

PIX China Pulp Indices



Methodology and specifications – September 2023

Contents

3 Mission statement

3 Introduction

4 Price discovery process and methodology

9 Methodology review and consultation process

9 Queries and complaints

9 Price correction policy

10 How to become a contributor to the price discovery process

11 Price specifications

12 Revision History

13 Disclaimer

14 Appendix

Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals and forest products industries. Our products include Metal Bulletin, American Metal Market, RISI, FOEX, Random Lengths, Industrial Minerals and AgriCensus. For more than 100 years we have been providing commodities price reporting services for use by market participants in their day-to-day commercial activities. These services include assessments and indices of commodity prices as well as news, research and commentary on the underlying markets.

Our mission is to meet the market's data requirements honestly and independently, acting with integrity and care to ensure that the trust and confidence placed in the reliability of our pricing methodologies is maintained. We do not have a vested interest in the markets on which we report.

Introduction

Fastmarkets FOEX, in Helsinki, Finland, operating under the Finnish law, produces trademarked PIX price indices for selected pulp, paper, recovered paper and packaging grades as well as for wood-based biomass and bioenergy products like pellets, wood chips and wood. The first PIX index was launched in September 1996. Fastmarkets FOEX owns the trade mark rights to PIX Index.

Fastmarkets' staff are required to abide by a code of conduct and clear pricing procedures during their market reporting and pricing activities. Fastmarkets is completely independent and has no vested commercial interest in any of the markets it prices.

We are the world's largest dedicated forest products price reporting team. We have offices in New York, Boston, San Francisco, Eugene, Charlottesville, Atlanta, Brussels, Helsinki, Sofia, Beijing, Shanghai, Singapore and Sao Paulo.

The aim of this document is to provide a clear overview of Fastmarkets methodology and specifications for the PIX China Pulp Indices. If you have any questions, please contact Fastmarkets FOEX director Tytti Inkinen, tytti@fastmarkets.com.

Price discovery process and methodology

1.1 Methodology Rationale

Fastmarkets FOEX produces independent, fair and representative price indices for China pulp on a weekly basis. Fastmarkets FOEX's rationale is to adopt and develop the price discovery process and the methodology described in the present guide to produce indices that are a consistent and representative indicator of value of the market to which they relate for the trading period they measure, as well as for the change in prices from one week to the next.

The PIX China pulp net index is calculated and confirmed by Fastmarkets FOEX based on confidential price information of actual, physical trades of pulp, collected on a weekly basis by telephone and email from companies trading in pulp. It represents the net price agreed on contract business for pulp used for paper or paperboard production. The method of index calculation is fixed. The index has a large market coverage and a stable group of price providers from week to week.

The time period, or window, identified to assess a market (e.g., daily, weekly, monthly) is determined by Fastmarkets FOEX after considering the number of data points that Fastmarkets FOEX can reasonably expect to collect on a consistent basis over the selected period to support the price assessment process.

1.2 Data collection criteria

Fastmarkets FOEX staff aim to talk to a broad sample of market participants specifically involved in the buying and selling of the pulp grade of interest, with a good representation of both sides of the market. Pulp producers, buyers, agents and trading houses, including buyers/sellers acting on behalf of another buyer/seller, qualify as price providers. If a trading house buys and sells on its own account, those prices are not accepted into the index calculation.

Price data is collected weekly from price providers, typically by email or by phone. Possibilities to use other alternative ways will be followed-up whenever deemed useful.

Reported price data will be stored at Fastmarkets FOEX for a period of seven years.

Price providers designate a person and a deputy for the price reporting task. Each price provider shall report their prices each week or provide a note of how long the last reported price is valid, or report "no transactions" if a provider has no eligible transactions in a given week.

Price providers agree to report their prices according to the methodology described in this document and based on all transactions meeting the specifications and to consult with Fastmarkets FOEX if they have any doubts as to the validity of a price to be reported.

Fastmarkets FOEX encourages organizations to submit all their pricing data, especially all the concluded transactions. Fastmarkets FOEX welcomes organizations to submit transaction data from authorized back office functions.

Company-specific data received from the price providers is accessible only to personnel employed by Fastmarkets FOEX. Board Members do not have access to this data.

Fastmarkets FOEX' personnel dealing with the confidential price data or other sensitive information received from the price providers for the purpose of PIX index calculations, commit not to disclose the data received, nor the source, outside Fastmarkets FOEX.

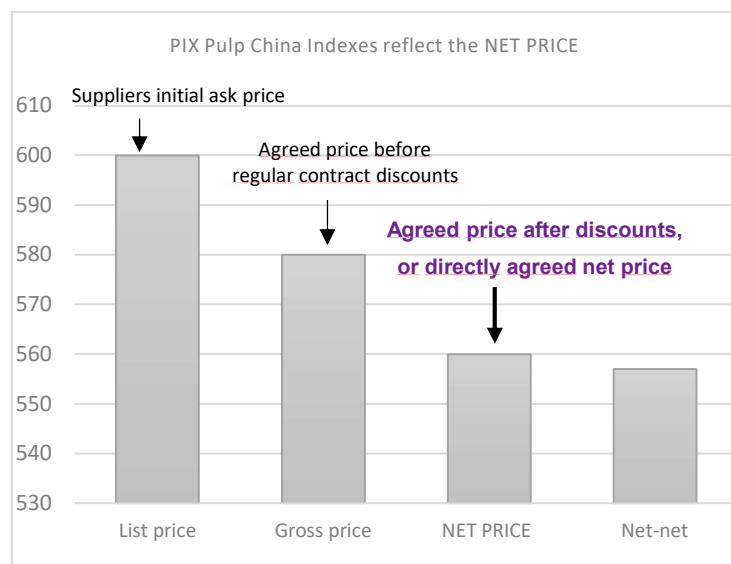
Fastmarkets FOEX commits to compile the price data, to calculate the index values and to publish the index values in accordance with the rules and specifications set forth in this document.

1.3 What price data providers submit

Each week, data providers submit prices reflecting all eligible transactions, to the extent possible with reasonable efforts, taking into account the practical problems in the weekly sales administrative work to collect all required transactions.

The price of actual transaction shall be reported when the order is confirmed or when the price is otherwise finally agreed. This applies for pulp which is e.g.: - at the port of loading (e.g. in North or South America or Europe) and - in transport and - in a warehouse at a Chinese port.

Contract prices reflect transactions between sellers and buyers who have a written contract or an ongoing unwritten relationship that involves regular transactions over time.



The indices reflect the average net price in USD per metric ton for regular contract-based business. Net price is the agreed price after regular monthly discounts, but before the quarterly or annual performance-based rebates (granted at the end of quarter or year). The discounts and rebates are typically agreed upon in long-term agreements. Any temporary discounts or rebates, which differ from long-term contract, should also be deducted. Price reporting company shall report the net prices in USD or RMB, based on transactions for each week.

If the company cannot regularly report the net USD prices, it is separately agreed on that the company reports the gross USD price and, in addition, the typical/average discount of all/major customers/suppliers at that time. Thereafter, the company reports the gross USD prices and Fastmarkets FOEX deducts the same typical/average discount from the gross prices and uses those calculated net USD prices in the index calculations.

When there is a meaningful change in the typical/average discount, the company agrees on to inform Fastmarkets FOEX and report the new discount amount and Fastmarkets FOEX will adjust its calculations accordingly.

Providers have the option to submit prices in one of the following ways:

1. Separate transaction prices: Providers submit prices reflecting all eligible transactions and additionally submit the share (either tonnage or %) of each of these transactions of the total volume of eligible transactions of that week.
2. Single weighted average price: Providers submit a single price reflecting the weighted average price of all eligible transactions over the previous week.

1.4 Final prices vs. prices to be adjusted at the end of the month

Reported prices shall only include those with a final agreement for the month, i.e. without a retroactive adjustment clause.

1.5 Fixed price transactions

Confirmed orders with prices fixed in advance for shipments in several future months i.e. in a longer period than the regular monthly cycle, do not count as eligible transactions and should not be reported.

1.6 Price specifications and reference units

Fastmarkets FOEX has clear specifications for all the price points that it covers. All the reference units, such as currency and volume, are in line with recognized pulp and paper markets trading conventions.

Fastmarkets FOEX specifications detail the material's characteristics or quality, location, incoterm, payment terms and the minimum volume accepted. These specifications are determined in consultation with market participants and following industry convention. Fastmarkets FOEX staff members ensure that the information they receive matches these specifications.

All Fastmarkets FOEX pulp and paper price specifications define the minimum lot size accepted.

1.7 Criteria to discard pricing data

Transactions are against contract-based business or other recurring business, complying with the General Trade Rules for physical pulp business for paper or paperboard production purposes between companies regularly buying or selling pulp. Specifically excluded are:

- Spot transactions: One-off transactions whose price is typically at a level from which no further discounts, allowances or performance rebates are given.
- Integrated shipments: shipments between affiliated parties.
- Indexed-price transactions: transactions whose prices are, according to the supply contract, tied to PIX or any other pulp price index.

1.8 Data validation

Fastmarkets FOEX reviews the incoming price data in order to check its consistency with the reporting rules. If the price data looks questionable, Fastmarkets FOEX contacts the price provider.

1.9 Weighting of Data

Weighting between price providers is achieved by assigning more price points to larger buyers/sellers than to smaller ones. The number of price points assigned to each provider is scaled by the annual volume of sales or purchases of bleached chemical market pulp in China.

Market pulp includes integrated exports but not company internal volumes within the country of production. Each price provider's weight is kept constant through the year, if no major changes occur in production capacity or purchasing volumes. Volumes are checked at the turn of the year for defining the weighting for the following year.

While input to the index is generally evenly split between buyers and sellers, the share can vary from week to week. To eliminate any volatility caused by a shift in the share of the buyer/seller data, Fastmarkets FOEX ensures that buyer and seller data each represent 50% of the index.

The weighting of any single data provider's data is limited so that it doesn't dominate the index. No single data provider's data will be weighted so that it contributes more than 25% of total number of prices included in the index calculation.

The weighting scales for NBSKP and BHKP (separate scales for sellers and buyers) based on total annual volumes are shown in Appendix 1.

Aggregation of weighted average prices. If data providers submit a single weighted average price (see Section 1.3 above), that price point is included in the week's collected price points multiple times, according to the number of price points the data provider is allowed. For instance, if a seller of NBSKP is allowed 5 price points and submits a single weighted average price of \$X in a given week, then \$X is included 5 times in that week's collected price points.

1.10 Calculation procedure

The index value is the arithmetic average of the price points included. The highest and lowest 10% of the number of price points are removed before calculating the PIX index values. This is done to eliminate clerical errors in the price reporting and to dampen any possible attempts to manipulate the PIX index value in one direction or the other.

1.11 Validity time of price points

If a price provider does not report prices in a given week (e.g. a company may not have sales or purchases during that week) Fastmarkets FOEX may use the previous price points received, but only for one additional week.

1.12 Fall-back procedure

Fastmarkets FOEX does not set a minimum number of price points for calculating the index. In the unlikely event that there are not enough eligible price points in a given week, and the lack of price points is threatening to distort the index development, Fastmarkets FOEX reserves the right to roll forward previous price data beyond the limits mentioned above. In case there is an insufficient number of price points, Fastmarkets FOEX reserves the right to republish the previous week's index value and makes a public note of that.

1.13 Monthly average prices

The monthly average of any of the PIX indexes is calculated by Fastmarkets FOEX as a straight arithmetic average from the weekly PIX index values of the month in question. The average value is published together with the last weekly index value (included in the monthly average).

1.14 Procedure to ensure consistency in the price discovery procedures

All Fastmarkets FOEX price reporters are formally trained in the price discovery process and must abide by a written Code of Conduct and pricing procedures.

On a regular basis, Fastmarkets FOEX staff review markets and methodologies to ensure that assessment methodologies and the assessments they produce are appropriate for the market. Fastmarkets FOEX has also committed to conducting one external audit per year of one key assessment.

Methodology review and consultation process

Fastmarkets' editorial teams carry out a formal review of its methodologies on an annual basis.

The process starts with an open consultation in which feedback is invited from users. Further consultation follows should any material change to the methodology be proposed. Material changes are those that, once implemented, may result in fundamental changes to the published price.

At the end of the consultation process, the editorial teams review any feedback received and decide on whether a change should be made before announcing and explaining that decision to the market via a pricing notice.

The editorial teams may also suggest changes or additions to methodologies on an ad-hoc basis to reflect market developments, in which case they will follow the same process as outlined for formal reviews.

For more details, please refer to Fastmarkets' Methodology Review and Change Consultation Process document available on the Fastmarkets website, as well as on divisional websites such as Fastmarkets MB, Fastmarkets RISI or Fastmarkets FOEX.

Queries and complaints

Fastmarkets FOEX encourages engagement from the market on its pricing principles and methodology. The company promotes understanding of its pricing procedures and is committed to responding to requests for further information and clarification on a timely basis.

There are multiple channels for interaction with the pricing team including email and telephone.

If a user has an issue with the published prices, then they may contact the pricing team. In the event that the response is not satisfactory the issue may be escalated to the internal compliance department. For more details refer to Fastmarkets' Complaint Handling Policy available on the Fastmarkets FOEX website.

Fastmarkets FOEX takes all queries and complaints seriously and will seek to provide an explanation of the prices wherever possible. It is important to note, however, that input data remain confidential and cannot be provided to third parties.

Price correction policy

Publication of price errors can occasionally happen for reasons that may include technical input errors or incorrect application of the methodology. To minimize the inconvenience to our subscribers, Fastmarkets FOEX aims to investigate each error as soon as it becomes aware of it and to publish a

correction promptly on our website through a pricing notice with an explanation of the reason for the correction.

Fastmarkets FOEX will publish a correction of a price only where it has established undeniably that there has been an error. Fastmarkets FOEX price assessments are produced based on the best data available at the time of the assessment. It will not retroactively change a price based on new information or additional submission of data received after a respective pricing session has closed.

Become a contributor to the price discovery process

Fastmarkets FOEX continually seeks to increase the number of market sources willing to take part in the price discovery process. The main condition Fastmarkets FOEX requires from contributors is for them to be active participants in the market. Fastmarkets' FOEX Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Fastmarkets FOEX expects from contributing organization providing pricing data. Market participants that wish to provide pricing data and be part of the price discovery process should first read the Data Submitter Policy available on the Fastmarkets FOEX website.

All data sources are subject to review before their data submitted is fully taken into account in the pricing process. The aim is to make sure that submitters are trustworthy and have sufficient visibility and understanding of the market to be able to provide viable price data.

If you want to become a contributor to Fastmarkets FOEX pricing or have questions or comments about the methodology and price specifications, please contact Fastmarkets FOEX director Tytti Inkinen, tytti@fastmarkets.com.

Price specifications

Description: **PIX NBSK China**

Quantity: min 100 metric tons

Location: China

Incoterm: Delivered (CIF China)

Timing: Delivery during the current or following month

Unit: Metric ton

Currency: US Dollar. Prices reported to the index calculation in other currencies are converted to the index currency using the exchange rate of Wednesday of the publishing week.

Payment terms: The price is a net transaction price on standard delivery and payment terms between buyer and seller. Prices with delivery terms ex works at the producing mill shall not be reported to the index.

Price Type: Net

Publication: Weekly, on Fridays at 10 AM EET (Helsinki time). If Friday falls on a public holiday in Finland, the index will be published on Friday or the following Tuesday or first working day thereafter.

Notes: Prices are for prime quality, commodity grade Northern bleached softwood kraft pulp from North American, Nordic and Central European countries.

Technical quality criteria: standard dryness 90%.

Description: **PIX BHKP China**

Quantity: min 200 metric tons

Location: China

Incoterm: Delivered (CIF China)

Timing: Delivery during the current or following month

Unit: Metric ton

Currency: US Dollar. Prices reported to the index calculation in other currencies are converted to the index currency using the exchange rate of Wednesday of the publishing week.

Payment terms: The price is a net transaction price on standard delivery and payment terms between buyer and seller. Prices with delivery terms ex works at the producing mill shall not be reported to the index.

Price Type: Net

Publication: Weekly, on Fridays at 10 AM EET (Helsinki time). If Friday falls on a public holiday in Finland, the index will be published on Friday or the following Tuesday or first working day thereafter.

Notes: Prices are for prime quality bleached single species hardwood kraft pulp, eucalyptus or acacia. Acacia pulp or BEKP made of less common eucalyptus species will be adjusted to the average price level of prime quality BEKP. Thereafter only the changes reported impact the index - not the potentially different starting level.

Technical quality criteria: standard dryness 90%.

Revision History

Changes to methodology and specifications will be tracked here.

September 2023 - Amends wording of 1.2 Data Collection Criteria: clarifies the accessibility of data at Fastmarkets.

June 2023 – Annual review of the methodology completed; no material changes made.

June 2022 – Annual review of the methodology completed; no material changes made.

July 2021 – Annual review of the PIX China Pulp Methodology in June 2021

In Price specifications (p. 11) the Timing clause was amended from “Delivery during the current month” to “Delivery during the current or following month” in connection with the annual review of the methodology. No material changes were made to the methodology.

March 2021 – Changes the wording of Coverage Note to Pricing Notice

September 2020 - Updates sections on Methodology Review and Change and Queries and complaints.

September 2020 – Change of publishing day from Tuesday to Friday

The publishing day was changed from Tuesday to Friday to align with RISI China Pulp assessments and to bring the price observation period closer to the publishing day.

December 2019 – Adds 25% weighting cap and changes limit for data retention

A 25% cap was added to any one contributor’s weighting in the index. Storage of price data was changed from five to seven years. The methodology guide was changed accordingly.

March 2019 – Appendix 1

PIX weighting scale for price points was added.

March 2019 – Change to time of publishing PIX Pulp China Indices

Fastmarkets FOEX concentrates the publishing time of all PIX indices to 12 noon EET (Helsinki time) on Tuesdays with the effect from April 1, 2019.

This change was subject to consultation and is meant to streamline operations and better serve clients with one publishing time for all Fastmarkets FOEX deliverables.

New publishing time at 12 noon EET:

- PIX Pulp China BHKP Net
- PIX Pulp China NBSK Net

The methodologies were not changed materially during this process.

January 2019 – Fastmarkets rebranding

Fastmarkets FOEX revamped methodology and specifications guides, including PIX European Pulp, in January 2019 as part of a company-wide rebranding. This was done to improve the consistency of content across all Fastmarkets methodology guides and to give them a common look and feel.

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Your investment actions should be solely based upon your own decisions and research and appropriate independent advice should be obtained from a suitably qualified independent adviser before any such decision is made.

Appendix 1

PIX weighting scale for price points									
CHINA									
From March 2019									
			Price						Price
N B S K	S E L L E R S		points			B H K P	S E L L E R S		points
over	1 600 000	tons	14			over	1 600 000	tons	14
up to	1 600 000		12			up to	1 600 000		12
up to	1 400 000		10			up to	1 400 000		10
up to	1 200 000		9			up to	1 200 000		9
up to	1 000 000		8			up to	1 000 000		8
up to	800 000		7			up to	800 000		7
up to	600 000		6			up to	600 000		6
up to	400 000		5			up to	400 000		5
up to	300 000		4			up to	300 000		4
up to	200 000		3			up to	200 000		3
up to	100 000		2			up to	100 000		2
up to	50 000		1			up to	50 000		1
N B S K	B U Y E R S		Price points			B H K P	B U Y E R S		Price points
over	500 000	tons	10			over	1 000 000		10
up to	500 000		9			up to	1 000 000		9
up to	400 000		8			up to	800 000		8
up to	300 000		7			up to	600 000		7
up to	200 000		6			up to	400 000		6
up to	150 000		5			up to	300 000		5
up to	100 000		4			up to	200 000		4
up to	50 000		3			up to	50 000		3