

CRU Prices

Alumina

Methodology and Definitions Guide

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Methodology and Definitions Guide – Alumina

1 Scope

This guide covers alumina product prices in all geographical markets and should be read in conjunction with the [CRU Group Compliance Framework and Methodology Guide](#). It details commodity-specific methodology which have precedence, with all other aspects covered by the Group methodology guide.

2 Methodology

Alumina – CRU-API

CRU Alumina Price Index (CRU-API)

The CRU-API (Australia FOB alumina) is a transaction-only weekly price benchmark. Use of transaction data alone as data inputs to this price ensures that it accurately reflects the actual spot market with no risk of information from sentiment, errant opinion, speculative or even confirmed but ultimately unexecuted bids and offers entering the published price.

This is appropriate for a price used extensively in physical contracts or in other accuracy-critical applications. The price is weekly as this allows for contracting on a number of price values through the month or equally a single or average monthly value, and/or timely identification of market trends, without compromising on liquidity. Liquidity is also enhanced by a normalisation process which allows for the submission of data which can be standardised to CRU's strict definition but is sourced from a wider array of trades.

Our methodology blends strict adherence to transaction data and other methodological rules with limited but necessary application of expert judgement, detailed below, in order to produce a price that benefits from rigour, and Price Assessor expertise and discretion in equal measure.

Data Providers

CRU price assessments are based on regular contact with a wide a network of market participants situated at critical nodes in the supply chain. This network is constantly reviewed to seek a balance of buyers and sellers that are representative of the market.

They must have access to data relating to actual spot market transactions (a purchase or a sale), bid/offer information or be able to provide a credible opinion on such prices in the absence of any other data over the relevant time period. They are therefore typically employed in sales or marketing functions on the sell side and purchasing functions on the buy side, or act in a trading function. Data Providers may also include individuals in finance functions if they can provide the same.

Each data provider is required to meet the criteria stipulated in Section 2.4 of the *CRU Group Compliance Framework and Methodology Guide*.

Data Submitted and Submission Processes

All prices are based exclusively on transaction data (actual deals concluded) and to that extent there is no hierarchy of acceptable price types. CRU seeks to verify each deal with both parties but where this is not possible, a third or fourth party may be consulted. Information relating to bids/offers or an opinion of the prevailing market price can be submitted but such information will strictly not be used in the final CRU-API benchmark calculation.

Admissible price data is limited to transactions concluded at arms-length. This means the trade must be between companies who are substantially unrelated in ownership and/or where the transaction is not part of any arrangement to guarantee the long-term security of supply, such as an off-take agreement or participation in joint ventures in alumina supplying operations. This therefore necessarily excludes intra-company transfers, as well as shipments to or from joint-venture partners.

CRU does not outline minimum transaction data thresholds to determine alumina price assessments to avoid establishing non-representative assessments that may be deemed unrepeatable. Periods of liquidity differs within alumina markets and data thresholds could result in price assessments that do not accurately reflect the market. Price Assessors, instead, aim to source data from a wide range of industry participants, in line with the Alumina price market data specifications, such as size, timing, loading locations, outlined in this methodology.

When no transaction data is received, Price Assessors follow the processes set out in the “Price determination in an illiquid market” section below.

Data Providers provide CRU with one or more single price figures, each relating to an individual spot deal (a sale or a purchase) concluded between 14:00 on Thursday of the week prior to publication and 14:00 UK on the Thursday of publication. Data Providers also include information relating to vessel size, shipment date, volume and payment terms.

Industry participants can submit prices to CRU by telephone, email, private one-to-one instant messenger services or other private means of communication. Information must be submitted to CRU by 14:00 UK time on Thursday if it is to be eligible for admission to the weekly CRU-API published later the same day.

Final Price Assessment

Normalisation

Data which meets the precise definition below is eligible for admission to the price without any transformation. Data which does not may still be eligible as an input to the price but would be subject to a normalisation process in order to adjust for Al₂O₃ content; incoterms; loading location; vessel size; grade; delivery date; duties or tariffs by the application of a premium or discount to an initial price given.

The value of this premium or discount is determined by applying one or more estimates of value-in-use or grade; ocean freight; tariff or trade costs adjustments. Where seen, normalisation is usually limited to deriving FOB prices from netbacks on CIF sales based on estimated or actual freight rates. Decisions to normalise a price and/or choice of values used in the normalisation process are forms of expert judgement (see below).

Exclusion of outliers

A Price Assessor may use expert judgement in the exclusion of a data point as an input to the calculation of the final price. In doing so they would consider the range and distribution of data collected in the same timeframe from other data providers; previous data received from the same data provider; non-price information received from the data provider; market state and direction information from any other source. Inclusion or exclusion of input data in the final price is explicit and recorded.

Price determination in an illiquid market

In the case that there are no submissions that meet, or after normalisation can meet, the definition below in any weekly time period, the prior week’s published CRU-API price will be rolled over and used as the final benchmark value for the new week. In the case of low market liquidity but where a single admissible data point has been received, this single data point would be the sole determinant of the value of the price in the relevant week and therefore any variation from the previous week’s price level.

Expert judgement

Expert judgement may apply to decisions on whether price data submitted relates to actual deals concluded; if the deal is executed at arms-length; if normalisation of price data submitted is required; the means of any normalisation, and; the inclusion of a data point in calculation of the final price (exclusion of outliers).

Expert judgement is usually limited to gauging premium or discounts associated with smaller sized shipments below 25,000 tonnes, premium or discount associated with LC at sight payment terms, and trades reported on a delivered basis that are converted to incoterms-FOB. Expert judgement is also applied to assessing whether an alumina cargo is purchased by a region that is associated with a premium due to additional factors such as sanctions, or distressed in nature, and its use and application is detailed in the written analysis in the *CRU Alumina Service*.

A Price Assessor will consult with one or more colleagues before any application of expert judgement if in any doubt or where collective input would improve the quality of a judgement.

Consistency in the application of expert judgement is achieved through a combination of selection, formal and informal training and review, supervisions and control processes as detailed in section 4.5 of the *CRU Group Compliance Framework and Methodology Guide*.

Price Verification

Input data points, calculations and the final price for publication are checked and verified by a second Price Assessor at each critical stage (i.e. where there is scope for error) in the process from data collection to final publication, and this verification is documented including the identity of the verifier.

The final CRU-API is calculated as the volume-weighted average of eligible data points (i.e. from data submitted in applicable time window and meeting the definition below including after any normalisation). Where admissible information relating to both sides of a deal is obtained, the transaction will only be counted once to avoid overweighing this deal in the final price.

Final Benchmark Publication

CRU-API prices are published in the CRU Bauxite and Alumina Service, via CRU Online; data feeds including APIs; and DataLab (CRU's data delivery platform).

Weekly prices are first published on CRU Online every Thursday.

Alumina – Atlantic Basis and China

CRU Atlantic Basis Price and CRU China Alumina Basket Prices

These are weekly price benchmarks. Transaction data is prioritised as an input to this price to help ensure it accurately reflects the actual spot market.

The price is weekly as this allows for contracting on a number of price values through the month or equally a single or average monthly value, and/or timely identification of market trends, without compromising on liquidity which a more frequent assessment might. Liquidity is also enhanced by a normalisation process which allows for the submission of data which can be standardised to CRU's strict definition but is sourced from a wider array of trades.

Our methodology blends strict adherence to methodological rules with limited but necessary application of expert judgement, detailed below, in order to produce a price that benefits from rigour, and Price Assessor expertise and discretion in equal measure. In the absence of alumina spot transactions in the Atlantic, CRU's Atlantic Basis Price assessment reflects Data Provider feedback on the perceived Atlantic price differential or premium to the Pacific (Alumina Price Index).

Data Providers

Price assessments are based on regular contact with a wide network of market participants including producers, buyers, traders at critical nodes in the supply chain, and shipping companies. This network is constantly reviewed and maintained to seek a balance of buyers and sellers.

Data Submitted And Submission Processes

Transaction data is prioritised as an input and to that extent the hierarchy of acceptable price types follows that described in Section 3.1 of the *CRU Group Compliance Framework and Methodology Guide*. CRU seeks to verify any deal with both parties but where this is not possible, a third or fourth party may be consulted. Information relating to bids/offers or an opinion of the prevailing market price can be submitted and may be used in the final benchmark calculation.

Admissible price data is limited to that concluded at arms-length. This means the trade must be between companies who are substantially unrelated in ownership and/or where the transaction is not part of any arrangement to guarantee the long-term security of supply, such as an off-take agreement or participation in joint ventures in alumina supplying operations. This therefore necessarily excludes intra-company transfers, as well as shipments to or from joint-venture partners.

CRU seeks to receive market data information from a broad range of active data sources as possible and seeks to increase the number of companies willing to submit market data. In the event that a limited number of market participants are active in the alumina market, and the market data received constitutes a significant proportion of the total data on which is the assessment is based, CRU will use expert judgement on whether to exclude, or include or defer the indication received until more information is received. This would be based on: observation of the previous price; short term historical price trends; other quantitative market data including prices in other related active markets, producer price change announcements; qualitative information such as that received from interactions with market participants or other CRU Price Assessors, and; other sources of information relevant to the market.

CRU does not outline minimum data thresholds to determine alumina price assessments to avoid establishing non-representative assessments that may be deemed unrepeatable. Periods of liquidity differs across alumina markets and data thresholds could result in price assessments that do not accurately reflect the market.

Price Assessors, instead, aim to source data from a wide range of industry participants to establish alumina price assessments, in line with the individual price's market data specifications, such as size, timing, loading locations outlined in this methodology.

When no admissible data is received, Price Assessors follow the processes set out in the "Price determination in an illiquid market" section and expert judgement would be used to determine the final price value. Further details can be found under Section 2.1 of the *CRU Group Compliance Framework and Methodology Guide*.

Data Providers provide CRU with one or more single price figures, relating to spot market activity between 14:00 on Thursday of the week prior to publication and 14:00 UK on the Thursday of publication.

Industry participants can submit prices to CRU by telephone, email, private one-to-one instant messenger services or other private means of communication. Information must be submitted to CRU by 14:00 UK on Thursday if it is to be eligible for admission to the weekly price published later the same day.

Final Price Assessment

Normalisation

Data which meets the precise definitions below is eligible for admission to the price without any transformation. Data which does not may still be eligible as an input to the price but would be subject to a normalisation process in order to adjust for Al₂O₃ content; incoterms; loading location; vessel size; grade; delivery date, duties or tariffs by the application of a premium or discount to an initial price given.

The value of this premium or discount is determined by applying one or more estimates of value-in-use or grade; ocean freight; tariff or trade costs adjustments. Where seen, normalisation is usually limited to deriving FOB prices from netbacks on CIF sales based on estimated or actual freight rates. Decisions to normalise a price and/or choice of values used in the normalisation process are forms of expert judgement (see below).

Exclusion of outliers

A Price Assessor may use expert judgement in the exclusion of a data point as an input to the calculation of the final price. In doing so they would consider the range and distribution of data collected in the same timeframe from other data providers; previous data received from the same data provider; non-price information received from the data provider; market state and direction information from any other source.

Price determination in an illiquid market

In the case that there are no submissions that meet, or after normalisation can meet, the definition below in any weekly time period, the prior week's published price will be rolled over and used as the final benchmark value for the new week. In the case of low market liquidity but where a single admissible data point has been received, this single data point would be the sole determinant of the value of the price in the relevant week and therefore any variation from the previous week's price level.

Expert judgement

Expert judgement may apply to decisions on the weighting of price types used in the calculation of the final price; if price information relates to spot market activity executed at arms-length; if normalisation of price data submitted is required; the means of any normalisation, and; the inclusion of a data point in calculation of the final price (exclusion of outliers).

Expert judgement is usually limited to gauging premium or discount associated with smaller sized shipments below 25,000 tonnes, premium or discount associated with LC at sight payment terms, and trades reported on a delivered basis that are converted to incoterms-FOB. Expert judgement is also applied to assessing whether an alumina cargo is purchased by a region that is associated with a premium due to additional factors such as sanctions, and its use and application is detailed in the written analysis in the *CRU Alumina Service*.

A Price Assessor will consult with one or more colleagues before any application of expert judgement if in any doubt or where collective input would improve the quality of a judgement.

Consistency in the application of expert judgement is achieved through a combination of selection, formal and informal training and review, supervisions and control processes as detailed in section 4.5 of the *CRU Group Compliance Framework and Methodology Guide*.

Price Verification

Input data points, calculations and the final price for publication are checked and verified by a second Price Assessor at certain critical stage (i.e. where there is scope for error) in the process from data collection to final publication.

The final price is calculated from eligible data points (i.e. from data submitted in applicable time window and meeting the definition below including after any normalisation), using subjective Price Assessor weighting applied to any price points.

Deactivated Prices

Alumina prices will remain active as long as it can be demonstrated that there are a sufficient number of buyers and sellers and/or traders which allow for the analyst to make an accurate assessment. If the quotation suffers from limited transparency or if business dynamics change, it will be deactivated. Its history will still be available to clients for a fee, should they require it, but no further information will be collected for that product from the time it is deactivated.

Final Benchmark Publication

CRU alumina prices are published in the *CRU Alumina Service*, via CRU Online; data feeds including APIs; and DataLab (CRU's data delivery platform).

Weekly prices are first published on CRU Online every Thursday at 16:00 UK.

3 Definitions

Alumina

CRU-API - Australia FOB

DataLab name:	Alumina, CRU Alumina Price Index; Australia, FOB
Material:	>98.5% Al ₂ O ₃
Price basis:	FOB
Credit/payment terms:	Transactions consider 0-30 days credit terms as standard. For longer credit periods transactions are normalised to payment 30 days after bill of lading date.
Packaging:	Bulk
Loading location:	Normalised to Port of Bunbury
Type:	Spot sales
Currency:	US\$
Weight unit:	Metric tonne
Size:	Normalised to bulk vessels carrying 30,000 tonnes of alumina
Timing:	Typically 30 days forward.
Pricing:	Reflects typical metallurgical grade alumina.
Duties/tariffs:	Where applicable in normalisation process.

Atlantic Basis Price - Brazil FOB

DataLab name:	Alumina, CRU Atlantic Basis Price; Brazil, FOB
Material:	>98.5% Al ₂ O ₃
Price basis:	FOB
Credit/payment terms:	Transactions consider 0-30 days credit terms as standard. For longer credit periods transactions are normalised to payment 30 days after bill of lading date.
Packaging:	Bulk
Loading location:	Normalised to Port of de Vila do Conde (Barcarena)
Type:	Spot sales and tenders
Currency:	US\$
Weight unit:	Metric tonne
Size:	Normalised to bulk vessels carrying 30,000 tonnes of alumina
Timing:	Typically 30 days forward.
Pricing:	Reflects typical metallurgical grade alumina.
Duties/tariffs:	Where applicable in normalisation process.

Domestic China (various)

CRU China Alumina Basket Price

DataLab name:	Alumina, CRU China Basket Price; China EXW
Material:	>98.5% Al ₂ O ₃
Price basis:	FOB
Credit/payment terms:	Transactions consider 0-30 days credit terms as standard.
Packaging:	Bulk
Loading location:	Factory gate in Henan, Shandong, Shanxi, Guizhou, and Guangxi provinces.
Type:	Spot sales
Currency:	RMB
Weight unit:	Metric tonne
Size:	Variable.
Timing:	Variable.
Pricing:	Reflects typical metallurgical grade alumina.
Duties/tariffs:	Not applicable
Frequency:	Weekly

Henan >98.5% EXW

DataLab name:

Material:

Price basis:

Credit/payment terms:

Packaging:

Loading location:

Currency:

Weight unit:

Size:

Timing:

Pricing:

Duties/tariffs:

Frequency:

Alumina, >98.5%, Spot price; China, Henan, EXW

>98.5% Al₂O₃

FOB

Transactions consider 0-30 days credit terms as standard.

Bulk

Factory gate in Henan province. Type: Spot sales

RMB

Metric tonne

Variable.

Variable.

Reflects typical metallurgical grade alumina.

Not applicable

Weekly

Shanxi >98.5% EXW

DataLab name:

Material:

Price basis:

Credit/payment terms:

Packaging:

Loading location:

Currency:

Weight unit:

Size:

Timing:

Pricing:

Duties/tariffs:

Frequency:

Alumina, >98.5%, Spot price; China, Shanxi, EXW

>98.5% Al₂O₃

FOB

Transactions consider 0-30 days credit terms as standard.

Bulk

Factory gate in Shanxi province. Type: Spot sales

RMB

Metric tonne

Variable.

Variable.

Reflects typical metallurgical grade alumina.

Not applicable

Weekly

Guangxi >98.5% EXW

DataLab name:

Material:

Price basis:

Credit/payment terms:

Packaging:

Loading location:

Currency:

Weight unit:

Size:

Timing:

Pricing:

Duties/tariffs:

Frequency:

Alumina, >98.5%, Spot price; China, Guangxi, EXW

>98.5% Al₂O₃

FOB

Transactions consider 0-30 days credit terms as standard.

Bulk

Factory gate in Guangxi province. Type: Spot sales

RMB

Metric tonne

Variable.

Variable.

Reflects typical metallurgical grade alumina.

Not applicable

Weekly

Guizhou >98.5% EXW

DataLab name:

Material:

Price basis:

Credit/payment terms:

Packaging:

Loading location:

Currency:

Weight unit:

Size:

Timing:

Pricing:

Duties/tariffs:

Frequency:

Alumina, >98.5%, Spot price; China, Guizhou, EXW

>98.5% Al₂O₃

FOB

Transactions consider 0-30 days credit terms as standard.

Bulk

Factory gate in Guizhou province. Type: Spot sales

RMB

Metric tonne

Variable.

Variable.

Reflects typical metallurgical grade alumina.

Not applicable

Weekly

Shandong >98.5% EXW

DataLab name:

Alumina, >98.5%, Spot price; China, Shandong, EXW

Material:

>98.5% Al₂O₃

Price basis:

FOB

Credit/payment terms:

Transactions consider 0-30 days credit terms as standard.

Packaging:

Bulk

Loading location:

Factory gate in Shandong province. Type: Spot sales

Currency:

RMB

Weight unit:

Metric tonne

Size:

Variable.

Timing:

Variable.

Pricing:

Reflects typical metallurgical grade alumina.

Duties/tariffs:

Not applicable

Frequency:

Weekly

Glossary of Abbreviations

INCO TERM RULES FOR ANY MODE OR MODES OF TRANSPORT:

EXW – Ex-Works
FCA – Free Carrier
CPT – Carriage Paid To
CIP – Carriage and Insurance Paid To
DAT – Delivered at Terminal
DAP – Delivered at Place
DDP – Delivered Duty Paid

INCO TERM RULES FOR SEA AND INLAND WATERWAY TRANSPORT:

FAS – Free Alongside Ship
FOB – Free On Board
CFR – Cost and Freight
CIF – Cost Insurance and Freight

COUNTRY ABBREVIATIONS USED:

We use ISO 3166 alpha-2 standard country codes