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Urea Methodology

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I·C·I·S
Independent Commodity Intelligence Services

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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 urea methodology

All ICIS-published spot assessments in the weekly urea 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 full week is defined from the report's deadline, e.g. Friday 17.00 to the following Friday 17.00.

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. In a liquid trading period, deals will form the basis of assessments. In an illiquid market, a single or small number of deals will be included in the range, together with bids and offers. In the absence of any deals, bids and offers will be used. During the assessment process we may consider other information. However actual transactions, and bids and offers will always take precedence.

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 the Urea reports based on several decades 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 urea

The Market quotes urea prices on a weekly basis worldwide on **Thursdays**.

Market Updates including prices are published daily.

Specifications: Prices are published for both prilled and granular urea.

Prices are also published for technical grade urea, also referred to as industrial grade urea in some markets.

Technical grade urea (TGU) is low biuret, prilled uncoated urea, containing 46% nitrogen. Uncoated urea does not have any formaldehyde coating. TGU can be used to produce diesel exhaust fluid (DEF) or AdBlue as defined by

quality specifications set by ISO 22241. Distilled or de-ionized water is added to TGU to make AdBlue solution.

Assessment window: Price assessments are based on information supplied by market participants from the previous Friday through the week up to close of business on Thursdays at 1700 hours in London.

The daily FOB USG Barge range is based on information gathered up to 17:00 hours in London. Trades concluded after 1700 hours in London will be included in the following day's price range.

In the absence of any new business or pending trades from the previous day, the range will be based on bids and offers.

Timing: Cargoes loading prompt to eight weeks forward. Typically, spot cargoes are sold with a 2-3 week forward loading window. Nola barge prices refer to prompt to one month forward, this also includes loaded barges.

Terms: These vary between supply sources. Producers in Ukraine, Russia and some other East European countries sell the majority of their urea to traders on the basis of 100% prepayment. Special arrangements do exist, though, where one or more traders have built up a long relationship with a producer and will be granted more favourable terms.

In the Middle East, Egypt and Libya, traders buy through letter of credit, generally payable at sight on the b/l date. Contract shipments from the Middle East are usually on open terms, for payment at a specified date after vessel loading/arrival.

Standard cargo size: Urea is shipped in vessel sizes ranging from small container shipments of 2,000-3,000 tonnes to panamaxes (50,000-60,000 tonnes). In most cases, spot cargoes below 5,000 tonnes are considered too small for ICIS assessments. The US barge market is an exception as urea is transported in 1,500 short ton barges there.

The main determining factor on vessel size is draft of LOA at the discharge port. Typically, short sea routes in Europe employ vessels of 3,000-10,000 tonnes. Deep sea voyages from Black Sea and Baltic ports generally employ handysize vessels of 20,000-30,000 tonnes. Occasional panamax cargoes load in the Black Sea for Asian markets.

Arab Gulf shipments range from 12,000-15,000 tonne vessels for markets in the Indian subcontinent to 50,000-60,000 tonne vessels for the US. Most deep sea shipments employ vessels in the range 20,000-40,000 tonnes.

Most Egyptian cargo sizes are in the range 5,000-35,000 tonnes. Shipments within Southeast Asian markets are normally 5,000-25,000 tonnes. Caribbean exports normally range 15,000-45,000 tonnes.

Chinese export shipments range from 5,000-60,000 tonnes.

For technical grade urea, the minimum cargo size is 100 tonnes.

Assessment basis: Information about new deals, changes to supply/demand and any other factors that can have an impact on the urea market is collected through the week up to press time on Thursday evening, through telephone calls with producers, end-users, traders and shippers, plus email correspondence and web searching.

Information received is carefully counterchecked with other sources to make sure the information is true and accurate and not in any way misleading.

Price assessments are based on confirmed deals through the week, adhering to the methodology requirements, but in the absence of new business assessments are made using netbacks and bids and offers and other market intelligence.

The main reference prices in the urea market are the FOB Black Sea (prilled urea) and FOB Arab Gulf (granular urea) quotes. These are frequently used in contract price formulae.

The Arabian Gulf FOB price is based on spot business and netbacks from contract business, except in the US. The Arabian Gulf quotes do not include Iranian prices. The Arab Gulf US netback FOB price uses the US Gulf CFR metric tonne equivalent price minus freight for a 35,000-45,000-tonne vessel.

The Arab Gulf Brazil netback FOB granular urea quote uses the Brazil CFR metric tonne equivalent price minus freight for a 40,000-tonne vessel between the Arab Gulf and Brazil. It also includes any spot sales made from the Arab Gulf to Brazil. The Arab Gulf FOB quote may not include the Arab Gulf Brazil netback FOB granular urea range if deals used in the latter are unconfirmed.

The Arab Gulf all prices FOB is based on the high and low points of all three Arab Gulf price assessments. It does not include Iranian prices.

The FOB Black Sea quotes for prilled and granular urea reflect business from Yuzhny and also Russian Black Sea ports including Novorossisk or Tuapse. Russian urea is also shipped through Baltic ports for European and Latin American destinations. Spot prices ex-Baltic Sea ports are based on a range of prices. The low end is generally set by the FOB St Petersburg price, because loading rates are lower and freight rates higher there, and the high end from so-called fast ports, such as Riga and Muuga/Tallinn.

For granular urea, apart from the FOB Arab Gulf price, the other key quotes are FOB Egypt, FOB US Gulf short ton and increasingly CFR Brazil and FOB Algeria. All the main granular urea producers supply the US market. The majority of urea imports enter the US via the Mississippi River, being transhipped from ocean-going vessels to barges (1,500 short tons) in the New Orleans area. Chinese urea is not included in the FOB US Gulf or CFR Brazil price ranges.

The Algerian FOB quote is based on netbacks, mainly from Europe and Brazil, given a lack of deals on an FOB basis. In the absence of FOB sales, the Egyptian FOB price is also based on netbacks from Europe.

The North African FOB quote combines the complete FOB Egypt and FOB Algeria quotes.

Thailand, Korea and the Philippines are the largest markets for granular urea in southeast Asia and take cargoes from Arab Gulf suppliers regularly.

The prilled and granular FOB China assessments take into account exports to south Asia, particularly India, Pakistan and Bangladesh, as well as exports to the US, west coast Latin America and the nearby southeast Asian region.

The Market reports on the major worldwide markets for prilled and granular urea. ICIS pricing's regional reports covering Europe and the US were discontinued in November 2017. The Market analyses the events of the preceding seven days and assesses the impact on pricing. The Market also publishes daily updates to report deals concluded and price changes.

For technical grade urea (TGU), the India CFR is based on prices of material imported from Asia, the Arab Gulf and Iran to Indian ports. Iranian material which does not meet the specifications for making AdBlue has been excluded from the assessment.

The Middle East FOB for TGU is based on the price of prilled uncoated urea (used for making AdBlue) exported from Iran and Arab-Gulf ports. Iran forms the lower end of the range.

The Russia FOB is the price of Russian TGU material shipped from the Black Sea and the Baltic ports.

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. Where normalisation has occurred and has been reflected in a published price assessment, this will be described in the text of the report and the process will be described and justified.

THE MARKET

Urea Prilled Bulk

Weekly Price Assessments

Urea Spot Prices

- FOB BLACK SEA (USD/MT)
- FOB ROMANIA (USD/MT)
- FOB BALTIC (USD/MT)
- FOB ARAB GULF (USD/MT)
- CFR SE ASIA (USD/MT)
- FCA NW EUROPE (EUR/MT)
- FOB China (USD/MT)

Urea Granular Bulk

Weekly Price Assessments

- FOB ARAB GULF (USD/MT)
- FOB ARAB GULF US NETBACK (USD/MT)
- FOB ARAB GULF BRAZIL NETBACK (USD/MT)
- FOB IRAN (USD/MT)
- FOB BLACK SEA (USD/MT)
- FOB BALTIC (USD/MT)
- FOB SE ASIA (USD/MT)
- FOB CHINA (USD/MT)
- CFR SE ASIA (USD/MT)
- FOB EGYPT (USD/MT)
- FOB ALGERIA (USD/MT)
- FOB NORTH AFRICA (USD/MT)
- FCA NW EUROPE (EUR/MT)
- FOB CARIBBEAN (USD/MT)
- FOB USG BARGE (USD/ST)
- FOB USG BARGE (USD/ST) Thursday close
- FOB USG (USD/ST & conversion to USD/MT CFR)
- CFR Brazil (USD/MT)

THE MARKET UPDATE (Daily)

- FOB USG BARGE (USD/ST)

Technical grade urea

Weekly Price Assessments

- RUSSIA FOB
- MIDDLE EAST FOB
- INDIA CFR

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 Urea 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 urea 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 contacts them).
- Where information is not validated by the source (i.e. rumour) please indicate as such.

Delivery locations for price assessments

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

Exercise of judgement

Apart from instances where data may be excluded (see below), ICIS will typically exercise judgement 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 urea 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 documented 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 daily 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.

Unit prices and credit terms

Urea in all regions is generally traded in US dollars/tonne or US dollars/short ton and therefore all price assessments are quoted on these bases.

Typical credit terms for urea are 30-90 days from Bill of Lading date.

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.

General Methodology Guide for ICIS Chemicals

ICIS endeavours to provide a fair and timely representation of traded prices, which could be used as an effective reference point for market participants. As no two markets are the same, ICIS hopes to tailor methodologies which reflect the needs of each specific commodity market it covers based on factors such as, but not limited to, geography, trade flows/logistics, market size, product characteristics, participants and regulation. ICIS adopts an open policy to feedback regarding its methodology and will conduct reviews on a regular basis.

Spot range assessments

Published daily and weekly, these delineate the typically tradable range for a full working day or week.

The range is normally established using verified typical transactions and standardized atypical transactions.

In the event that no relevant transactions have occurred in the assessed period, ICIS will establish a range using bids and offers for typical spec material; and using established market relationships resulting from manufacturing economics, product linkages, freight and forward markets.

ICIS Mid-Point

Established referencing to ICIS prices often refer to the mid-point of the range as the fair representation of the commodity's traded value.

Weekly range assessments are marked in some ICIS reports with a "+" to distinguish them from spot close assessments (see below).

Instrument function: In liquid markets, ICIS would typically focus on the majority traded principle which would typically exclude deals considered to be outlier deals and unrepresentative of the general market consensus. Provides overview of market activity over course of one day in the case of daily reports, or one week in the case of weekly reports. Any change in assessment periods as a result of public holidays arising in any given week will be indicated via subscriber notes. Width of range offers insight into current levels of market volatility, and could also infer associated differentials caused by logistical and product variances.

ICIS endeavours to keep a tight range through maintaining detailed methodologies but this is difficult in thinly traded markets. Variable range width means assessment trades off accuracy for inclusivity, and transparency is reduced vis-a-vis spot close assessment. Suitable for inclusion in averaging mechanisms and market analysis tools.

Contract price assessments

Published weekly, these reflect the achievable "base price" for contractual sales of material by producers, either to onward "distributors" or direct to end-users. Prices, typically valid either for one month or for three, are arrived at by negotiation between producers and buyers, and are updated by ICIS once confirmation is obtained of agreement between major producers and typical buyers of the size indicated in individual specifications. Note that most contract prices are agreed as a base from which discounts or premiums are given to individual buyers, and that the size of these discounts typically varies based on the volume purchased over the contract period by the buyer.

In the event that market participants fail or decline to confirm outright contract price levels to ICIS, ICIS reserves the right to make its assessments of achievable contract prices based on established market relationships derived from manufacturing economics, product linkages, freight, and forward markets.

Instrument function: Provides view of baseline for currently prevailing contract mechanisms, where these are statically determined – that is, bilaterally negotiated contracts not based on automated averaging of spot market prices.

List or posted prices

Published weekly for some markets, these are released by manufacturers as suggested selling prices. In many cases, these prices are reduced after negotiations with buyers. Price changes are sometimes used as important references for negotiations in thinly traded markets.

Price changes

The change in prices from the previous period is indicated in blue as an increase (+), in red as a decrease (-) or no change (n/c) or not assessed (n/a). Changes for prices at the low end of each range are shown at the left and changes for prices at the high end of each range are shown at the right. Changes in weekly spot prices represent the changes from the previous week and changes in monthly or quarterly contract prices represent the change from the previous month or quarter.

Report name

Some reports cover a range of products. Trade in product of inferior quality (off-spec) is taken into consideration when it affects the market for material that meets standard specifications. Reference to off-spec/distressed cargo is at the discretion of the editor.

Periods referred to in contract price quotations are either months (noted by standard abbreviations) or quarters of the calendar year.

Q1 January February March
Q2 April May June
Q3 July August September
Q4 October November December

Feedstock prices

Contract prices for certain feedstocks are shown where appropriate. In all cases where feedstock prices are shown, they have been taken from the current ICIS pricing report for the product.

Date

ICIS pricing reports are written on the day of publication. The only exceptions are when a public holiday impacts the market. In some circumstances reports will be compiled one or a maximum two days early. When this occurs, it is clearly marked on the report. ICIS pricing provides daily and weekly pricing reports. Deadlines (unless otherwise specified in the methodology) are 1700 hours local time in London, Singapore, Shanghai and Houston. Market close prices refer to this deadline, unless specified otherwise.

Contract price assessments are updated in reports as soon as possible after confirmation is obtained of contract settlement. Because the amount of time required to reach contract agreement varies from month to month, it is not possible to guarantee publication of monthly contract prices at the same point in each month.

Note that information received after the relevant close cannot be used for assessment purposes, nor can a correction be issued based on subsequently received information.
The date of publication is not altered in the event of public holidays. All weekly reports are published at least 50 times per year. Certain reports are not published during a two-week period in late December/early January. Daily reports are published five times per week, but may not appear on certain days due to public holidays. Please refer to the ICIS pricing publishing schedule for more detailed information.

Geographical regions

ICIS pricing normally covers products on a regional basis to ensure the main drivers impacting the market in any given area are adequately covered. Reports are currently issued covering Europe, the Middle East, Asia or Asia-Pacific, China, India, West Asia, the United States or North America, Latin America, and the Former Soviet Union.

Within these broad areas the most common quotations comprise:

NWE	mainland Northwest Europe (N. France, N. Germany, Benelux)
Med	Southern France, Spain, Italy
NE Asia	Taiwan, Korea, Japan, China
SE Asia	Singapore, Philippines, Indonesia, Malaysia, Thailand, Vietnam
West Asia	Pakistan, India
East Asia	NE Asia & SE Asia
GCC	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE

E. Med	Greece, Israel, Egypt, Syria, Jordan, Lebanon
FSU	Former Soviet Union: Russia, Ukraine, Belarus, Uzbekistan, Kazakhstan
USG	US Gulf
CMP	China Main Port
Northern Africa	Morocco, Algeria, Tunisia, Libya, Egypt, Sudan
Eastern Africa	Eritrea, Djibouti, Somalia, Kenya, Tanzania
Southern Africa	Namibia, Mozambique, South Africa
Western Africa	Mauritania, Senegal, The Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Nigeria.

Quotation basis

Prices are quoted with reference to the terms and location of delivery. The period of delivery is also quoted for contract prices. Assessment windows vary from product to product for spot sales. See specific product entries in the Methodology for further details.

Incoterms devised by the International Chamber of Commerce are mainly used to indicate what costs are included in the price. Assessments do not include Value Added Tax (VAT). Terms regularly used in ICIS pricing reports can be found in the Glossary.

Units

Prices are quoted in the currency and unit measure relevant to the particular market. Most chemicals are quoted in US dollars per metric tonne ($/MT), although euros per metric tonne (€/MT), US cents per pound (US CTS/LB) or US cents per gallon (US CTS/GAL) are frequently used. Historical data includes assessments previously measured in European currencies superseded by the euro.

Conversions (weights and measures)

Prices are converted to other currencies and unit measures for ease of reference. Conversions are derived from the quoted price assessments using standard rates of conversion and current exchange rates. Conversions involving weights and volumes are calculated within industry acceptable ranges, which vary from product to product according to specific gravity (e.g. USD/MT to CTS/GAL).

Foreign exchange rates

ICIS provides exchange rates for a variety of international currencies that are time aligned with publication of our pricing reports and consistent for analytical use when applied to historical pricing data. Because of our publishing schedule, certain rates used in some reports may be changed as data moves into a historical database. The ICIS methodology used is as follows:

Rates are not established by ICIS pricing but are published by arrangement with Xenon (www.xe.com). The exchange rates shown are those in effect at the time and date indicated, normally around 17:15 hours in London on the day of publication. They are not a mean or average of exchange rates in effect during the period since the report was last published, but reflect a mean of the bid/offer at the time taken for that particular day. Exchange rates published by ICIS pricing are intended only as a reference and rates offered by local banks or other financial institutions may vary.

- Exchange rates quoted at the foot of the text in ICIS pricing reports are mid-market rates, quoted to two decimal places, applicable on the date of publication. ICIS pricing also offers a real-time currency conversion tool via XE.com, with a click-through link from the pricing reports, to enable subscribers to make quick exchange calculations.

- Exchange rates used for the current day's price assessments in compiling the charts contained within ICIS pricing reports are mid-market rates issued at 01:00 UTC on the date of publication. This preliminary exchange rate is used to allow charts to be produced ahead of 16:00 UTC.

- Exchange rates applied to historical data are mid-market rates issued at 16:00 UTC on the date of publication.

ICIS pricing also offers a real-time currency conversion tool, with a click-through link from the pricing reports, to enable subscribers to make quick exchange calculations.

Non-market price adjustments

Non-market price adjustments are necessary on the rare occasions when after careful consideration it is determined that the level of a price assessment is deemed to have become unrealistic. Before any decision is taken to adjust a price level, a broad spectrum of market participants is polled for their views on both the necessity and potential impact of any planned change and its timing.

Once it is clear an adjustment is required, ICIS pricing posts a notice telling subscribers it intends to make the change, and asks for any feedback over a two week period. After two weeks, and if it is decided to proceed, a second notice is posted informing subscribers that the adjustment will be made two

weeks later. All price adjustments take place with a minimum four weeks public notice to subscribers.

Once the adjustment has taken place it is prominently mentioned in the price report it applies to. ICIS also adds a note to the online Price History to explain the apparent step-change in prices. It is important to note that price change deltas remain unaffected by any adjustment and the price trend remains accurate.

Contract Price Change Deltas

In some markets, contract settlements – especially quarterly ones – can evolve further after the initial assessment. This may mean that the actual market movement to the next settlement may not be fully aligned with the mathematical difference between the reported prices in one period and the next. In such cases, ICIS may make an editorial decision to publish the new period's price range without including a delta value in the price table. The reasons for doing so and the indications of the actual market movement would be discussed in the text of the report. The delta box in these cases would show as “not assessed” (n/a).

Price history – key changes to methodology for contract prices

ICIS price history has been modified such that contract price assessments now relate to the period to which they apply irrespective of their settlement date. This change has been applied retrospectively to all quotes, including discontinued quotes.

As a result:

For a monthly contract (or quarterly) quote selected as frequency ‘C’ and downloaded as csv or displayed as a table in the original quoted currency the report date is given as the first of the month (or quarter). For a contract selected as frequency ‘C’ and displayed as a graph, a ‘stepped’ chart of the value (or average of the low and high where applicable) is displayed with the steps occurring on the first of the month (or quarter).

For a contract quote selected as frequency ‘C’ in any currency other than the original a single monthly (or quarterly) value (low, high and average) is displayed. This value is derived using an average of the foreign exchange rates taken at 16:00 UTC (GMT) on each of the publication dates within the month (or quarter). For the current period, the average foreign exchange rates for all the publication dates within the period to date are used.

For a contract quote selected as frequency ‘W’, the report date is given as the ICIS pricing weekly report publication date – the contract value (low, high and average) applicable to that month (or quarter) is displayed (which, depending

on settlement date, may differ from the contract value reported at the time in that week's ICIS pricing report). For a contract quote selected as frequency 'W' and displayed as a graph, a 'stepped' chart is displayed with the steps occurring on the first publication date within the month (or quarter).

For a contract quote selected as frequency 'W' in any currency other than the original, the contract value is converted for each week using the foreign exchange rate taken at 16:00 UTC (GMT) on the publication date.

Where a contract for the current period has not yet settled, no contract value shows in a weekly price history series – price history terminates at the end of the period to which the last settled contract price applies.

Where a contract settles for a future period, it does not display in price history until publication of the first ICIS pricing report within that period.

Where an initial contract value is reported for a period, and subsequently revised, the latter (or latest) value is taken as the contract value for the whole period.