



TECH 2022S4: Hydrocarbon Resins

Hydrocarbon Resins is one in a series of reports published as part of NexantECA's 2022Technoeconomics – Energy & Chemicals (TECH) program.

Overview

Hydrocarbon resins are thermoplastic polymers derived from petrochemical streams, specifically C₅ and C₉+ streams, as well as coal tar. They are part of a class of polymers known as tackifying resins. They exhibit tack (or “stickiness”) that makes them particularly useful in adhesives, sealants, inks, coatings, rubber tires, mechanical rubber goods and floor tiles applications, as well as in the foundry, ceramic and textile industries.

This TECH report provides an overview of the commercial and developing technologies for producing hydrocarbon resins and addresses the following questions:

- What are the major production technologies for hydrocarbon resins and how do they differ?
- Is the technology available and who are the key technology owners and licensors?
- What are the key developments in hydrocarbon resin technologies?
- What are the key market drivers?
- What is the business and regulatory environment like for hydrocarbon resins today?
- What are the key factors that impact overall economics for producing hydrocarbon resins across different technologies and geographic regions?

Commercial Technologies

The TECH report details the differences between the main hydrocarbon resin process types (catalytic and thermal polymerization step, hydrogenation step for waterwhite resins).

Developing Technologies

R&D efforts to develop a bio-route to hydrocarbon resins via *trans*-β-farnesene have been reviewed along with recent patents concerning the conventional routes.

Process Economics

The production cost estimates for plants located in the United States, Western Europe, China and South-East Asia have been estimated for the second quarter of 2022 for the following resin types: aliphatic (C₅), aromatic (C₉),

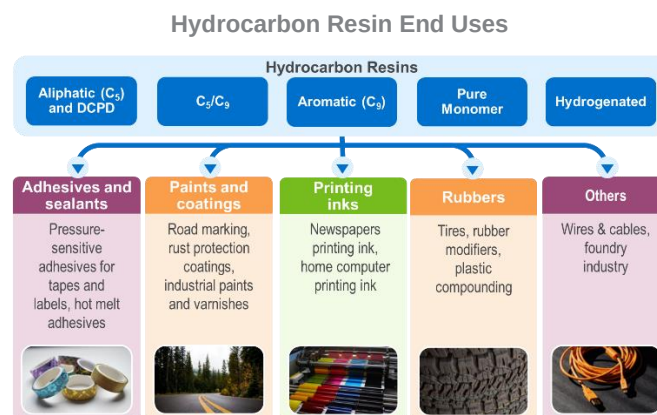
C₅/C₉, cycloaliphatic (DCPD), pure monomer, hydrogenated aliphatic, hydrogenated aromatic, hydrogenated DCPD and hydrogenated DCPD/C₉ resins. Indeed, those regions/countries accounted for nearly 80 percent of the global capacity in 2022.

Commercial Overview

The global demand for hydrocarbon resins in 2022 is estimated at 2 million tons and is forecast to grow by 3.5 percent per annum on average to about 2.4 million tons in 2027. Asia, North America, and Western Europe together represent about 81 percent of the total demand.

- The major end use of hydrocarbon resins is in the **adhesives and sealants** industry. This market serves a host of end uses, including not only packaging, nonwovens, tapes and labels, but also applications in building/construction, automotive, and consumer products (e.g., footwear).
- The second major end-use globally is in the production of **paints, coatings and printing inks**.
- The third largest segment is the **plastic and rubber** compounding.
- Other end-uses include a range of applications such as concrete curing, paper impregnation, floor tiles, mineral oil additives and electronic uses.

The hydrocarbon resin supply, demand, and trade on a global and regional basis (North America, Western Europe, Asia Pacific, Others) is detailed in this TECH report.



For more information. please contact
Technology@NexantECA.com or www.NexantECA.com



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The TECH program (formerly known as PERP) is globally recognized as the industry standard source of process evaluations of existing, new and emerging technologies of interest to the energy and chemical industries.

TECH's comprehensive studies include detailed technology analyses, process economics, as well as commercial overviews and industry trends. Reports typically cover:

- Trends in chemical technology
- Strategic/business overviews
- Process Technology:
- Chemistry
- Process flow diagrams and descriptions of established/conventional, new and emerging processes
- Process economics – comparative costs of production estimates for different technologies across various geographic regions
- Overview of product applications and markets for new as well as established products
- Regional supply and demand balances for product, including capacity tables of plants in each region
- Regulatory and environmental issues where relevant

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Technology and Costs comprises the Technoeconomics – Energy & Chemicals (TECH) program, the Biorenewable Insights program (BI), and the new Cost Curve Analysis. These programs provide comparative economics of different process routes and technologies in various geographic regions.

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

Americas
Tel: +1 914 609 0300
44 S Broadway,
5th Floor White Plains
NY 10601-4425
USA

Europe, Middle East & Africa
Tel: +44 20 7950 1600
110 Cannon Street
London EC4N 6EU
United Kingdom

Asia Pacific
Tel: +662 793 4600
22nd Floor, Rasa Tower I
555 Phahonyothin Road
Kwaeng Chatuchak
Khet Chatuchak
Bangkok 10900
Thailand

For more information. please contact
Technology@NexantECA.com or www.NexantECA.com