HAWKINS WRIGHT

Outlook for Dissolving Pulp

Supply, Demand, Costs and Prices

A multi-client service, available now

What our Outlook for Dissolving Pulp service offers...

We launched the Outlook service for Dissolving Pulp Demand, Supply and Prices in March 2013. The service has quickly established itself as one of the most authoritative in the industry, with some of the largest and most knowledgeable companies in the sector commenting on its accuracy and value. Today, dissolving pulp producers who account for over 85% of supply subscribe to the service, as do a vast array of buyers, international agents and trading houses, state and provincial governments and financial institutions. Our unique analysis looks at the performance of the dissolving pulp sector in conjunction with the paper grade pulp sector.

The Outlook for Dissolving Pulp service comprises 4 reports per year that provide analysis of:

- **Dissolving pulp demand.** Previous- and current- year review, 10-year historical analysis by region/country. 5-year forecast demand by country. End-use market review, including wood based textile fibre capacity listing by mill. Developments in paper grade pulp market and the impact on DWP sector. Specialty cellulose demand by grade.
- **Textile market review.** Overview of supply and demand trends in the cotton and polyester industries and a discussion on the likely impact on the demand for wood based textile fibre and dissolving pulp.
- **Dissolving pulp supply.** Current DWP capacity by mill and an overview of paper grade capacity and analysis of potential conversions to DWP. 5-year capacity forecast summary, by grade and by mill.
- **Supply/demand balance.** Long term annual projections and a discussion about short term fundamentals.
- **Production costs.** Regional supply costs for commodity grade dissolving wood pulp. The Industry's cost curve. Trends in global fibre prices. (The cost data is sourced from Hawkins Wrights unique annual cost survey).
- **Prices.** Macro-economic review. Impact on cost competitiveness of exchange rate fluctuations. Dissolving pulp in the context of other global commodities, including paper grade pulp. Five year price forecast for commodity DWP cif. China. BEKP net price forecast. Outlook for specialty grade dissolving pulp prices.

The following pages include a table of contents and list of figures and tables included in a typical Outlook for Dissolving Pulp report.

About Hawkins Wright

Hawkins Wright is an independent consultancy providing a range of strategic, forecasting, market intelligence and business information services to the international forest products and bioenergy industries.

Since 1982 Hawkins Wright has provided authoritative and cost-effective services based on in-depth research of the global forest, pulp & paper and bioenergy industries. These services include private consultancy assignments covering a full range of marketing and strategic subjects as well as regular multi-client reports and newsletters.

Our consultancy services build on our global perspective of the macro- and micro-economic trends driving the international forest industry and downstream product markets. Assignments can range from advice on a client's business development or feedstock sourcing strategies to highly detailed market feasibility assessments of prospective projects.

The contents of a typical report

Section One:

Chemical Cellulose Historica Demand

World chemical cellulose demand by region

World dissolving wood pulp demand by region

World cotton linter pulp demand by region

Specialty grade DP demand

Chinese import demand by country of origin

Chemical cellulose demand in the context of paper grade pulp demand

Global paper and board market review

Section Two:

Chemical Cellulose Forecast Demand

End-use markets for chemical cellulose

The global textile industry

Cellulosic fibre production by region/ country

Cotton market summary

Polyester market summary

Viscose market summary

World wood based textile fibre capacity by region

Acetate and Ether grade market review

Chemical cellulose demand forecast by region

Rayon grade demand forecast by region

Specialty grade demand forecast by region

Section Three:

Chemical Cellulose Supply

World chemical cellulose capacity by region and by grade

Project description by region

Capacity table by country

Paper grade pulp capacity review

Section Four:

Chemical Cellulose Supply & Demand

Dissolving wood pulp supply and demand ratio

Commodity grade supply and demand ratio

Specialty grade pulp supply and demand ratio

Paper grade pulp supply and demand ratio

Section Five:

Chemical Cellulose Production Costs

Wood fibre costs by region

Cotton linter pulp cost review

Global weighted average cash cost of production for rayon grade producers

Commodity grade dissolving pulp cost curve

Paper grade cash cost summary

Section Six:

Price Forecast

Macro economic review

Dissolving wood pulp prices vs. other commodities

Dissolving wood pulp price and the US$ index

Dissolving wood pulp price and BEKP prices

Dissolving wood pulp prices in other currencies

Historical trend price in real and nominal terms

Trend price forecast

Baseline forecast (commodity and specialty grade)

Antidumping duties

Risks to the forecast

Appendices:

DWP capacity by region and by mill

Wood based textile fibre capacity by region and by mill

World chemical cellulose demand since 1960

Trend DWP pricing, nominal and real

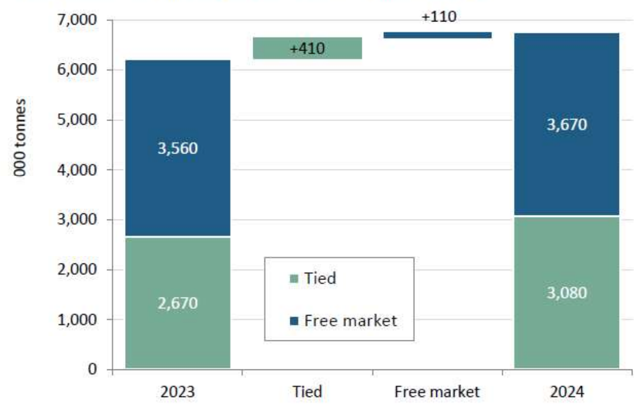
List of Tables and Figures contained in a typical report

List of Tables and Figures contained in a typical report (continued)

Sample pages

Tied/integrated shipments of DWP

DWP (commodity) shipment growth, tied vs. free market, 2023-24



Our shipment data overstates the "free market" because a significant proportion of deliveries are internal transfers of pulp between integrated producers of wood-based textile fibres. These companies include Lenzing, Birla, and Sateri and Asia Pacific Rayon (the latter two being affiliated with APRIL, PT Toba and Bracell).

These tied or "captive" shipments represented approximately 39% of the global DWP market last year. Since there are no tied/affiliated shipments of high alpha grades, the proportion of tied/captive sales for commodity grade dissolving pulp was even higher at approximately 45% of total shipments, up 17 percentage points from 2014.

Therefore, of the 6.8Mt commodity grade DWP shipments in 2024, approximately 3.1Mt was tied, implying that approximately 3.7Mt was free market demand for which independent suppliers can realistically hope to compete. Most of the growth in shipments last year was captured by tied volumes (+410Kt), and we attribute this mostly to RGE, who increased DWP production at their swing mills in Brazil and Indonesia.

Since 2014, most of the growth in DWP shipments has been secured by integrated producers. During this time frame, it is estimated that shipments of tied tonnage have increased by 1.9Mt, in contrast to the more modest expansion of free market pulp deliveries, which have grown by only 0.7Mt.

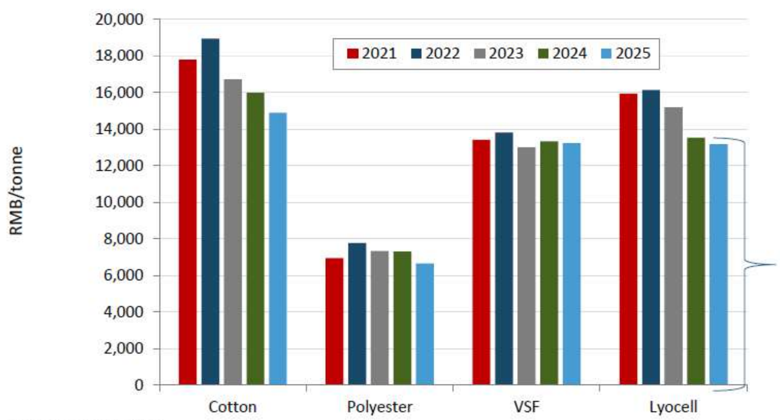
Section 1: Historical Chemical Cellulose Shipments CONFIDENTIAL: The Outlook for Dissolving Pulp | 19

Textile fibre price differentials

The chart below compares average prices for cotton, polyester, viscose staple fibre, and Chinese-manufactured lyocell from 2021 to 2025 (Jan-September average). The data highlights a steady decline in lyocell prices, aligning with reductions in the industry's cost base as new low-cost capacity has come to market, commoditizing the market.

Since 2021, lyocell has traded consistently at a discount to cotton, its principal competing fibre. The average discount over this period has been around 12%, widening to ~15% in recent months. This sustained pricing discount highlights lyocell's growing competitiveness relative to cotton and reinforces its position as a credible alternative in the global textile market.

Textile fibre price differentials: Cotton, Polyester, VSF and lyocell (China market)



Note: these lyocell and VSF prices represent Chinese manufactured commoditized grades. Premium grades such as those manufactured by Lenzing command a significant price premium.

Source: Emerging Textiles

Section 2: Chemical Cellulose Shipments Forecast CONFIDENTIAL: The Outlook for Dissolving Pulp | 45

Sample pages

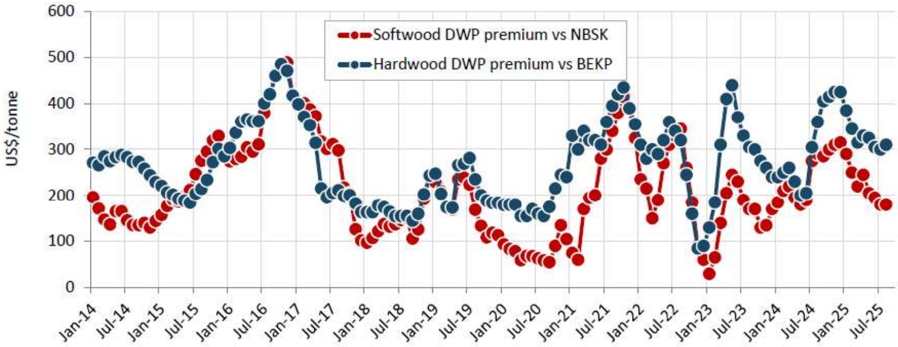
Supply forecast risks – swing capacity

The decision to switch production between BHKP and DWP is primarily driven by price differentials. However, the threshold for switching varies by mill, influenced by a range of operational and market-specific factors, making it challenging to predict the timing, location, and scale of production shifts.

At the start of this year, hardwood DWP traded at a premium of >US$400/t to BEKP, and softwood DWP at ~US$315/t to NBSK, creating a strong incentive for swing mills to run DWP. Since then, premiums have narrowed to ~US$300/t (hardwood) and ~US$180/t (softwood), which we judge still sufficient to favour DWP production runs.

Most active swing capacity is in China, where volumes are typically sold on the spot market, allowing producers to chase the highest-margin grade without contractual constraints. Over the past 18 months, Chinese swing mills have shifted towards using more locally sourced wood (instead of imported eucalyptus chips), lowering their DWP production costs; as a result, a narrower premium can still justify running DWP over paper pulp. For most mills, we assume a DWP premium of ~US$180/t or more is sufficient to support DWP production, though thresholds will vary by mill and fibre furnish.

Net price differentials, CIF China, 2014-2025

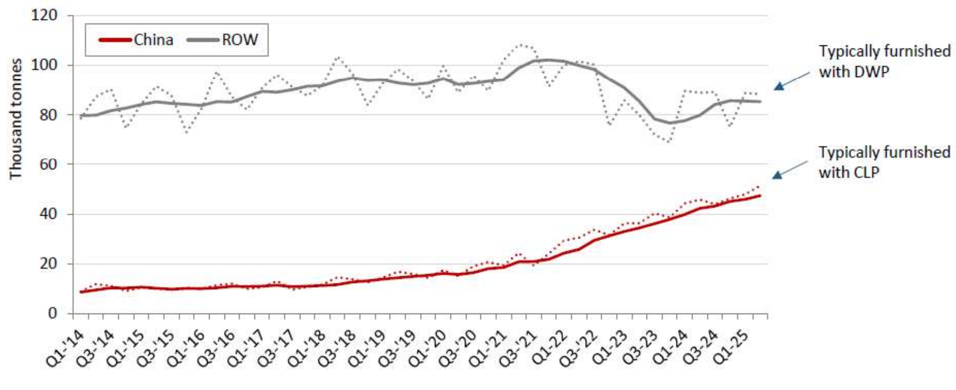


Cellulose derivatives market overview

Within nitrocellulose, the outlook is similarly mixed. Demand tied to construction activity (e.g., coatings and lacquers) remains soft, while military applications (particularly propellants for ammunition) are experiencing strong growth given the current geopolitical backdrop. This trend is underpinning demand for nitrocellulose-grade pulps, supplied by only a limited number of producers.

Meanwhile, demand for cellulose ethers from the construction sector is still recovering, albeit slowly and with limited benefit for DWP consumption. As noted previously, much of this recovery is being captured by Chinese producers of cellulose ether derivatives, who are redirecting volumes from a subdued domestic market towards exports. These products are typically furnished with domestically sourced cotton linter pulps, a dynamic that continues to place pressure on cellulose ether producers outside China, who are more reliant on DWP in their furnish. Chinese exports of cellulose ether derivative products grew by 10% during the first six months, while shipments from the rest of the world contracted by 1%.

Exports of cellulose ethers by origin, by quarter, China vs. ROW (4 quarter moving average)



Deliverables and order form

An annual corporate subscription to the Outlook for Dissolving Pulp service costs **£5,050** (or the equivalent in US dollars or euros). The service comprises:

- Two main reports published in March and September, containing detailed supply, demand and price analyses and five-year forecasts for dissolving wood pulp (both commodity and specialty grade). The reports are distributed as electronic and hard copies.
- Two interim price forecast updates, published in June and December. Taken together with the main reports, these short update reports allow the key forecast data and assumptions – in particular the price forecast – to be updated every quarter. Distributed electronically.
- Hawkins Wright's response to any questions that the subscriber may have on matters relating to the international dissolving wood pulp market throughout the year. In this way Hawkins Wright can be used as a virtual extension of the subscriber's own marketing or market research department.
- A personal presentation: it will usually be possible for a Hawkins Wright consultant to meet with each client at least once a year to make a presentation on market developments.

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