



Market Analytics: Caprolactam - 2023

Market Analytics: Caprolactam - 2023 is one in a series of reports published as part of NexantECA's Markets & Profitability program.

Market Analytics: Caprolactam - 2023 report provides an in-depth analysis of the caprolactam industry.

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Along with the written report, NexantECA's Online Database includes supply, demand and trade analysis for 40 countries and global capacity listings updated on a monthly basis.

Report Abstract:

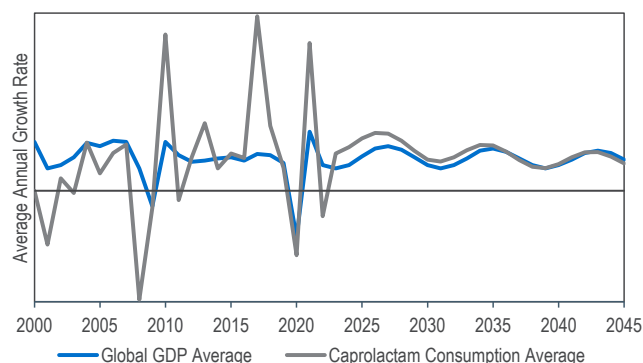
Caprolactam (ϵ -caprolactam) is a chemical intermediate primarily used for the production of polyamide polymers. Structurally, it is a cyclic amide or lactam of 6-aminocaproic acid (6-ACA), a six-carbon carboxylic acid and amine.

Essentially all caprolactam production is directed towards the production of Polyamide 6 (also generically known under the trade name Nylon 6, originally used by DuPont), which is used for fibre (clothing, carpets, and industrial fibres) and for resin production, where it is an engineering thermoplastic (in automotive, electrical, and electronics applications) and for extrusion (in monofilaments and film).

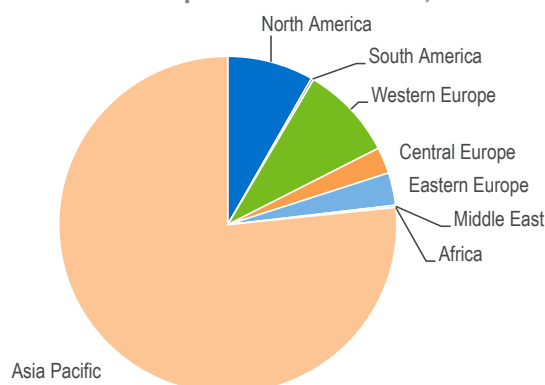
Polyamides are polymers with molecular chains formed of repeating amide groups, $-\text{CO}-\text{NH}-$, alternating with organic backbones. The different polyamides are classified by the number of carbons in the monomers used in polymerization.

Caprolactam is structurally ideal for production of polyamides due to its terminal amine and carboxylic acid functionalization upon hydrolysis or ring-opening polymerization.

Global Caprolactam Consumption Growth
million tons



Global Caprolactam Demand, 2023



The usefulness of nylons rests upon their combination of properties and their susceptibility to modification. The key properties of nylon include resistance to oil and solvents, toughness, fatigue and abrasion resistance, low friction and creep resistance, high tensile strength, thermal stability, fire resistance, drawability, good appearance and good processability.

Modification of polyamides is a way to achieve desired changes in processing methods or properties. This characteristic has allowed nylon to sustain good growth in spite of the strong competition in the engineering thermoplastics market. However, certain modifications to enhance some specific properties may lead to negative effects on other properties. Basic modifications can be achieved through changes in the polymer itself and/or the

addition of additives. Alternative techniques include use of branching agents and post-polymerization treatments such as annealing, conditioning to a specific moisture level, dyeing, metallizing, painting, irradiation, or chemical reaction such as alkoxylation.

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Chapter 4 is segmented by key region:

- North America
- South America
- Western Europe
- Central Europe
- Eastern Europe
- Middle East
- Africa
- Asia Pacific

Each region/country is further segmented by:

- **Consumption:** Assesses historic and forecast consumption; forecasts are based on projections of end use and economic activity.
- **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 2045 of consumption, production, imports/exports, inventory build-up/decline, capacity and capacity utilization.

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

For related analysis, please refer to:

Profitability and Price Forecasts: Caprolactam
Quarterly Business Analysis

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Subscription to **Market Analytics Caprolactam - 2023** includes:

- 12 month access via the NexantECA website, to:
 - Unlimited downloads of PDF reports
 - Downloadable data in Excel from the Online Database
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Customized subscriptions are also available.

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Markets and Profitability tracks over 60 feedstocks, petrochemicals, polymers, chemical intermediates and fertilizers on an ongoing basis and provides regularly updated reports covering all commercial aspects of these global industries. The accompanying database, provides global analysis and forecasts in two major inter-related areas: **Markets and Profitability**.

NexantECA serves its clients from over 10 offices located throughout the Americas, Europe, the Middle East, Africa and Asia.

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