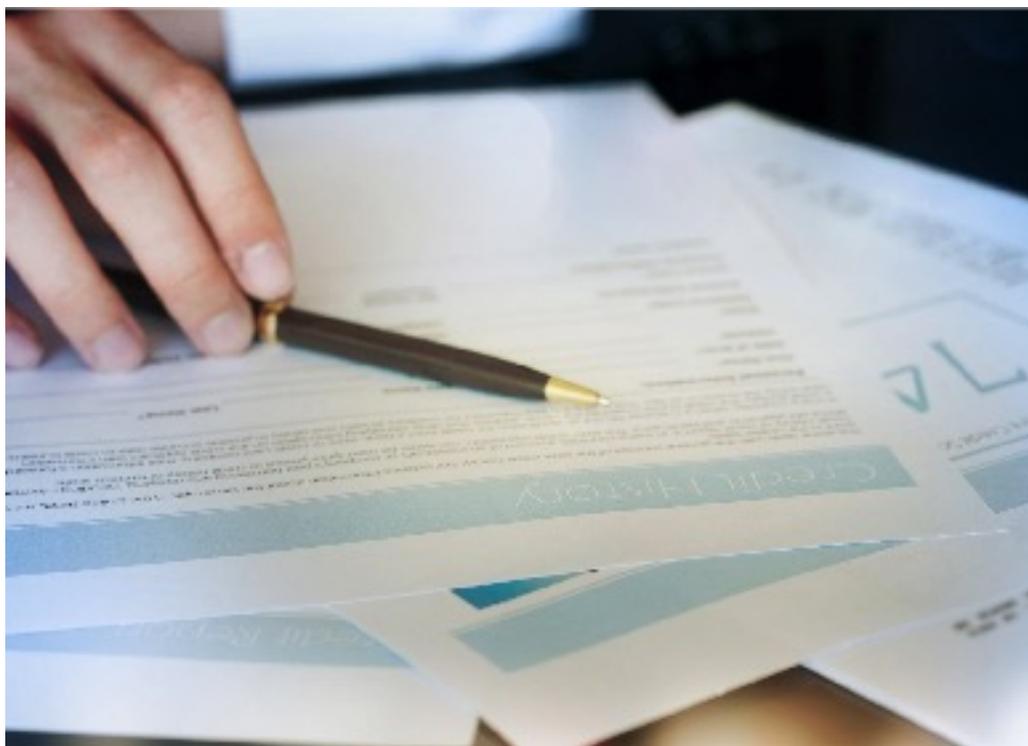
1. Demand projections through 2025, including:
 - Break-down by product family, including break-down into co-monomer type, where applicable
 - Break-down by main country/sub-region, process group and by end-use market
 - Break-down by end-use market
2. Analysis of the regional competitive landscape
3. List of top converters for each major country, including company contact information and yearly consumption volume ranges

For this study, IHS Chemical will work with its strategic partner MaxiQuim, which will provide the expertise and market intelligence on the Brazilian market. The study will be conducted by a team with Spanish and Portuguese language skills and extensive experience with Latin America's chemical and plastics markets. The data will be collected through interviews conducted in person, electronically, and via phone.



Key Questions Addressed in the Study

- What is the general business environment in Latin America?
- How big are the polyethylene supply shortfalls and how long will they last?
- Are there relevant projects involving polyethylene production in sight?
- Where is demand concentrated in Latin America?
- Which grades, applications and markets are the most relevant?
- What are the growth projections through 2025?
- Who are the key players and suppliers in the region?
- Who are the top consumers and how big are they?
- Are growing demand and future market shifts relevant only for potential newcomers or should existing players also be paying attention?
- **What are the potential implications for your company?**



Deliverables

The narrative report will be delivered in PDF format, with Excel spreadsheets containing all of the supply/demand data and graphics for the study as well as a listing of the top polyethylene consumers in each major country in Latin America. The consumer listings will include business sector, main product lines, country, city, contact information and yearly consumption ranges by product family. IHS and MaxiQuim experts will be available to answer questions about the report content.

Table of Contents

- 1) **Introduction**
- 2) **Latin America regional overview**
 - a. Economic and political environment
 - b. Critical industry segments related to polyethylene demand
- 3) **Regional polyethylene market summary**
- 4) **Country-by-country polyethylene market analysis**
Provided for Argentina, Brazil, Central America, Chile, Colombia, Mexico and Peru
 - a. **Business and industry environment**
 - i. Economic and political environment
 - ii. Discussion of critical industry segments for polyethylene demand
 - b. **Competitive landscape**
 - c. **Polyethylene demand**
Provided separately for LDPE, LLDPE, HDPE
 - i. Overview of country's supply situation
 - ii. Demand forecast through 2025, with breakdown by
 1. Processing: film, sheet, extrusion coating, injection molding, etc.
 2. End-market: food packaging, industrial packaging, agriculture, construction, etc.
 3. Where applicable, segmentation by co-monomer and catalyst type
 - iii. Map of main consumption locations
 - d. **Polyethylene supply**
Provided separately for LDPE, LLDPE, HDPE
 - i. Overview of country's supply situation
 - ii. Supply forecast through 2025, with breakdown by
 1. Capacity by process
 2. Capacity by company (where applicable)
 - iii. Map of production locations
 - e. **A brief review of local logistics**
- 5) **Appendix (Excel format)**
 - a. Demand and supply tables through 2025
 - b. Capacity listings through 2025
 - c. List of top polyethylene consumers by country including contact information, main product lines and consumption volume ranges by resin family (LDPE, LLDPE and HDPE). Where applicable, the list will also indicate the co-monomer type being consumed by the companies and which ones are consumers of metallocene grades

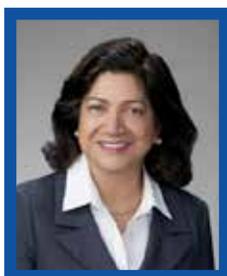
Study Team



Raul Arias – Director, Chemical Consulting

Raul is a Director of IHS Chemical's Consulting Group with close to 20 years of industry experience. During his seven years in consulting – most recently with IHS and previously with Nexant as a Sr. Consultant and Manager for Latin America - Raul has managed projects across a number of value chains with diverse focus, such as strategy development, competitiveness analysis, market intelligence, feasibility analysis, scenario play and opportunity screening. While in the industry, Raul worked for BASF in a variety of management positions as head of business, head of business unit, in strategic planning, marketing, sales, exports, and applications development.

Raul earned an Industrial Engineering degree from CeNETI, Mexico. He earned a Masters of Mechanical Engineering from the Technological University of Aachen, Germany and completed the coursework towards an MBA at the National Autonomous University, Mexico.



Rina Quijada – Senior Director, Latin America

Dr. Quijada was formerly CEO of IntelliChem, Inc., which was acquired in June 2013 by IHS. As CEO of IntelliChem, Rina was a market consultant to the petrochemical industry, specializing in Latin American markets. IntelliChem published a bi-weekly report (QuiMax, in partnership with MaxiQuim) on the olefin and plastics markets in Argentina, Brazil, Chile, Mexico, and Venezuela. Previously she has worked for CMAI and PDVSA's petrochemical subsidiary, Pequiven.

Dr. Quijada earned her PhD in economics in 1992; Master's degree in International Management at Thunderbird School of Global Management; attended Oxford Graduate Program in 1981; and earned a B.S. in Organic Chemistry in 1980.



Pam Giordano – Managing Director, Chemical Consulting

Pam serves as the Managing Director at IHS Chemical Consulting. In 2006, Pam joined IHS as a senior consultant in the business advisory services group in New York. Pam's major area of industry experience and expertise is polyolefins markets, technologies, and business strategies. In July 2004, Pam started Polymer Resources, an independent market research service for the polymers and related industries. Prior to starting her own business, Pam had a long career in the industry starting with USI (now LyondellBasell) in sales and strategic planning, and Nexant/Chem Systems as a Senior Consultant in the petrochemical & polymer practices.

Pam has an undergraduate BA/BS degree in Chemistry, and Masters of Business Administration in Marketing.



Joel Morales – Director, Polyolefins North America

Joel joined IHS in March 2013 as Director of Polyolefins for North America. Prior to joining IHS, Joel managed resin procurement for Silgan Plastics, a major, blow-molding plastics converter. He brings a processor's perspective to the organization, and will take an active role in the continued development of the company's global plastics services. Joel brings a wealth of industry knowledge to IHS through multiple stints along the plastics' value chain. He began his career with polyethylene manufacturer, Solvay Polymers, which later became Ineos, in technical services supporting Mexico and Latin America before he was moved into field sales. After 5 years at Solvay Polymers, Joel moved into resin distribution sales as a Product Manager where he managed and sold polyethylene and polypropylene resins into various customer segments.

Joel graduated from The Massachusetts Institute of Technology with a Bachelor's of Science in Chemical Engineering and a minor in psychology.



Jesus "Jesse" Tijerina – Director, Chemical Consulting

Jesse now serves as Director of IHS Chemical's Consulting Group. Prior to joining IHS, Jesse worked for Praxair Inc. for 8 years in various roles, most recently as Reliability Center Manager, where he was responsible for managing and implementing reliability based programs in Praxair's air separations plants. With Praxair, Jesse also held roles as Business Development Manager for the Petrochemical Industry, and also as R&D Program Development Manager for the Petrochemical Industry. Prior to his tenure at Praxair, Jesse work for 17 years for Union Carbide, a subsidiary of Dow Chemical, in a variety of capacities, including: Licensing Business Manager, Plant Manager, and a Manufacturing/Production Engineer.

Jesse earned a B.S. in Chemical Engineering from the University of Texas at Austin.



Javier Ortiz – Principal Analyst, Polyolefins

Javier Ortiz is a Principal Analyst in IHS Chemical's Polyolefins market research group, covering the plastic resins markets in the United States and Latin America. Javier began his consulting career at CMAI (Chemical Market Associates, Inc.) in 2007 as a research analyst for the North and South American synthetic fibers markets with primary focus on the polyester and nylon supply chains. He was subsequently appointed global leader of CMAI's senior research analyst group before taking over consulting coverage of the nylon raw materials markets in the Americas.

Javier holds degrees in Industrial Engineering and Business Administration from Texas A&M University.



Solange Stumpf – Director, MaxiQuim

Solange Stumpf is one of the founding partners of MaxiQuim, Ltda., a Brazilian provider of market and business advice for the chemical, petrochemical and plastics industry in South America since 1995. Solange has over 25 years of experience in the chemical and petrochemical industry, including 20 years in management and consulting functions. She has managed a number of major consulting engagements and advised multiple petrochemical and plastics companies on market issues and business development in Brazil.

Solange holds a degree in Chemical Engineering from the PUC-RS University (Brazil), and a Master's degree in Business Administration from the UFRGS University (Brazil). She completed specialization courses in Petrochemical Process Engineering at Petrobras and in Marketing at ESPM University (Brazil).



Marta Loss Drummond - Senior Consultant, MaxiQuim

Marta Loss Drummond is currently Director of Multi Client Services at MaxiQuim, and has 6 years of research and consulting experience, with focus on thermoplastic resins in the Brazilian market. Marta holds a degree in Chemical Engineering from the UFRGS University (Brazil). She completed a specialization course on the Petrochemical Industry at IPA (Argentina).

Qualifications

IHS Chemical Consulting – Sample Projects

The IHS Chemical Consulting team has extensive expertise in the Latin America polyethylene market, and has completed a number of consulting engagements for major petrochemical companies in the region related to supply/demand, opportunities, and strategies for new and existing producers and suppliers in the region. These projects often included competitive delivered cost analysis for resin supplied to specific Latin American countries from local producers and US imports based on shale-ethane.

A brief selection of sample projects relating to polyethylene in Latin America can be found below:

Market Study of Latin America Polyethylene Market

A large petrochemical company requested the assistance of IHS Chemical to continue its work in developing its petrochemical program. Related to polyolefins, IHS Chemical provided information on olefin and polyolefin projects in NAM and the Middle East by listing capacity, technologies and feedstock, by producer, globally, for all expected existing and future, planned production (for a specific time frame). This study included analysis of the progress of shale gas projects announced and probable additional projects, and how such projects could impact its own strategy work.

Petrochemical Complex Site Selection Study in Latin America

IHS Chemical assisted a petrochemical company by providing a preliminary indication of the relative attractiveness of five alternative locations for investment in a Petrochemical Complex. This site-selection study was developed by IHS Chemical using its vast petrochemical market-research databases and petrochemical market expertise. For information related to the five alternative sites being considered, IHS analyzed the site specific information provided by the client, toured the areas under consideration, and also relied on information available in the public domain.

Lenders Independent Market Consultant

IHS Chemical provided independent market consultancy services on behalf of prospective lenders for a planned petrochemical project that included construction of an ethane cracker in Latin America. The study included market information on product and feedstock pricing, cost competitiveness, and financial model review and support. The study also provided a market outlook and product analysis for HDPE and LDPE, as well as LLDPE. IHS also provided an overview of a specific region's market opportunities in ethane, as well as a review of the competitiveness of the project, a review of feedstock availability and reliability of supply, and a review of the pricing formulae against regional competitors.

Ethylene and Polyethylene Competitive Assessment

A large petrochemical company requested the assistance of IHS Chemical to provide a competitive analysis on ethylene and polyethylene competitive costs both in the Americas and globally. For this study, the overarching approach involved the development of typical cost factors for countries, sub-regions, and regions rather than individual company operating data. The study provided a sensitivity analysis around gas pricing for the proposed project, and an overview of the impact of gas pricing on the competitive position of the project. The cost analyses was integrated via ethylene basis and accounted for freight, duty and other logistics costs.

Long-term Pricing Scenarios

IHS Chemical provided long term pricing forecasts for a detailed list of products of interest, including ethylene and polyethylene. The study included IHS Chemical's current energy pricing, as well as historical pricing, on a global basis. When available, spot/contract pricing were provided as well. The two annual price forecast scenarios were based on crude oil, naphtha, and US natural gas assumptions. IHS also provided supply/demand data on ethane and propane to correspond with the pricing scenarios.

Latin America Market Monitoring Study

IHS Chemical was contracted to advise and assist a client in their analysis of a project which included undertaking the development, financing, design of an ethane cracker to produce ethylene integrated with two high density polyethylene and LDPE plants. IHS Chemical provided a complete polyethylene market review for both Latin American and global markets, including supply/demand/trade, capacity/expansion data, and a pricing analysis for major regions. Additionally, the study team provided a commercial review of the Latin America market, including the market opportunity in Latin America, an export analysis, and a domestic pricing.

About IHS Chemical



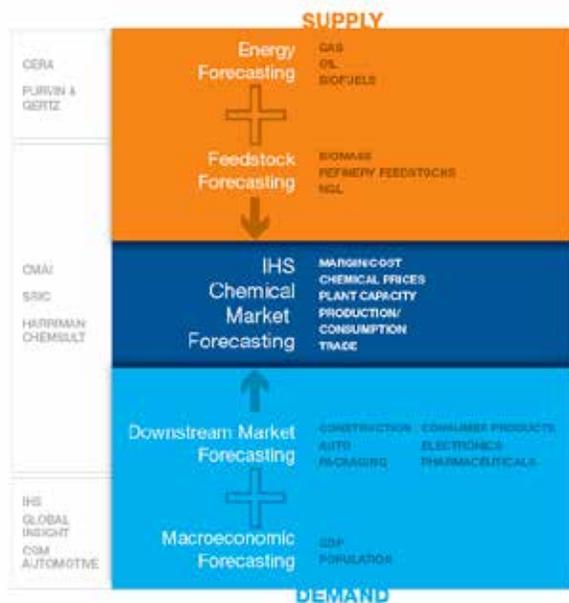
Best-in-Class Brands

IHS Chemical now combines the former CMAI and SRI Consulting groups together with Chemical Week Magazine, Harriman Chemsult, IntelliChem and PCI Acrylonitrile into one integrated business unit comprising its multiclient and single client services. IHS Chemical's experts, analysts and researchers who are well respected throughout the industry for their deep-rooted analysis and forecasts, extends the value that IHS can now offer by connecting clients with the vast resource of insight and expertise that exists across IHS including energy, supply chain and economics.

Comprehensive Coverage

IHS Chemical provides the most comprehensive chemical market content and industry expertise in the world. The company has more than 200 dedicated chemical experts working together to create a consistent and integrated view across more than 300 industrial chemical markets and 2,000 chemical processes for 95 industries. Ensure that your decisions are based on broad, comprehensive information, forecasts, intelligence, and analysis.

IHS has assembled a team of chemical experts that offers an unprecedented coverage level for core chemical markets and technologies. Backing them is a larger IHS community of experts covering related markets, from energy and the macro economy to the world's largest chemical-using industries, such as automotive, construction and others. IHS Chemical's intellectual capital is built on an operating model that utilizes over 1,800 consultants, researchers and economists to advance cross-disciplinary collaboration and analysis.



About IHS

IHS is the leading source of information, insight and analytics in critical areas that shape today's business landscape. Businesses and governments in more than 165 countries around the globe rely on the comprehensive content, expert independent analysis and flexible delivery methods of IHS to make high-impact decisions and develop strategies with speed and confidence.

IHS has been in business since 1959 and became a publicly traded company on the New York Stock Exchange in 2005. Headquartered in Englewood, Colorado, USA, IHS is committed to sustainable, profitable growth and employs more than 8,000 people in 31 countries speaking 50 languages around the world.

IHS serves businesses and all levels of governments worldwide ranging from 85% of Global Fortune 500 to small businesses. IHS provides comprehensive content, software and expert analysis and forecasts to more customers in more than 180 countries worldwide.



Information, analytics, and expertise

IHS offers must-have business information, advanced research and analytics, and deep expertise in core industry sectors, such as energy and natural resources, chemicals, electronics, and transportation. We focus on business-critical workflows that support our customers' needs, including:

- Strategy Planning & Analysis: Strategic Planning, Corporate Development, M&A, Investment Analysis, Risk Assessment
- Energy Technical: Exploration-Production, Geoscience, Engineering, Commercial Development
- Product Design: Engineering Design, Research and Development
- Supply Chain: Procurement, Logistics, Operations, Manufacturing
- Environmental Health, Safety & Sustainability: Sustainability, Regulatory, Environment Health and Safety

This interconnected information, expertise, and analytics across industries and workflows allows IHS to provide best-in-class solutions that power growth and value for our customers.



Chemical Business & Intelligence

About MaxiQuim

MaxiQuim will contribute to this report with expertise and market intelligence on the Brazilian market.

MaxiQuim is a Brazil-based company. Since 1995, MaxiQuim has been a provider of market consulting and advisory services to companies, associations and government in the chemical, petrochemical and plastics sectors. Thanks to its highly skilled staff, the experience of its directors, its information technology resources and its well-structured methodology MaxiQuim is well equipped to support its clients with information and expertise. Since all of MaxiQuim's partners come from the chemical and petrochemical industry, their market research and analysis capabilities are ideally suited to the address questions around the products that matter to those businesses.

MaxiQuim has carried out a number of market studies and businesses analyses covering the region, with the commitment to delivering reliable and accurate information to its clients. During the last 20 years, MaxiQuim has become the key source of chemical markets information in Brazil. The company also enjoys a strong presence in the main South American markets, such as Argentina, Chile, Peru and Colombia.

Contact Information

To make an inquiry about this study, please reach out to the IHS Chemical Special Reports team at ChemicalSpecialReports@ihs.com.

IHS Chemical Special Reports

IHS 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.com.

- Maximizing Value in C5 Petrochemicals Business: Extending the Reach of the Cracker Envelope
- Crude Oil Turmoil and the Global Impact on Petrochemicals: Navigating an Uncertain Course back to “Normal”
- Light and Heavy Naphtha: International Market Review
- China Coal Chemical Industry Analysis (2015 Update)
- Solution for the Feedstock Reshuffle: Technology & Economic Analyzer
- Chemical Industry Capital Costs: A Global Spending Outlook
- Global Ethylene Logistics Review: Ready to be Waterborne?
- Methanol into Fuels Applications: New sources of growth?
- Natural Gas Monetization Options: A Global Economics Comparison
- Propane Dehydrogenation in China – Disruption on the Horizon?