

Recycled PET Methodology

8 May 2014



General methodology

ICIS continuously develops, reviews and revises its methodologies in consultation with industry participants. The product specifications and trading terms and conditions used are intended to reflect typical working practices in the industry.

ICIS publishes market assessments based on information gathered from market participants about: spot transactions, spot bid and offer levels, contract price negotiations, prices of related commodities, and relevant freight costs.

ICIS does not make retrospective adjustments or changes to price assessments based on information received after publication time or after any cut-off point specified in individual methodology documents.

ICIS regards all arm's-length transactions which meet its specification criteria as carrying equal weight.

ICIS uses proprietary models where necessary to normalise data to the typical specifications for cargo size and date ranges given for each commodity.

Some ICIS assessments are the product of calculation alone, for example in markets where insufficient market activity takes place to permit price assessment, or where a market itself habitually sets prices according to a formula. Such calculated assessments are noted as such in their detailed methodology specifications.

ICIS endeavours to cross-check all the transaction information it gathers. ICIS will not use information for assessment purposes where such checks call into doubt the accuracy of the original information, or where a transaction appears to have occurred under circumstances that render it non-repeatable or otherwise markedly unusual.

Rationale for recycled polyethylene terephthalate (R-PET) methodology

All ICIS-published spot assessments in the weekly R-PET reports are so-called "week's range" assessments. That is, they are intended to represent the tradable value throughout the week leading up to the date of the report. ICIS will indicate days where closure of particular markets due to public holidays would result in non-publishing and non-assessment days.

The value published is intended to reflect the real transactable value of a commodity during the course of the week. As such, transaction information would take precedence over bids and offers.

Where a confirmed deal is done for the same specification and loading range as confirmed bids and offers, and when all are declared to the market simultaneously,

the deal will take precedence over the bids and offers. In illiquid markets, sole deals will be used together with bids and offers.

ICIS takes into account a wide range of market input in making such choices, and reserves the right to exclude from its analysis any price information deemed unreliable or unrepresentative of the market. ICIS commits to describing the information it deemed reliable in the market comment accompanying its assessments, including transactions, bids, offers and other market information used in making these assessments. This includes instances where ICIS typically makes assessments based on firm transaction or bid/offer information, but where that information was not available on a given day and alternative evidence was used.

Cargoes partially loading outside of the Assessed Trading Timeframe may be reflected in the assessment, but will not typically be used where there is deal/bid/offer information within the assessment period.

ICIS has adopted this “week’s range” methodology for recycled polyethylene terephthalate reports based on years of market observation and feedback. Other measurement strategies, for example weighted averaging, are vulnerable to random variation in transaction levels and volume, which can give rise to distortions.

In addition, the exact volume of transactions for any given product is unknowable in advance, and a volume-dependent methodology is exposed to: a) the charge that lower volumes will result in less accurate prices, and b) to the possibility of failure in the event no transactions occur.

Specifications for recycled polyethylene terephthalate

ICIS pricing quotes recycled polyethylene terephthalate in Europe, Asia-Pacific and the US Gulf.

Published weekly on Monday in Europe, Tuesday in Asia-Pacific and Thursday in the US.

Price assessments are based on information supplied by market participants for the week up to 1700 hours on Monday in London, 1730 hours on Tuesday in Singapore and 1700 hours on Thursday in Houston.

Specifications:

Unless otherwise stated, ICIS pricing quotes prices for:

- Post-consumer PET bottles (bottles that have contained consumed beverages and have been subsequently collected and compacted into bales). Bottles will be assessed separately as colourless (containing up to a maximum of 15% light blue

material) or of mixed colours. ICIS reports Industrial bottle prices, not curbside volumes.

- Flakes produced from the shredding of bottles and then submitted to a hot-washing process. Flakes will be assessed separately as colourless (containing up to a maximum of 15% light blue material) or of mixed colour.

In addition, in the Asia Pacific report, the CFR China and CFR India assessments focus on flakes with PVC content between 300-1,000ppm and below 300ppm respectively, given that other product specifications such as total contamination content and moisture content fall within the acceptable industrial standard for use by polyester fibre makers. Prices of flakes with specifications outside the specified range may be quoted in the commentary and considered in the price assessments after normalisation if applicable.

- Food-grade Pellets suitable for immediate conversion by processors into a range of finished or semi-finished products such as textile fibre, strapping, bottle pre-forms or other packaging. The assessment stated will be for material suitable for food contact applications. Prices for pellets used in other applications may be quoted in the commentary.

Price assessments are provided on the basis of product of 99.9% purity. The European FD PIPELINE assessment is for ARG specification.

Timing:

In Asia, business is usually concluded within a two-to-six week forward delivery window from the date of publication. In Europe, business is usually concluded within a six week forward delivery window from date of publication. However, given arbitrage movements, a maximum forward delivery window of 60 days applies for the quotations. In the US, contract prices are tied to the delivery month referenced next to the price. US spot prices are quoted for the current month.

Standard cargo size:

In both the US and Europe, standard cargo size for pellets is one truck-load, 24-25 tonnes; for flakes it is one truck-load, 21-25 tonnes; and for bottles it is one truck-load (dependent on density of material – one-way bottles 15-19 tonnes, multiple use bottles 20-25 tonnes). In Asia, assessed cargoes are on a container basis between 20-22 tonnes.

Terms:

In the US and Europe terms 10-30 days after date of invoice. In parts of southern Europe, this may extend to 90-120 days from date of invoice. Some contractual

counter-parties operate a call-off system in Europe, permitting delivery from pre-determined volume requirements within approximately three days, depending on source. In Asia, credit terms cover to L/C 30-90 days.

Unit prices and credit terms

RPET in all regions is generally traded in US dollars/tonne, cents/lb or euros/tonne and therefore all price assessments are quoted on these bases.

Typical credit terms are on-site for bottles, and 30-90 days from Bill of Lading date for other prices listed.

Netbacks:

Netback calculations (i.e CFR prices derived from FOB numbers + freight) are not usually considered sufficient to warrant an automatic adjustment of CFR assessments on the basis of open market freights. The use of COA vessels in Asia-Pacific and the need for employment can lead to below-market freight components to apply. Similarly southeast Asian price assessments are not adjusted on northeast Asian prices + freight component, or vice versa.

Normalisation:

In exceptional cases where the lack of liquidity represents a challenge in making assessments, editors can choose to adopt a normalisation process to include deals/trades information which falls outside the standard specifications listed in the methodology pertaining to, but not limited to, volume, timing, delivery, payment terms, import tariffs, product specifications and other operational matters. The normalisation process adopted should be in line with standard practices and will only be used either as a reference for assessments, or be included as part of the assessment range.

RPET (Europe)

Weekly Price Assessments:

PET Bottles – Colourless

- FD NWE (EUR/MT & conversion to USD/MT)

PET Bottles – Mixed/Coloured

- FD NWE (EUR/MT & conversion to USD/MT)

RPET Flake (Hot Washed) – Colourless

- FD NWE (EUR/MT & conversion to USD/MT)

RPET Flake (Hot Washed) – Mixed/Coloured

- FD NWE (EUR/MT & conversion to USD/MT)

RPET Pellets – Food Grade

- FD NWE (EUR/MT & conversion to USD/MT)

RPET (Asia Pacific)

Weekly Price Assessments:

Hot washed flakes – Clear/White

- CFR China (US CTS/LB & conversion to USD/MT)
- CFR India (US CTS/LB & conversion to USD/MT)

Hot washed flakes – Blue/Green

- CFR China (US CTS/LB & conversion to USD/MT)

RPET (North America)

US Spot Prices

PET Bottles—Bales 85/15 Clear/coloured mix (post consumer)

FOB West Coast (US cents/lb and conversion to \$/tonne)

FOB East Coast (US cents/lb and conversion to \$/tonne)

RPET Flake (Hot Washed)— Colourless- Bottle Grade

FOB West Coast (US cents/lb and conversion to \$/tonne)

FOB East Coast (US cents/lb and conversion to \$/tonne)

RPET Flake (Hot Washed)—Blue/Green

FOB West Coast (US cents/lb and conversion to \$/tonne)

FOB East Coast (US cents/lb and conversion to \$/tonne)

RPET Pellets—Clear—Food Grade

FOB West Coast (US cents/lb and conversion to \$/tonne)

FOB East Coast (US cents/lb and conversion to \$/tonne)

Mexico Spot Prices

PET Bottles—Bales- 85/15 Clear/Coloured Mix (Post-Consumer)

FOB Mexico

*Unless otherwise stated, all feedstock prices are assessed independently. Please refer to the product specific methodology document for more information as details vary from product to product.

Other principles and guidelines

Changes to methodology

All markets evolve and ICIS has a duty to ensure its methodologies for market-reporting evolve in step with markets.

ICIS therefore regularly conducts internal reviews of the appropriateness of its methodologies, based on industry feedback.

Draft changes are then made public and comment requested from industry participants, with a minimum one-month notice period, except where, exceptionally a force majeure event (natural disaster, war, bankruptcy of a trading exchange etc.) makes necessary a shorter notice period.

ICIS is committed to reviewing all comments on proposed methodology changes, but in some cases may find it necessary to alter its methodologies against the wishes of some market participants.

In addition, ICIS has a formal methodology consultation process. The company commits to holding this consultation every three years for the RPET reports. The date of the last consultation launched and the expiry date by which the company commits to conducting the next consultation can be seen at the top of the methodology document.

Please also refer to the Methodology Consultation Process section of the company's Compliance Manual. This contains detailed flow charts documenting the internal and external review and consultation process.

Consistency

ICIS achieves consistency between its assessors in exercising their judgement by requiring all assessors to follow this detailed methodology as well as the company's Editorial Standards document. In addition, ICIS reporters are required to complete standard training before undertaking the work of a market reporter. Every reporter's work is spot checked.

Data standards

ICIS has a public Data Standards Policy which covers the type and quality of information we ask market participants to report.

The following principles relate to ICIS RPET assessments and commentaries:

- Where possible, please allow access to active market traders and allow them to comment on active news stories.
- Where possible, please provide market data from both front and back-office functions.
- Where possible, please provide complete data and not a subsection.
- Flag inter-affiliate transactions.
- Flag sleeve trade.
- Flag spread trades.
- When a source or contact leaves the organisation please contact ICIS to the replacement (ICIS requests that both the source and the organisation contact them).
- Where information is not validated by the source (i.e. rumour) please indicate as such.

Delivery locations for price assessments

Locations for ICIS RPET assessments are chosen to reflect the concentration of liquidity on the traded markets.

Exercise of judgment

Apart from instances where data may be excluded (see below), ICIS will typically exercise judgment where market information about firm bids and offers or transactions is not available.

In most cases this will involve the application of spread trade information or prevailing market relationships, detailed in the specifications section for each grade in this document.

ICIS will also exercise judgement where only a bid or offer is available, or where a bid/offer spread is so wide as to be unhelpful in establishing tradable value. In both instances, spreads to other grades or prevailing market relationships will typically be used to assess the price. In these cases the assessment will still fall above the highest firm bid and below the lowest firm offer, as long as the bid and/or offer information meets all other criteria specified in this methodology.

Exclusion of data

In line with its Editorial Standards policy, ICIS reporters actively seek to identify anomalous market information and exclude it from the assessment process. For crude market assessments, this is done by the daily information gathering and verification process carried out by reporters, whereby market transaction, bid and offer information is confirmed and verified by multiple sources.

In assessing RPET markets, ICIS takes into consideration only arms-length transactions between non-affiliated parties.

ICIS does not accept bids or offers that are not firm. Any bid or offer which is demonstrably not firm will be disregarded and further bids or offers from the same counterparty may also be disregarded.

ICIS also excludes from its assessments transactions where ICIS market reporters have reasonable grounds to doubt that a transaction is representative of typical market behaviour: for example, where a deal is concluded disregarding the best bid or offer on the market; where there is evidence that a market participant has disclosed only part of its market activity to ICIS; or where a transaction lies outside the prevailing range of typical market activity.

ICIS records instances of anomalous data and reviews these instances on a regular basis with a view to determining if a pattern exists.

Where market reporters have concerns over the behaviour of a market participant, this will be escalated using the ICIS Escalation Process for Compliance and Regulatory Issues. This can be found in the company's Compliance Manual.

Market communication

ICIS communicates with a broad range of market participants – traders, brokers, back-office employees, supply managers, operations personnel and company executives – to obtain market information.

ICIS communicates with participants by telephone, email, instant messenger and in person. All instant messenger, email communication and notes of any face-to-face communication are archived and details of telephone communication are logged and data-based.

ICIS does not accept instant messenger communication from unknown parties, and reporters are required to verify a market participant's identity prior to using IM communication.

ICIS does not regard in any way as binding attempts by companies to restrict ICIS communication with their employees. ICIS has a duty to its subscribers to obtain the maximum possible amount of market information. ICIS treats all communication from market participants as confidential.

ICIS reporters are bound by a Code of Conduct to report to their superiors any coercive or threatening communication from market participants, or any offers of inducements of any kind intended to influence an assessment.

Where improper communication appears to have taken place, ICIS will communicate in the first instance with senior management at the company or companies involved, and if necessary with relevant market authorities.

ICIS expects the highest standards of propriety from all market participants, and regards all communications from market participants as representative of the views of an individual's employer.

ICIS is committed to the highest levels of customer service, and has a formal feedback and complaints policy, which can be viewed here <http://www.icis.com/about/icis-feedback-policy/>.

Market data verification

ICIS will always make best endeavours to confirm bids, offers and transactions with the relevant party/parties. ICIS attempts to cross-check all market data received from a buy or sell-side participant with a participant's trading counterparty.

Where both counterparties to a transaction cannot or will not confirm the data, ICIS seeks corroboration from other market sources.

Where transaction or bid/offer information has been received from a trader rather than from a company's back office, ICIS always seeks confirmation from other sources.

Where ICIS has grounds to doubt an item of market data, it may request further evidence that a transaction has taken place, including documentary evidence. ICIS treats transaction data received from active brokerages as confirmed.

On occasion, in markets with low liquidity and a low number of counterparties, ICIS may choose to use unconfirmed data, but only in so far as it is aligned with other market information and comes from a source deemed reliable by ICIS based on previous interactions.

Minimum data threshold

Because of the sometimes thinly traded nature of some markets, ICIS does not have a minimum data threshold for its assessment methodologies in this market.

ICIS makes clear in its market comments whether it has assessed a price based on transaction or bid/offer data or whether it has used other forms of evidence or calculation.

Selection of participants

ICIS policy on general market data is that we welcome all information regardless of source or constitution as long as it is provided in good faith as true.

However, only active market participants verified as such by existing active industry participants and verified as a viable business by ICIS investigations will be allowed to contribute price data to ICIS for the purpose of assessing tradable market value under this methodology.

Volumes

For each region ICIS publishes the standard cargo size, found in the specifications sections of this methodology document. Market information for cargoes conforming

to these standards will be fully considered in the assessment process, providing the information conforms to all other specifications and conditions published in this methodology.

As indicated earlier, if ICIS has market information regarding cargoes outside of these published ranges, it will be normalised together with any standard-sized cargo information. In this case, ICIS will seek to establish whether there is a market price premium or discount for the non-standard cargo and apply this for the purpose of making its assessment.