

# ***Petroleum and Petrochemicals Economics Program: Petrochemical Market Dynamics***

## ***Propylene Derivatives 2012***

Propylene Derivatives 2012 is one in a series of reports published annually as part of the Petroleum and Petrochemical Economics program.

This report provides an in-depth analysis and forecast of key derivatives including:

- Acrylic acid
- Acrylonitrile
- Cumene
- Isopropanol
- Phenol
- Propylene oxide

*Note: Research on polypropylene is available in our latest report Polyolefins 2012*

Published: August 2012

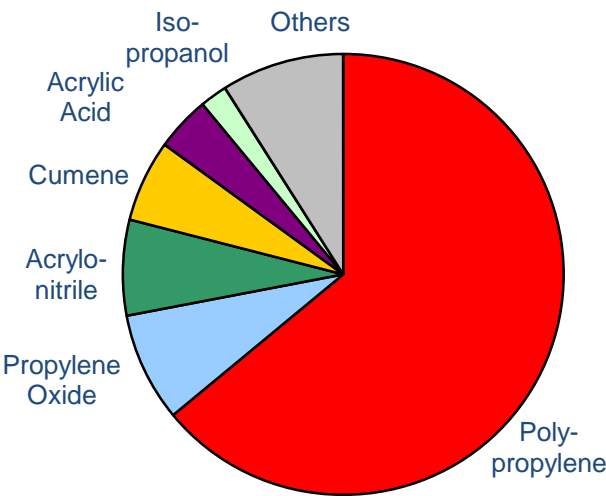
# Abstract

Propylene is used in the production of a wide range of chemical intermediates and polymers. Propylene itself is mainly produced as a co-product of ethylene in steam crackers and of gasoline production in oil refinery operations, although on-purpose production is increasing. Demand growth for propylene has outpaced the supply from ethylene production and refinery sources, leading to a progressively shorter market in recent years. Furthermore the rapid development of ethane-based ethylene production in the Middle East and the switch to lighter steam cracker feedstock in the United States has been partly responsible for the shortfall in supply of propylene and C4s. Nevertheless, the tightness could be relieved in the longer term, following new development of on-purpose propylene production in China.

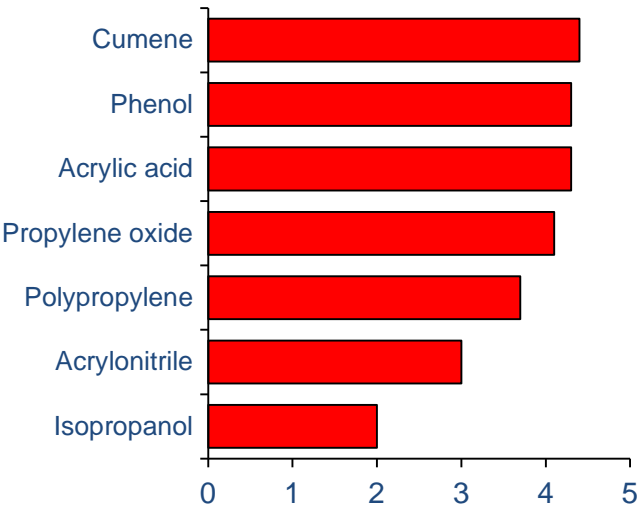
Consumption of most propylene derivatives has been volatile in the last four to five years. Following surprisingly robust growth in 2010, the global markets weakened considerably in 2011, particularly for acrylonitrile and cumene/phenol. This was a result of economic uncertainty in the United States, Euro sovereign debt crisis, tightening monetary policy in both China and India as well as political issues in the Middle East and North Africa. Meanwhile, relatively poor operating rates of liquid crackers combined with the changes towards lighter cracker feedstocks have recently restricted propylene availability. This has tightened propylene supply, resulting in an increase in propylene values, which have now settled at higher levels than ethylene, the reverse of the historical relationship.

Despite a setback during the global financial crisis, relatively strong profitability over the past decade of several propylene derivatives has spurred investments in new production capacity in developing markets, particularly in China. An unprecedented growth in Chinese capacity is therefore expected over the next five years for acrylonitrile, cumene/phenol and acrylic acid. Consequently, a situation of oversupply can be expected for these three products in the coming years, given that all projects come onstream according to the plans. Nevertheless, the effect on average operating rates and profitability will be felt the most by Chinese local producers and major exporters into China who are exposed to high production costs, while other players are expected to maintain their strong presence in the market.

Global Propylene Consumption, 2012-E



Global Consumption Growth by Propylene Derivative, 2011-2019



## Table Of Contents

1. Executive Summary
  2. The Propylene and Derivatives Industry
    - 2.1. Global Overview
    - 2.2. Propylene Derivatives
  3. Acrylonitrile
  4. Propylene Oxide
  5. Phenol
  6. Cumene
  7. Acrylic Acid
  8. Isopropanol
- Appendix
- A. Methodology
  - B. Propylene Derivatives – Technology

Each propylene derivative (Chapter 3 to 8) is segmented by geography and further segmented into three main sections:

- Consumption: Assesses historic and forecast consumption; forecasts are based on projections of end-use and economic activity in each region.
- Supply: Includes a list of all producers, their production capacity, location, etc., and discussion of the status of new projects.
- Supply, Demand and Trade: Provides historical analysis and forecasts to 2025 of consumption, production, imports/exports, inventory build-up/decline, capacity and capacity utilisation for each region.

This analysis will identify the issues shaping the industry, as well as provide an independent appraisal of the market.

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