IHS Markit™

Ammonia and Urea Markets

Strategic Report Prospectus

Contents

Introduction

Access to abundant, low cost natural gas has dramatically changed the competitive landscape for the chemical and petrochemical industry in recent years, and nowhere has this been more true than in the ammonia and urea chain. It has never been more important to understand the impact that shifts in production centres and the knock on effect this will have on trade and competitiveness in these key commodity chemicals. IHS Markit is bringing its unparalleled experience in energy feedstocks commodity chemicals and fertilizers to help answer the most pressing issues clients active in the fertilizer and industrial ammonia and urea value chains face.

Key Questions Addressed in the Study

- What are the underlying drivers in end-use applications along relevant value chains?
- What is the impact of shale gas in North America, and what does this mean for world trade?
- Where will the traditional exporters to North America, deprived of a natural market, target next?
- Will China's coal based Fertilisers be able to compete internationally once operating rates improve?
- African Ammonia and Urea capacity additions– which markets will be targeted by new exporters?

Study Scope

This report will provide an examination of Ammonia and Urea markets globally and by major region, offering a unique level of detail.

IHS Markit will provide:

– Supply/demand balances for these products and applications for the 2011 through 2026 period.

– Ammonia and Urea supply/demand balances will provide geographic breakdown for the following regions:

Global

North America

Europe

Northeast Asia

Southeast Asia

India Sub-Continent

South America

Africa

Middle East

Ammonia demand segmentation by application and by carbon group included in the report is shown in the next table:

Ammonia Demand Segments	Urea Demand Segments
Urea	Fertiliser
Ammonium Phosphates	Melamine
Ammonium Nitrate and Nitric Acid	UF resins
Ammonium Sulphate and Caprolactam	DEF
Direct Application	Animal Feed
Ammonium Chloride	Other
Other Uses	

IHS Markit will discuss prices of feedstocks and give a price forecast for ammonia and urea for key regions: based on conventional gas, shale gas, coal.

Deliverables

In addition to the final report in narrative form (PDF), this report includes online access to data tables in Excel format. Clients also receive access to Chemical fertilizer experts, which can provide additional insight on the market fundamentals and trends discussedwithin the report.

Proposed Table of Contents

Executive Summary

Regional Overview
Demand sectors
Strategic issues

1 Feedstock and Energy Overview

2 Ammonia

North and South America: a Shale Gas Tale

Summary
Supply Forecast
Demand Forecast
Trade

Europe: Old markets but new trade clash

Africa: Exporters of today and the future

Middle East: Adding value to gas

Indian Subcontinent: The big consumer

Northeast Asia: Self suffiency or overcapacity?

Southeast Asia: The growing Giant

3 Urea

Regional breakdown, similar to Ammonia

4 Global and Regional Trade

Ammonia
Urea

5 Price Forecasts

Ammonia
Urea

6 Appendices

Methodology

IHS Markit has earned a reputation within the petrochemical industry for its ability to build upon its extensive models and databases and to provide meaningful forecasting and strategic planning services to its clients. Looking past the "numbers" has allowed IHS Markit to not only provide clients with short-term solutions, but to also become a valuable partner in longer-term strategic planning with an eye to the global petrochemical picture.

Over three decades in the business of petrochemical consulting, IHS Markit has developed the most comprehensive databases of supply/demand that are available to the industry, providing a solid base of information from which to build.

Supply/Demand Forecasting Methodology

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 acrylonitrile, country by country, we can determine the amount of acrylonitrile that will be manufactured in each country and, therefore, the amount of propylene that will be required for production of acrylonitrile. This model has been developed for a wide variety of petrochemicals.

With the model constructed, the key to the longer term forecast is how to establish demand growth. Most of the derivatives that follow from the base petrochemicals are used to produce items that are best classified as consumer goods, whether they are the goods themselves or the packaging for the goods. Demand for consumer goods is driven by consumer spending which is a function of many factors; among them interest rates, prices, consumer confidence and economic strength.

Breaking down all sectors of each derivative and developing demand models for each, by country, would result in a model that would be far too cumbersome to use, and far too expensive to maintain. As a first approximation, IHS Markit has developed a demand model driven by expected GDP growth, and for each country and product a GDP elasticity forecast has been developed. Petrochemical elasticities are the ratio of growth of demand for a particular petrochemical versus growth for GDP. An elasticity of 2.0 means that demand is growing at twice the rate of GDP. In general, the elasticity of industrialized regions and countries vary between 1.0-2.0, while those for developing countries vary between 2.0-6.0. The forecast of elasticity is based on several factors:

- Past Relationships
- Per Capita Consumption
- New Capacity Additions
- Prices

Countries with a low per capita consumption of a product will tend to have higher GDP elasticity, provided there are no government restrictions on currency for imports. Where there are new capacity additions for polymers, especially in developing countries, there is a tendency for a one to two year step change in GDP elasticity. The new polymers unit tends to attract new conversion investment and demand for the polymers rises quickly. In a developed country such as the U.S., GDP elasticity is generally not high unless a derivative finds a new end-use through technology advances or through relative price changes.

The issue of price driven demand growth is much more complicated. High prices will reduce demand growth, but relative prices tend to be more important. For example, if polystyrene prices do not change but polypropylene prices fall significantly, polystyrene will lose market share to polypropylene. If all polymer prices increase together, market share may be lost to other materials such as paper, wood or steel.

Having developed a demand forecast, IHS Markit will then estimate how the demand will be met. Where there is spare capacity to produce, or where new units are under construction or planned, production can be increased and trade patterns are changed in order to supply growth in importing countries. Where new capacity is needed, IHS Markit makes assumptions based on the rate of demand growth in a country, its requirement to import without the new capacity and its competitiveness. For example, in a long term forecast, IHS Markit will assume more new polyethylene capacity in countries or regions with access to cheap ethane than in those needing to import naphtha.

The balances for the "derivatives" are completed so that there is no trade imbalance nor inventory swing in the forecast years. The production numbers generated for each country are fed back into the "intermediate" or "petrochemical" balance in order to derive demand for these products. Production and trade are estimated for these products using the guidelines indicated above.

This hierarchy of product balances ensures consistency throughout the IHS Markit database and creates a system that is flexible enough to reflect changing economic assumptions.

Price Forecasting Methodology

IHS Markit's price forecast methodology provides a cycle forecast for one future cycle, generally 5-7 years, and then reverts to a trend forecast for the long term.

Petrochemical business cycles are influenced by periods of over and under-capacity. Since companies seldom make announcements for capacity additions greater than 5 years forward, IHS Markit includes a cycle forecast, based on the correlation between margin and operating rate, only during the near term forecast. The cycle forecast is followed by a trend forecast based on a margin high enough to provide sufficient return to encourage investment in additional capacity as required to meet demand growth.

A discussion of the price forecast methodology, factors driving the price forecast, trends in pricing, and price-setting mechanisms will be provided as supporting documentation to each forecast. IHS Markit consultants employ several different price forecasting methodologies depending on the timeframe in question.

- Short Term - Defined as the period inside two years, the consultant is looking carefully at current pricing in the regions, inventory levels, momentum, maintenance outage schedules and other market-oriented indicators. IHS Markit consultants will review the month-by-month energy prices and adjust their short-term petrochemical forecasts accordingly.
- Mid Term - IHS Markit considers the mid-term to be the next petrochemical pricing cycle. This of course differs from product to product, thus the length of this term differs. Price forecasting within this mid-term is done by examining the factors used in the short term, but more emphasis is placed on the supply and demand fundamentals and the underlying cost structure of production. Within the mid-term consultants will also use historical data to apply the appropriate margin levels to the cost of production. These margins are a function of the supply and demand balances as well as an understanding of how these markets behave in different parts of the cycle. Changes in energy costs will flow through and affect these prices.

- Long Term - The long term is the segment of the price forecast most obviously impacted by the underlying energy price change. After a complete price cycle, the product prices are forecasted on a trend basis. The cost of production for the price setting technology is examined regionally. To this cost a margin is added to derive a market price.

The margin is determined by examining the returns on investment necessary to entice new construction without making them so attractive as to encourage overbuilding. It is within this long-term segment where the true effect of a base energy change is seen on petrochemical pricing.

Over the long term, international commodity petrochemical prices are ultimately a function of production costs plus some level of profitability for the high cost producer. Three elements are therefore necessary to generate a price forecast. The first is to calculate a production cost forecast, the second a margin/ profitability forecast and the third, to insure price linkages between regions, a forecast of trade patterns and freight cost.

To generate a forecast of production costs one must generate a forecast of feedstock cost and, in most cases, these feedstock are either other petrochemicals or petrochemical feedstock, such as naphtha, propane and ethane.

It is therefore necessary to generate a price forecast for the feedstock first that is related to basic energy values. Yet petrochemical demand, ethylene consumption of natural gas liquids in particular, can impact the feedstock price forecast. As a result, some iteration is required.

Supply/demand balances are used to generate the forecast of margins and profitability. High operating rates lead to good margins and low operating rates lead to poor margins. Historic trends are used to derive these forecasts. For the short-term, competitive cash cost curves set the floor prices on both a world and regional basis. In the long-term price forecast, an understanding of supply and investment economics is essential.

Capacity Data

IHS Markit has an extensive proprietary program to manage capacity data information called CAPS (Commercial Analysis & Planning System). Capacity information is used to establish how much of a material can be produced or consumed in a country or region, who are the major producers of each product, and how the industry has changed in terms of ownership. IHS Markit has capacity data for base petrochemicals and primary derivatives for every producing country in the world to include:

- Historical and forecast capacities for every country and company
- Summary lists of capacity expansions, closures and name changes
- Capacity integration tables by site for every country and company
- Top production/consumption and surplus/deficit lists by company or shareholder
- Company ownership and shareholder subsidiary research

The database is updated routinely with new project announcements, expansions, start-ups and shutdowns. IHS Markit also maintains an extensive company ownership database that allows the system to extract capacity data by producing company name or by shareholder(s). IHS Markit' basic capacity data has evolved over a period of years and is continually refined. Generally, this information is verified through

discussions with representatives of the companies that are listed in the capacity tables during personal visits to their offices or during meetings at other venues.

This database contains existing and planned capacity, where planned capacity is either under construction or announced for completion over the next four to five years. Capacity announcements farther forward than five years in the future are seldom made and are often not very specific.

For supply/demand forecasts that go beyond the next five years it is necessary to make assumptions about further capacity additions. This is done in the supply/demand balances in order to ensure that production is increased to meet demand, but no new units have been included in the company by company capacity tables. Production is increased in specific countries in increments that reflect likely capacity additions, but these capacity additions are not associated with any specific company or location within the country. Capacity is increased in those locations which make the most economic sense, either because of local demand growth or because of advantaged feedstocks and proximity to growing markets.

Study Team

Ryan Monis – Senior Consultant, Chemical Consulting
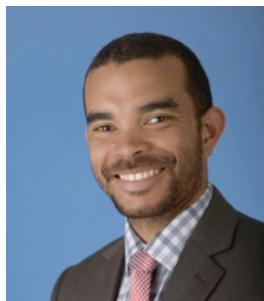
In 2013, Ryan joined IHS Markit working in the Business Advisory Services team in the London office, working on single client assignments in a wide variety of petrochemicals, with a special focus on fertilizer chemicals.

Projects range from primary research in specialty chemicals, to market and price analysis in commodity chemicals, or cost competitiveness and cash cost analysis.

Prior to IHS Markit, Ryan worked on sulphur and sulphuric acid markets, and wide exposure to both the metal leaching sector and the phosphate fertilizer sector. Ryan was the Editor of sulphur and sulphuric acid quarterly market reports and developed a market and price forecast model for sulphur and sulphuric acid, working closely with clients in the fertilizer, mining and crude production sector.

Gareth Lamb, Consultant, Chemical Consulting

Currently serves as a Consultant in Chemical's consulting practice based in the London office. He has worked a range of market research assignments, as well as competitiveness and feasibility studies.

Prior to joining IHS Markit, Gareth gained a PhD in organometallic chemistry at the University of St Andrews and later carried out a postdoctoral fellowship at the University of Bath, where he contributed to a series of cross-disciplinary projects in chemistry and chemical engineering within the Catalysis and Reaction Engineering Group.

Gareth then went on to work for as a consultant at Strategic Business Insights, a spin-off from SRI International, providing in-depth analysis and insight into emerging technologies, identifying early signals of change across a number of different markets and industries

Sean Stevenson, Managing Director, Chemical Consulting

Sean now serves as Managing Director of Chemical based in the London office. He has 29 years of experience in the petrochemicals industry, Prior to joining IHS Markit, Sean worked for Nexant, responsible for selling and executing single and multi-client consulting services where he led market and feasibility studies, major company strategy engagements, numerous lenders' independent engineer assignments and multi-client studies. He has also prepared and delivered keynote papers at major petrochemicals and fertilizer conferences.

Rob Taylor, Director, Chemical Consulting

Rob serves as a Director at Chemical's consulting practice based in the London office. Rob has over 11 years' experience in the petrochemical business covering markets and consultancy.

He has been involved in a wide range of global and regional studies covering a variety of products including; olefins, C4s, polyolefins, syngas chemicals, aromatics and some specialties.

In November 2005, Rob joined CMAI working across the olefins, polyolefins and chlor-alkali / vinyl's market advisory services teams in the London office. Between 2010 and 2013, Rob was responsible for the EMEA and India sections of the global acetyls report as well as taking the lead during the preparation of the World Acetyls Analysis.

Rob has been heavily involved in developing a number of the proprietary tools used by the global consulting team for cash flow modeling, cost competitiveness modeling and for global cost curve analysis. He has been able to put these tools into use for a range of projects including several large CIS, Middle East and Africa feasibility studies focusing on the strategic buildup of new petrochemical facilities across the region.

Today, he leads and manages consulting projects across a broad spectrum of topics. Rob has experience working overseas following a short spell at the company's Dubai office, contributing to local Middle East projects.

Qualifications

Chemical Consulting – We have extensive experience in the ammonia urea and fertilizer chain through our single client work. Here are some examples demonstrating IHS Markit's depth of experience in this field.

Low Density Ammonium Nitrate pre-feasibility Study (2016) – IHS Markit was asked to conduct a market study for a Middle Eastern Chemicals producer, The client had access to natural gas but wanted to understand the opportunity to produce LDAN at various locations in the country. The client was particulatly interested to undertand what impact an inland location would have on the profitability compared to a coastal location. Furthermore, the client wanted to understand the direct impact the price of natural gas would have on the overall profitability of the project.

Black Sea Ammonia/Urea Fertilizer Feasibility Study (2013) - For a major state owned fertilizer concern in the Black Sea/Caspian Region, Chemical conducted a feasibility study into a potential ammonia/urea investment on the Black Sea Coast, including an investigation into regional markets and pricing, cost competitiveness and a rigorous financial evaluation.

Technical Due diligence of an ammonia and fertilizer manufacturing facility in S Korea (2014) – IHS Markit was asked by a Private equity company to assess the status of a S Korean fertilizer producer near Ulsan in which it was considering investing. This included a site assessment of the assets and markets and making recommendations to the client on the viability of both the business and the ammonia, nitric acid and other fertilizer assets on site.

Lender's Market Consultant – European Fertiliser Study (2015) – Chemical by IHS Markit conducted this study which was part of a due-diligence project commissioned by a financial institution on behalf of a European N-fertiliser producer planning to expand fertiliser-production capacity. This work encompassed a detailed market study of the European market and other pertaining regions such as the CIS and MENA, in addition to a cost-competitiveness analysis looking at plant-gate and delivered costs to target markets as well as price forecasts for key N products (AN, CAN, urea, UAN and nitric acid) and finally, profiles and ranking of ten competitors in terms

of constituting a threat to the potential project. Key findings from this study such as netback prices were used as input to the financial model developed by the Lender.

Caspian Ammonia/Urea Fertilizer Market Study (2015) – IHS Markit was retained by a major state owned company currently constructing an ammonia/urea plant in the Caspian Region to conduct a detailed market study on the global and regional fertilisers field covering supply, demand, trade, marketing plan and pricing. This study was commissioned to support additional project financing.

Urea and Ammonium Chloride Study for the Chinese Market (2014) – Chemical by IHS Markit conducted this market study on ammonium chloride which is produced as a by-product of the Hou Soda Ash Process in China, and urea. This project which was commissioned by a US soda ash producer, looked at supply/demand/trade and price outlook for China, including domestic and export prices to 2020 for ammonium chloride and urea. In addition, Chemical researched the agronomical properties of ammonium chloride and the recommendations for crops fertilisation (some crop varieties are intolerant to ammonium chloride).

Feasibility Study for Petrochemical Complex for Ammonia/Urea, Methanol and Polyolefins Plant in the CIS (2015) - On behalf of a client based in the CIS, IHS Markit was asked to carry out a feasibility study for the construction of an ammonia, urea, methanol and polyolefins plant. This included market projections for these products, price forecasts, cost competitiveness analysis and cash flow modelling as well as marketing plans for different plant configurations in order to identify the best option for development in terms of capacity and product combination.

Coal to Chemicals - Ammonia and Urea (2011) - A Chemical client studying the feasibility of a large Coal to Chemicals Project in Yulin, Shaanxi Province, People's Republic of China, hired Chemical by IHS Markit to perform a market study to assist with the planning and decision making surround the project. IHS Markit provided specific ammonia and urea information on a global basis to the client.

Market study for the specialty market of slow-release and controlled-release fertilizers (2015) - Chemical by IHS Markit was retained by a major European producer to provide a market study for the specialty markets of slow- and controlled- release fertilizers as well as the market for fertilizers containing bio-inhibitors. This study provided

the overview of SR and CR fertilizers, liquid fertilizers and crop protection products for the World and selected regions. It also examined in a lot of detail the markets under focus in terms of product characteristics, supply, demand, trade, prices, technologies' used, end-use demand and product substitution trends. Profiles of the key market players were also supplied. The difficulty of this project stemmed from the obscurity of the market and the scarcity of data available for these specialty fertilizers. Primary research was a significant tool that was employed to gain valuable market information for this study

Feasibility Study for an Ammonia/Urea Plant in the US (2011) - On behalf of a cooperative in the US, IHS Markit was asked to carry out a feasibility study for the construction of an ammonia, urea and nitrogenous fertilizer plant. This included a technology review and market projections for these products in North America.

West Africa Gas Monetization Study (2011) - In association with Chemical's upstream partner Purvin and Gertz, IHS Markit helped a major gas company review its options for a reservoir of stranded gas in Gambia. This included a feasibility study for an ammonia and urea plant in addition to market and pricing data for urea in key target markets.

C1 Derivatives (Ammonia and Urea Markets) (2012) - An Chemical client was considering options to add value to its natural gas production in Thailand by using some of its natural gas to produce petrochemicals. IHS Markit was engaged to carry out a screening study for the client to review potential options for methane-based petrochemicals and derivatives. The outcome of that study was the identification of four products that could potentially be attractive for development in Thailand. These products were: ammonia, urea, methanol and DME. Chemical carried out a preliminary analysis on the potential production of each of these products to assess their market attractiveness, cost competitiveness and financial viability. The analysis was focused on the development of production units in Thailand, either at Map ta Phut or at Khanom. The study included a market analysis, pricing outlook, technologies and licensing issues, cost competitiveness, business analysis and identification of key risk factors and potential mitigation.

Ammonium thiosulphate market study (2013) - Primary research in the global ammonium thiosulphate market resulting in a global capacity, supply and demand overview on behalf of an EPC contractor. This report

incorporated market trends, pricing of ammonium thiosulphate at different price points and price drivers. Logistics of ammonium thiosulphate trade and potential trade routes were also examined in this study.

Tiger Management – Industries Qatar (Ammonia, Urea and Melamine) (2012) - IHS Markit was retained to assist in a client's understanding of the integrated structure of a competitor's business performance and marketplace competitive issues. Chemical performed a quantitative dissection of profitability by business segment and geography with special emphasis on operating income net of unusual terms. Segments of the portfolio were highlighted with the highest and lowest returns accompanied by reasons for performance. Chemical identified specific conditions that gave rise to returns that were higher/lower than industry averages and related links of financial performance to business strategies. Included in the target company's portfolio were the products ammonia, urea and melamine among others.

Chinese Ammonia Market Review and Economics Analysis (2014) - A major North American based Soda Ash company engaged IHS Markit to provide a market analysis for ammonia with a primary focus on China. Included in the analysis was basic market related detail along with a financial model highlighting production cost structures for various plants and feedstock options. Specifically, IHS Markit provided a global overview of Ammonia, including historical and forecast supply with detailed information on China. The major technologies for ammonia production were discussed, including comparative advantages, major players, and market share specific to the China region. IHS Markit also provided an ammonia model highlighting competitive position and comparative cash costs from coal and natural gas on a delivered basis to major markets against a range of typical competitors.

Anhydrous Ammonia, Urea and Ammonium Sulfate (2012) - A US company engaged IHS Markit to provide a North American market study of potential products for the expansion of their coal gasification plant. Supply/demand balances, capacity, trade and price forecasts (including plant netback prices) were done for a range of products, including ammonia, urea and ammonium sulfate. IHS Markit also provided a general review of the preliminary capital cost estimates provided by the Client for the processes to produce the study products.

Urea Ammonia Nitrate Market and Pre-Feasibility Study (2011) – IHS Markit assisted the client in its assessment of the long term competitive viability of petrochemical operations for the Ammonia chain in the United States, specifically North Dakota. The study looked into the opportunity of manufacturing urea ammonia nitrate (UAN) there. IHS Markit provided an economic analysis, including a cash flow model, using the ammonia and urea information generated from the previous Phase I and Phase II studies, along with Nitric Acid, Ammonium Nitrate and Urea Ammonia Nitrate (UAN). The study included sensitivity analysis on various inputs/outputs with respect to capacities, manufacturing costs, capital investment and margins. Margin sensitivity included impacts due to variations in both feedstock and product prices. Key financial and economic performance indices, such as IRR and NPV were included.

Alberta Feedstock Opportunities Summary; Feasibility of an Alberta Based Gas Chemicals complex (2012) – IHS Markit assisted a Project Finance corporation in preparing a feasibility study for gas monetization options for shale gas in Alberta, Canada. Amongst the options being considered were ammonia and urea. CMAI looked at global supply and demand and pricing and netbacks to help develop the client's understanding of how an ammonia/urea complex would fit in terms of potential investment alternatives in the province.

Chinese Ammonia Market Review and Economics Analysis (2010) - A major North American based Soda Ash company engaged IHS Markit to provide a market analysis for ammonia with a primary focus on China. Included in the analysis was basic market related detail along with a financial model highlighting production cost structures for various plants and feedstock options. Specifically, CMAI provided a global overview of Ammonia, including historical and forecast supply with detailed information on China. The major technologies for ammonia production were discussed, including comparative advantages, major players, and market share specific to the China region. CMAI also provided an ammonia model highlighting competitive position and comparative cash costs from coal and natural gas on a delivered basis to major markets against a range of typical competitors.

Ammonia Plant Siting Study in the US (2013) – A Middle East based company wanted to build an ammonia plant in the US and was interested in purchasing natural gas from the unconventional gas formations in the U.S. The project provided support for a site selection including details on proximity to feedstock, gas operator details for negotiations as well as information on standard contracts currently in place for the purchase of natural gas in the

US. IHS Markit also evaluated several sites where ammonia had previously been produced for their potential to restart or rebuild.

Turkmenistan gas chemicals feasibility study - Renaissance Heavy Industries' active company in Turkmenistan "Ronesans Turkmen", requested that CMAI provide a Prefeasibility study for a potential gas-based chemicals complex in Turkmenistan (2011) - Products included Ammonia, Urea, Methanol and Formaldehyde, as well as several other derivatives.The report included all aspects of the market study for the main gas-based chemicals and their derivatives at the pre-feasibility stage. The study included the impact of gas price on cash costs of production, the screening of the best opportunities, and an overview of developing a gas-based chemical complex in Turkmenistan.

About Chemical by IHS Markit

Best-in-Class Brands

Chemical by IHS Markit 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. 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 Markit can now offer by connecting clients with the vast resource of insight and expertise that exists across IHS Markit including energy, supply chain and economics.

Comprehensive Coverage

IHS Markit 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 Markit 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 Markit 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. 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.
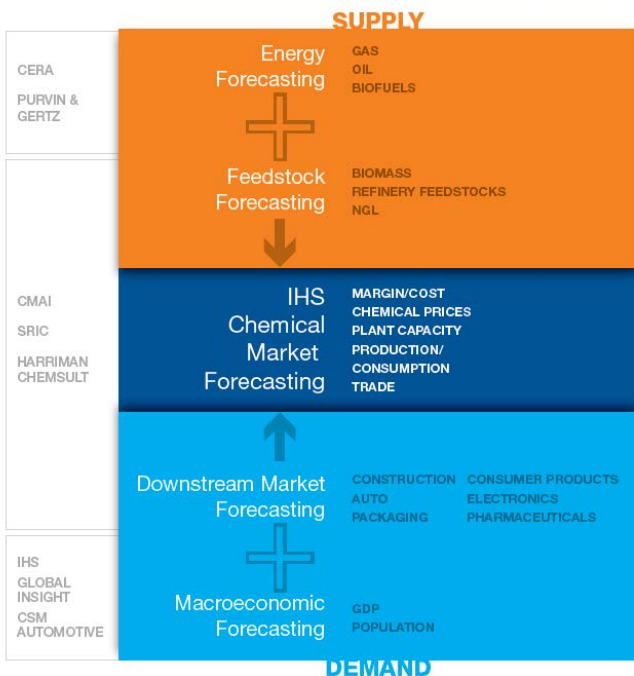
About IHS Markit

IHS Markit 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 Markit to make high-impact decisions and develop strategies with speed and confidence.

IHS Markit 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 Markit is committed to sustainable, profitable growth and employs more than 8,000 people in 31 countries speaking 50 languages around the world.

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

Information, analytics, and expertise

IHS Markit 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 Markit to provide best-in-class solutions that power growth and value for our customers.

Contact Information

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

Chemical Special Reports

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@ihsmarkit.com.