

CH0204 Organic Chemical Technology

Lecture 5

Chapter 1 Natural Products

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Overview of topics

Chapter 1 NATURAL PRODUCTS

- 1 Pulp and Paper
- 2 Sugar
- 3 Starch and its derivatives



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Pulp and Paper

Definitions

History of Pulp and Paper

Global Pulp and Paper industries scenario

Indian Pulp and Paper Industries scenario

Raw materials

Manufacture of Pulp and paper

Process description

Paper products



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Pulp and Paper-Definitions

Cellulose

Cellulose is a **polysaccharide** used in chemical industries in the form known as *chemical cellulose* for preparation of **fibers, paper, and plastics**.

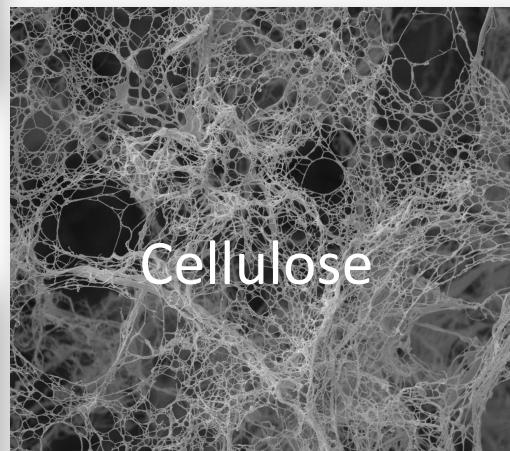
Pulp

Pulp is **commercial and or chemical cellulose** derived from bamboo, bagasse, and wood by **mechanical or chemical methods**.

Paper

Paper is defined as **matted or felted sheets of fibers**, usually cellulosic and generally formed on **a fine wire screen from a fiber-water suspension**.

Pulp and Paper-Definitions





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Pulp and Paper - History

2500 BC	Writing paper appeared first which is made from a tall reed called Papyrus
105 AD	The Chinese invented good process for paper manufacture
14 th Century	Southern Europe learned the process for paper manufacture
1690	A paper mill was established in US
17 th Century	English manufacturers established paper mills
1750	The beater was developed and adopted in Holland
1799	A French man , Robert invented the process for forming sheet
1809	The cylinder machine was invented
1826	Steam cylinders were used for first for drying
1851	The soda process for making pulp from wood was developed
1857	The American Chemist , Tilghman was granted the basic patent for sulfite process
1884	The Kraft process was introduced by German
1909	The sulfate(Kraft) process was introduced in US



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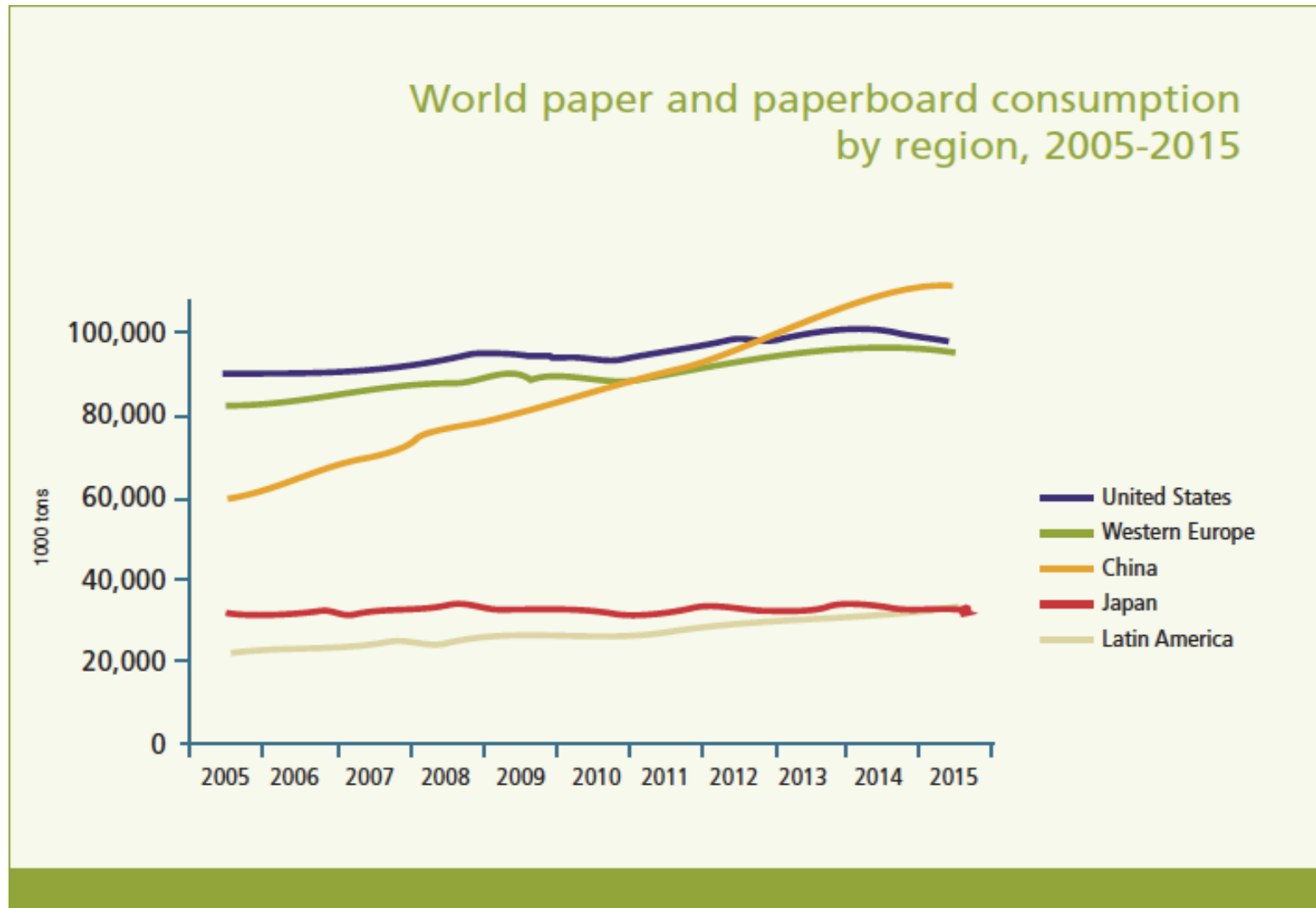
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Pulp and Paper – Global Scenario



Report published by Environmental Paper Network, USA (2007) The State of the Paper Industry Monitoring the Indicators of Environmental Performance A collaborative report by the Steering Committee of the Environmental Paper Network, A U T H O R S : Susan Kinsella, Gerard Gleason, Victoria Mills, Nicole Rycroft, Jim Ford, Kelly Sheehan, Joshua Martin.



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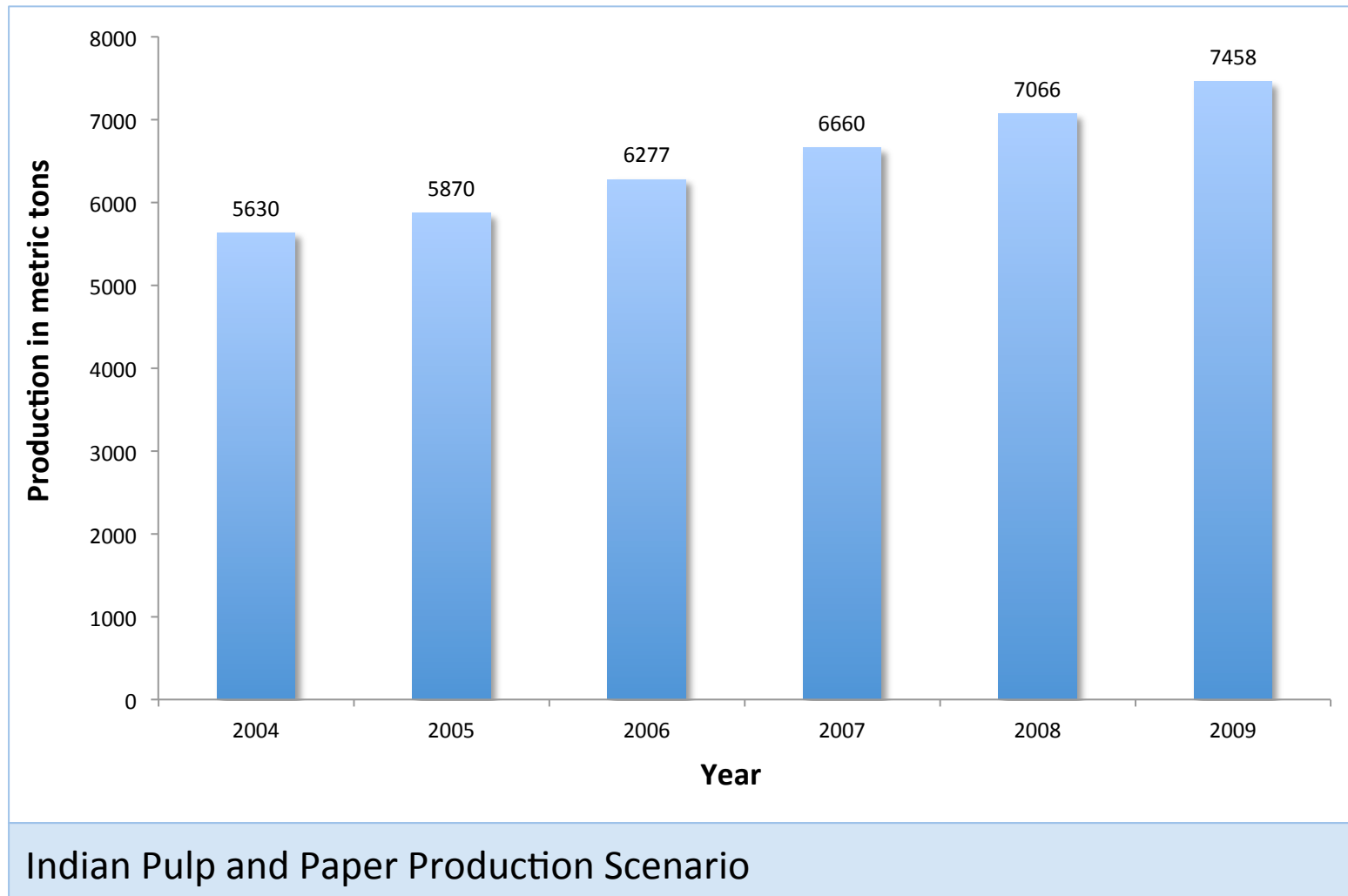
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Pulp and Paper – Indian Scenario



G. Nath, D.K. Tripathy, J.C. Panigrahi, A.K. Harichandan Review on technological advancement in waste paper recycling: A simple laboratory method to evaluate ONP and Mixed Office Waste by flotation de-inking, IPPTA WORKSHOP -2010



Pulp and Paper – Indian Scenario

Pulp and paper industry is quite old in India, with about 406 registered pulp and paper mills, having an average installed capacity of about 4.3 million tons per annum.

Out of these, only 34 mills have an installed capacity of more than 100 tpd (tons per day) and can be called the large-scale paper mills; 120 mills have a capacity in the range of 30–100 tpd and the rest 252 mills, have an installed capacity less than 30 tpd.

Deepa K. Tiku, Anil Kumar, S. Sawhney, V. P. Singh, Rita Kumar, Effectiveness of Treatment Technologies for Wastewater Pollution Generated by Indian Pulp Mills, Environ Monit Assess (2007) 132:453–466

Pulp and Paper – Indian Scenario



Ballarpur Industries Limited(BILT)

ITC Bhadrachalam Mill is located at Sarapaka, Andhra Pradesh

Tamil Nadu Newsprint and Papers Ltd. Kagitapuram in Karur.

Pudumjee Pulp & Paper Mills Ltd. Pune (Maharashtra, India)

The West Coast Paper Mills Ltd. Karnataka

The Andhra Pradesh Paper Mills Ltd. Rajahmundry, AP

JK Paper Jaykaypur, Orissa.

Star Paper Saharanpur, Uttar Pradesh

Titagarh Paper Mills Company Ltd. Titagarh and Kakinara

Sirpur Paper Mills. Kaghaznagar, Andhra Pradesh

Sri Krishna Paper Mills and Industries Ltd. Delhi

Vikarabad Pulp and Paper Mills Pvt. Ltd. Andhra Pradesh

<http://business.mapsofindia.com/paper-and-pulp-industry/paper-and-pulp-industry.jpg>