

PRICE ASSESSMENT METHODOLOGY AND SPECIFICATIONS

Packaging Paper and Board – Europe

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KEY CONCEPTS

Each price assessment is...

RISI's assessment of the **open market price** based on **actual market data** gathered from a **broad, systematic survey** of market participants that has been **rigorously evaluated** to produce an assessment.

Open market price: Price for regular business excluding one-off/spot, internal transfers and transactions whose price is not negotiated, i.e. prices determined by a formula based on published prices from RISI or other source. (See *"Grade detail and specifications" below*)

RISI price assessors consider a range of market data, including actual transaction prices, bids and offers, trigger prices and supporting data. (See *"Assessment Calculation" below*)

Survey has thorough representation of the market and includes both buyers and sellers, and a range of players from small to large. (see *"Data collection process" below*)

Assessment procedures include evaluation, verification, weighting and aggregation, plus confirmation of the assessment by a supervising editor. (See *"How prices are assessed" below*)

About this methodology

RISI Indices is the division of RISI responsible for price assessments. This document describes the procedures RISI Indices uses to determine its European containerboard, cartonboard and sack kraft paper price assessments. As of mid-2015, this methodology has been strengthened by application of the Principles for Oil Price Reporting Agencies published by IOSCO, the International Organization of Securities Commissions (www.iosco.org).

RISI has *voluntarily* chosen to adapt these principles to the markets we cover even though our markets fall outside of the governance of IOSCO and the Principles. That's because these guidelines represent the internationally recognized gold standard in price assessment. By adapting and implementing these principles, RISI demonstrates its commitment to providing the highest degree of reliability in price reporting.

For more on the Principles and how RISI has applied them, see "Implementation of IOSCO's Principles for Oil Price Reporting Agencies" at www.risi.com/iosco.

HOW PRICES ARE ASSESSED

RISI Indices creates price assessments in accordance with this methodology document and our internal Price Assessment Procedures Manual.

Who assesses prices

Prices are assessed by a European team of packaging paper/board editors, who are part of RISI Indices group, separate from RISI Analytics group involved in forecasting. Standards for training, experience and skills required for editors involved in price assessment, as well as supervision of editors, are described in the RISI Indices Price Assessment Procedures Manual.

Data collection process

RISI Indices makes price assessments based on a systematic survey of active market participants to find out agreed transaction prices and volumes as well as price offers made or received, and other supporting information such as supply and demand conditions.

The amount and type of information that a respondent provides each month varies across individuals and companies; data from respondents providing more complete information is weighted more heavily in the final assessment. Price data are also weighted roughly according to tonnage.

Data providers

The survey includes both buyers and sellers, ensuring that the survey pool is balanced and representative of the overall market. See "Grade Detail and Specifications" section below for details for each grade.

All market participants are encouraged to submit price data and supporting market information for inclusion in the assessment.

RISI encourages organizations to submit all their pricing data, especially all the concluded transactions. Depending on market liquidity, RISI reserves the right to also base its prices on bids, offers, deals heard, trigger prices and market participants' assessment or indication of prevailing values.

RISI welcomes organizations to submit transaction data from authorized back office functions. RISI may sign Non-Disclosure Agreements (NDA) with any data provider, if requested to do so, in order to maximize the number of data points collected for inclusion in the assessment or index calculation.

For more on RISI's Data Submitter Policy, please see [here](#).

How data are provided

Each price period, the price assessor contacts data providers and collects data via phone interviews and emails.

Assessment calculation

Types of data considered

The following types of data are considered when producing price assessments.

- Transaction prices
- Bids and/or offers made or received
- Trigger prices
- Participants estimates of market levels
- The change in price levels from previous periods
- Other market information such as prices in related markets, supply and demand fundamentals etc.

RISI 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 conventions in the pulp and paper markets.

Guidelines on the use of judgement

When assessing market prices, greater weighting is generally given to actual concluded transaction data. Next in terms of importance come bids and offers made or received. RISI does not set a minimum threshold for the amount of transaction data needed to produce assessments.

In the absence of sufficient transaction data, bids and offers or other actual price information, RISI reserves the right to use other factors to determine the assessment. These include:

- market participants' trigger prices;
- market participants' reports of the change in prices from previously assessed periods;
- market fundamentals such as changes in inventory levels, shipments, operating rates and export volumes;
- relative values of similar commodities in the same region;
- relative values of the same commodity in different regions;
- changes in the value of the commodity's primary feedstock or primary derived product(s).

In very opaque markets, where little actual market data is available, price developments may at times not be immediately apparent. If RISI price assessors detect this, their market assessments in the next reporting period would generally reflect the price change. This is in line with RISI's policy of acting on new information as it becomes available.

Criteria for exclusion of data

Data are excluded from the assessment in the following cases:

- The price of a transaction is indexed to published prices from RISI or another source.
A transaction price is considered "indexed" when it is entirely determined according to a formula based on a published price assessment, whether that assessment is from RISI or any other source.
- The transactions don't meet the assessment specifications. (See "Grade Detail and Specifications" section below.)
- The transaction has special circumstances that, in the price assessor's judgment, render it unrepresentative of the broader market and/or not repeatable. (This type of exclusion is rarely used.)

Normalization of data

Normalization is the process of adjusting data so that it can be properly compared to other data. Basis weight upcharges may be adjusted so, for example, a price for 125 g unbleached kraftliner can be compared with 150 g and 175 g unbleached kraftliner prices.

Since domestic prices are reported on a delivered basis, transactions subject to unusually high or low freight are normalized to eliminate the effect of these freight extremes.

Weighting of data

- Higher-quality data are weighted more heavily than lower-quality data.
Higher-quality data includes:
 - Data with more detail, e.g. prices reported as separate transactions with accompanying volume rather than an overall average price.
 - Data whose credibility is supported by answers to the assessor's follow-up questions.

- Data from contacts with a history of reliability. Contacts are deemed more reliable if they:
 - Provide information that is corroborated by other sources
 - Provide complete and detailed information
 - Provide information regularly and consistently over time
 - Report price information that goes against their natural interests (e.g. a buyer reporting higher prices or a producer reporting lower prices)
- Data are weighted according to the type of information. However, the weighting of any single data provider's data is limited so that it doesn't dominate the assessment. For Category 1 prices (e.g. Testliner 2, 140g, Germany), this cap is more formal: no single data provider's data will be weighted so that it contributes more than 25% of the final assessment.

CONTROLS AND COMPLIANCE

Ensuring consistency and quality of assessments

RISI Indices has in place a number of procedures to ensure the consistency and quality of price assessments, including:

- **Sign-off:** Prior to publication, each price assessment is reviewed by a senior price assessor other than the assessor primarily responsible for the assessment to ensure the assessment is accurate and has followed proper procedures.
- **Quality assurance audit:** A supervising editor is responsible for overseeing all price assessments. The supervisor will periodically do a detailed review of decision-making for a given price assessment, reviewing price assessments in relation to assessments from similar markets, ensuring that the methodology has been followed consistently and that judgment has been applied appropriately.
- **Market review:** On a regular basis (i.e. annually for the main containerboard grades), Indices staff reviews markets and methodologies to ensure that assessment methodologies and the assessments they produce are appropriate for the market.
- **External audit:** In accordance with the standards of IOSCO's PRA Principles, Category 1 price assessments (benchmark grades, e.g. Testliner 2, 140g, Germany – see specifications below) are audited to ensure that assessments comply with this methodology and with IOSCO's PRA Principles.

Independence and freedom from conflicts of interest

Please see RISI Indices' Conflicts of Interest Policy (www.risi.com/conflicts). Key points include:

Independence of RISI

RISI has no affiliation with buyers or sellers of forest products and therefore no vested interest in either higher or lower prices.

Absence of financial interest

RISI is free of ownership or other ties that would give it a financial interest in the movement of prices we report. RISI prohibits its employees who conduct price assessments from having a financial interest (excluding passive investments like mutual funds) in companies whose values are directly and substantially affected by prices on which they report.

Separation from forecasting

RISI Indices is a separate business unit from RISI Analytics, which carries out RISI's forecasting activities, ensuring that forecasting of future prices doesn't influence assessment of actual prices.

Confidentiality

Our data providers are essential to our work, so RISI Indices goes to great lengths to keep price survey data confidential. Confidential data include both the data collected and the names of individuals and companies who provide data. RISI's policy is to neither confirm nor deny the participation of any individual or company in our price surveys at any time, either directly or indirectly.

This confidentiality is essential to ensure the highest number of data contributors as well as to ensure that contributing data to RISI cannot be used as a means for market players to unfairly communicate to each other.

RISI Indices' Confidentiality and Data Protection policy (www.risi.com/confidentiality) explains full details around how price assessors protect the confidentiality of their contacts and data. Each year, price assessors are trained in data protection procedures and must sign a compliance agreement.

Antitrust compliance

All price assessment methodologies from RISI Indices are explicitly designed to comply with antitrust rules. See RISI Indices' Antitrust Compliance Policy (www.risi.com/antitrust) for further details.

Disclaimer of warranty

Although RISI collects information from sources who are believed to be reliable, RISI does not warrant or guarantee the accuracy or completeness of its price assessments. Actual transaction prices will often vary from the assessed level. Under no circumstances shall RISI nor any of its subsidiaries, parent corporations and affiliates, and all of their respective officers, directors, owners, employees, agents, licensors, representatives, licensors and suppliers (collectively, the "RISI Parties"), be liable for any loss or damage caused by your reliance on information obtained through the RISI services. It is your responsibility to evaluate the information, opinion, advice, or other content available through the RISI services.

Changes and feedback

Changes to methodology and specifications

RISI periodically reviews the markets it covers to ensure that our methodology and specifications are still appropriate for that market.

Understanding that some RISI price assessments are used in long-term contracts, RISI seeks to minimize changes that will affect the continuity of its price assessment over time.

Prior to implementing any material changes to the methodology and specifications, these changes will be announced in draft form and open for comment from all

stakeholders. RISI will review all comments and seek to balance the views of all players as much as possible while ensuring the reliability of price assessments.

Based on comments received, RISI will finalize the changes and announce them to the market, specifying exactly what will change and when.

Corrections and non-market adjustments

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, RISI aims to investigate each error as soon as it becomes aware of it and to publish a correction promptly. If the correction is substantial, a Coverage Note will be published on the RISI website and an email will be sent to subscribers with an explanation of the reason for the correction.

RISI will publish a correction of a price only where it has established undeniably that there has been an error. RISI 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.

Occasionally, in very opaque markets, price developments may not become apparent for some time. If this happens, RISI reserves the right to adjust a price series upwards or downwards to bring it back in-line with market values. Such cases should not be considered corrections but rather non-market price adjustments. A retroactive correction of the price history would not normally be made. RISI has a very structured process for such non-market adjustments, similar to that for changes to methodologies and specifications. They would only be implemented after industry consultation. Ample notice would be given of the proposed adjustment and stakeholders would have the chance to send their feedback.

Feedback and complaints

RISI Indices welcomes feedback on its price assessment methodology as well as on specific price assessments published. We greatly value such feedback and the dialog that it generates.

In general, such feedback is most effectively dealt with by the editor directly in charge of the price assessment in question. We invite you to speak with or email any of your existing contacts within the editorial team, or view a list of contacts at www.risi.com/EditorialContacts.

If working with the editor does not adequately address your issue, please view our procedures for submitting complaints at www.risi.com/complaints.

GRADE DETAIL AND SPECIFICATIONS

General specifications

These are specifications that apply to all packaging paper/board grades. Specifications unique to each grade are detailed below.

Where published	<p>PPI Europe</p> <ul style="list-style-type: none"> • Newsletter (pdf) • Online (interactive database)
Frequency	<p>Monthly (Germany, UK, France, Italy)</p> <p>Quarterly (Spain, Russia, sack kraft)</p>
Schedule	See www.risi.com/schedule
Assessment window	<p>Each price represents the price agreed for shipments in the period from the previously published assessment to the latest assessment.</p> <p>Note that this means that a “January” price assessment doesn’t reflect prices from January 1 to January 31, for instance. German prices are published the second issue of each month, for example. So, German prices published in January would represent prices from the second week in December through the second week in January.</p> <p>Assessments reflect prices agreed as of the date the assessment is published and don’t reflect any agreements on price that take effect on future shipments.</p>
Transaction types reflected	<p>Open market transactions in ongoing supply relationships (i.e. excluding spot transactions)</p> <p>Open market transactions are defined as those whose price is arrived at through negotiation. This excludes:</p> <ul style="list-style-type: none"> • Transfers between an integrated producer and its own converting plants • “Indexed” transactions, i.e. transactions whose price is determined by a formula based on published prices (whether from RISI or other source)
Price levels reflected	<p>Reference prices, i.e. the price negotiated each month that may serve as a basis from which customer-specific discounts are given based on the customer’s volume or long-term relationship with a supplier</p> <p>Assessments are presented as a range in which the bulk of transactions take place</p>
Arms-length transactions	Only transactions between unaffiliated parties are reflected. Transfers of integrated mills to their own box plants and trades with other integrated producers are excluded.

Point in supply chain	Seller: producer or a producer's agent Buyer: converter not affiliated with a producer of the grade in question, or packaging buyer if directly involved in purchase of paper/board
Delivery terms	Free delivered to buyer's facility unless otherwise noted. (Russian prices are ex-works, and some UK prices are CIF.)
Quality	Prices are for prime-quality tonnage with normal trims.
Normal terms of payment	Price estimates assume normal and customary payment terms.
Currency/units	Euro/tonne except for: UK: £/tonne Russia: Rouble/tonne
IOSCO categories	Testliner 2, 140 g, Germany: Category 1 All others: Category 2 <i>See implementation of IOSCO's Principles for Price Reporting Agencies (www.risi.com/iosco) for definition of categories.</i>

Containerboard

Grade	Location	RISI Assessment ID	Currency	Frequency	Terms – free delivered, buyer's facility unless otherwise noted	Notes
Recycled containerboard						
Testliner 2						
125 g	Russia	1339	RUB	q	ex-works	Excludes 18% VAT. Prices reflect transactions which occurred in the central and northwestern regions of Russia.
140 g	France	61	EUR	m		
	Germany	60	EUR	m		
	Italy	63	EUR	m		
	Spain	141	EUR	q		Monthly prices are published retroactively.
	United Kingdom	62	GBP	m		

Grade	Location	RISI Assessment ID	Currency	Frequency	Terms – free delivered, buyer's facility unless otherwise noted	Notes
Testliner 3						
125 g	Spain	142	EUR	q		Monthly prices are published retroactively.
140 g	France	65	EUR	m		
	Germany	64	EUR	m		
	Italy	67	EUR	m		
	United Kingdom	66	GBP	m		
White-top testliner						
125 g	Spain	1161	EUR	q		Uncoated liner with a brightness of ISO≥70. Monthly prices are published retroactively.
140 g	France	1156	EUR	m		
	Germany	1154	EUR	m		
	Italy	1157	EUR	m		
	United Kingdom	1158	GBP	m		
Recycled Fluting						
100 g+	United Kingdom	71	GBP	m		
105 g	France	70	EUR	m		
	Germany	68	EUR	m		
	Italy	72	EUR	m		Recycled fluting prices reflect Italian qualities at the lower end of the range and other European qualities toward the top end.
112 g	Russia	1341	RUB	q	ex-works	Excludes 18% VAT. Prices reflect transactions which occurred in the central and northwestern regions of Russia.
127 g	Spain	140	EUR	q		This grade of fluting is made from 100% recovered fiber but is commonly known as semiquímico nacional (national semi-chemical fluting) or fluting tipo semiquímico (semi-chemical type fluting). Monthly prices are published retroactively.
90 g	United Kingdom	1009	GBP	m		
95-110 g	Spain	143	EUR	q		Monthly prices are published retroactively.

Grade	Location	RISI Assessment ID	Currency	Frequency	Terms – free delivered, buyer's facility unless otherwise noted	Notes
Virgin fiber containerboard						
Unbleached kraftliner						
125 g	France	458	EUR	m		
	Germany	473	EUR	m		
	Italy	450	EUR	m		Lower end of the range represents CIF prices for imported paper. Higher end of the range represents free delivered prices for European paper.
	Spain	477	EUR	q		Includes imports as well as European paper. Monthly prices are published retroactively.
	United Kingdom	438	GBP	m	CIF	Imports from continental Europe and other sources.
	Russia	1337	RUB	q	ex-works	Excludes 18% VAT. Prices reflect transactions which occurred in the central and northwestern regions of Russia.
150 g	France	457	EUR	m		
	Germany	472	EUR	m		
	Italy	449	EUR	m		Lower end of the range represents CIF prices for imported paper. Higher end of the range represents free delivered prices for European paper.
	Spain	476	EUR	q		Includes imports as well as European paper. Monthly prices are published retroactively.
	United Kingdom	437	GBP	m	CIF	Imports from continental Europe and other sources.
175 g+	France	48	EUR	m		
	Germany	47	EUR	m		
	Italy	50	EUR	m		Lower end of the range represents CIF prices for imported paper. Higher end of the range represents free delivered prices for European paper.
	Spain	136	EUR	q		Includes imports as well as European paper. Monthly prices are published retroactively.
	United Kingdom	49	GBP	m	CIF	Imports from continental Europe and other sources.
White-top kraftliner						
125 g	Russia	1338	RUB	q	ex-works	Excludes 18% VAT. Prices reflect transactions which occurred in the central and northwestern regions of Russia.

Grade	Location	RISI Assessment ID	Currency	Frequency	Terms – free delivered, buyer's facility unless otherwise noted	Notes
140 g+	France	52	EUR	m		
	Germany	51	EUR	m		
	Italy	54	EUR	m		
	Spain	137	EUR	q		Monthly prices are published retroactively.
	United Kingdom	53	GBP	m	CIF	
Semi-chemical fluting						
112 g	Russia	1340	RUB	q	ex-works	Excludes 18% VAT. Prices reflect transactions which occurred in the central and northwestern regions of Russia.
127 g	France	56	EUR	m		Reflects Nordic and other European qualities.
	Germany	55	EUR	m		Reflects Nordic and other European qualities. Nordic SC medium prices are reflected at the top end of the range, while other European qualities are shown at the lower end.
	Italy	688	EUR	m		
	Spain	689	EUR	q		Monthly prices are published retroactively.

Product specifications are as defined by CEPI (see <http://www.cepi-containerboard.org/download.php>)

Cartonboard

Grade	Location	RISI Assessment ID	Currency	Frequency	Notes
Coated Duplex (GC2)/Folding Boxboard					
270 g+	France	74	EUR	m	
	Germany	73	EUR	m	
	Italy	76	EUR	m	

	Spain	144	EUR	q	Monthly prices are published retroactively.
	United Kingdom	75	GBP	m	
White-lined chipboard (GD2)					
300 g+	France	78	EUR	m	
	Germany	77	EUR	m	
	Italy	80	EUR	m	
	Spain	145	EUR	q	Monthly prices are published retroactively.
	United Kingdom	79	GBP	m	
White-lined chipboard (GD3)					
320 g+	Italy	680	EUR	m	

All prices are free delivered, buyer's facility.

For description of different types of cartonboard, see CEPI's site:

http://www.cep cartonboard.com/?section=different_types_of_cartonboard

Sack Kraft Paper

Grade	Location	RISI Assessment ID	Currency	Frequency	Notes
Unbleached	France	541	EUR	q	Monthly prices are published retroactively.
80g +	Germany	539	EUR	q	Monthly prices are published retroactively.
	Italy	535	EUR	q	Monthly prices are published retroactively.
	Spain	665	EUR	q	Monthly prices are published retroactively.
	United Kingdom	537	GBP	q	Monthly prices are published retroactively.

Bleached, 80g+	France	540	EUR	q	Monthly prices are published retroactively.
	Germany	538	EUR	q	Monthly prices are published retroactively.
	Italy	534	EUR	q	Monthly prices are published retroactively.
	Spain	664	EUR	q	Monthly prices are published retroactively.
	United Kingdom	536	GBP	q	Monthly prices are published retroactively.

REVISION HISTORY

Changes to methodology and specifications will be tracked here.

February 2018 – Adds reference to Data Submitter Policy

Adds reference to Data Submitter Policy.

January 2018 – Adds information on corrections and non-market adjustments

Adds paragraphs on corrections and non-market adjustments.

October 2017 – Italian cartonboard name corrected and comment added on compliance regime

Description of Italian white-lined chipboard 320 g+ corrected to GD3 in the table and comment added on page 5 regarding RISI's current transition to a new compliance regime in the light of its purchase by Euromoney.