

Methodology and Specifications for Industrial Chemicals Last Updated: October 2021

Introduction

Acuity Commodities (Acuity) regularly assesses ammonia, caustic soda, hydrochloric acid, sulphur, and sulphuric acid prices for its market reports. These prices are reported in addition to data and accompanying analysis.

This methodology and specifications guide is designed to give an overview of our general procedures and a clear description of how we assess prices. This methodology is routinely reviewed for accuracy and market appropriateness. As a result, this document is subject to ongoing revision at Acuity's discretion. The current version of this document is available on Acuity's website <http://www.acuitycommodities.com/methodology>.

General procedures

Acuity produces price assessments that represent market value based on information from market participants. Prices will be assessed based on confirmed business, firm bids, firm offers, and price ideas heard in the market from both sellers and buyers.

Acuity welcomes and encourages market participants to submit market data and ensures confidentiality of data that is submitted. Acuity will use the data as part of the price assessment process at our discretion, which can involve discussion with additional market participants without disclosing who submitted the initial data.

Data and information collected is stored on a secure network, according to Acuity's policies and procedures. Acuity archives notes collected from all forms of market survey and keeps record of how each price assessment is derived.

When data is submitted, the following information is required. If omitted, it will be requested in order for it to be taken into consideration in any price assessment:

- Price (either actual paid, actual sold, firm bid or firm offer)
- Transaction size (in short tons (st) or appropriate measure)
- Load date of cargo/parcel
- Origin
- Destination
- Product specifications (limits described in the "Product specifications" section)
- Any non-standard terms or other points of consideration

Data is accepted via telephone, email and other electronic communication and through face-to-face meetings.

Acuity also conducts a survey of market participants through the communication methods described above. Acuity seeks to collect, confirm and analyse as much information as possible by surveying a fair ratio of buyers, sellers, traders and other parties. The purpose of the survey process is to discover actual concluded business, firm offers, firm bids or notional price ideas which will be used to support the assessment process.

Any submitted data or information gathered through the survey process that meets Acuity's methodology standards will be considered when determining a final price assessment. The price assessment includes transactions evaluated on a weighted basis.

When making a final price assessment, priority is given to fully verifiable and transparent market information, such as a transaction confirmed by both counterparties, followed by firm bids and offers and finally, notional price ideas.

Acuity's definition of a firm bid or firm offer is the price level at which a party intends to enter into an actual transaction. It is not intended to represent notional price ideas heard in the market place.

Ultimately Acuity uses its professional judgment to support price assessments which includes analyzing data and information to determine if it meets specific requirements and is not considered a "one-off" or "distressed" event. Acuity's assessments reflect repeatable market value at the close of the assessment window as described herein.

Prices are assessed in US dollars (USD) per short ton (st), unless otherwise noted. In certain cases, Acuity may convert its assessments to other currencies or units of measure for comparison purposes. Such conversion factors will accompany any such analysis.

Acuity uses Incoterms as published by the International Chamber of Commerce (ICC). These terms include free on board (FOB) and cost and freight (CFR). Definitions of such terms are available on ICC's website <http://www.iccwbo.org/>

Product specifications

Ammonia

- Commercial grade anhydrous ammonia
- 82% nitrogen content
- 99.5-99.8% ammonia by weight
- 0.2%- 0.5% water by weight
- Oil content less than 5parts per million (ppm)

Caustic soda

- Commercial grade caustic soda in aqueous solution
- 49%-51% sodium hydroxide content by weight
- 38-40% sodium oxide content by weight
- Sodium chloride content less than 100ppm
- Iron content less than 5ppm
- Carbonate content less than 0.10% by weight
- Sulphate content less than 100ppm
- Chlorate content less than 65ppm

Chlorine

- Commercial grade chlorine
- Minimum 97-99.5% purity
- Water content less than 50ppm

Hydrochloric acid

- Technical grade hydrochloric acid (HCl) produced by chlorine burner
- 22º Baumé (35.2%- 36.5% HCl by weight)
- Chloride content less than 43ppm
- Sulphuric acid content less than 250ppm
- Iron content less than 1.5ppm
- Nonvolatile residue content less than 500ppm
- Total organic compounds less than 15ppm

Sulphuric acid

- Smelter-based sulphuric acid
- 93-98% grade
- Iron concentration of less than 50ppm
- Nitrate concentration of less than 5ppm
- Mercury concentration of less than 1ppm
- Arsenic concentration of less than 1ppm

Price assessments

Spot prices are for shipments to be loaded within 30 days and contract prices are for the time periods specified.

Pricing data received between publication of the prior issue and current issue is considered when assessing prices.

Prices assessed in *Industrial Chemicals: US and Canada*

- Caustic Soda US Gulf Coast – \$/dry short ton (st) FOB
 - This price assessment represents a level at which spot sales have or could transact for caustic soda to any domestic or offshore origin from any terminals throughout the US Gulf Coast region in the states of Alabama, Florida, Louisiana, Mississippi and Texas.
- Hydrochloric acid US – \$/st FOB
 - This price assessment represents a level at which spot sales have or could transact for 22^º Baumé hydrochloric acid across the US and Canada.
- Tampa monthly ammonia contract – \$/metric tonne (t) CFR
 - This price assessment is agreed on a monthly basis between phosphate producer Mosaic and Yara – its primary offshore ammonia supplier. The price is a monthly contract price and will be assessed and published once confirmed and the month commences as it is typically settled the prior month. This assessment will reflect the price as assessed in the preceding issue of *Regional Briefing: US and Canada* which is published every other Monday throughout the year.
- Tampa quarterly contract – \$/long ton (lt) DEL
 - This price assessment is agreed on a quarterly basis between the major consumer of sulphur in the US Mosaic and major US refiners. The price is agreed on a quarterly calendar basis but is not negotiated and settled until the first month of the quarter (January, April, July, October). The price is settled by the end of the first month of the quarter. Acuity will publish the price assessment in the publication following the settlement – which could fall in the second month of the new quarter. The assessment will only be changed once its settlement is confirmed by both the buy and sell sides. This assessment will reflect the price as assessed in the preceding issue of *Regional Briefing: US and Canada* which is published every other Monday throughout the year.
- US spot sulphuric acid – \$/t CFR
 - This price assessment represents a level at which spot sales have or could transact for sulphuric acid from any offshore origin to be received at terminals throughout the US in the states of California, Florida, Georgia, Louisiana, North Carolina and Texas. This assessment will reflect the price as assessed in the

preceding issue of *Regional Briefing: US and Canada* which is published every other Monday throughout the year.

Related prices

Commodity prices related to the covered markets are reported in *Acuity's Industrial Chemicals: US and Canada* as follows:

- WTI crude oil – \$/barrel (bbl)
 - This price represents the WTI crude oil price for the upcoming contract month as of the close of the previous business day prior to publication as published by various outlets.
- Henry Hub natural gas – \$/million British Thermal Unit (Btu)
 - This price represents the Henry Hub spot price from the most recent day prior to publication as published by the US Energy Information Administration (EIA).

Correction

Acuity is committed to promptly correcting any errors, including price assessments and other market information. We strive to provide independent analysis and increase transparency in the markets we cover. As such, any questions or concerns from subscribers will be thoroughly reviewed by Acuity. We strongly encourage feedback from our customers.

Publication schedule

Industrial Chemicals: US and Canada is published on the last Tuesday of every month throughout the year. If the schedule is to be altered because of events such as public holidays, a notice will be put in the publication for the two reports prior to the report that will be impacted.

Publication dates are subject to change in the event of unforeseen circumstances that limit Acuity's ability to adhere to its regular publication schedule. This includes circumstances such as natural disasters or any other situation that results in an interruption of business continuity in Acuity's operations. In the case of such an event, Acuity will communicate through postings on our website and/or direct emails.