

Vinyl Acetate Monomer (VAM) Methodology

Vinyl acetate monomer (VAM) is used in water-based paints, adhesives, acrylic fibres, paper coatings and non-woven binder applications. Approximately 47% of VAM production volumes go into polyvinyl acetate (PVA), which is a primary molecule in paints, adhesives, and other coatings previously mentioned.

Approximately 30% of the VAM output goes into polyvinyl alcohol (PVOH), which is used in packaging film and glass laminates.

The remaining percentage of VAM volumes go into ethylene vinyl acetate (EVA) polymers, ethylene vinyl alcohol (EVOH) barrier resins and polyvinyl butyral (PVB), which is used in automobile windows. EVA and EVOH are providing new areas for uses in co-polymers for specialty adhesives and packaging films.

VAM vapour irritates the eyes, the skin and the upper respiratory tract. It may also cause effects on the lungs, resulting in tissue lesions. It causes dizziness and drowsiness while contact with the liquid will defat the skin leading to blisters.

ICIS pricing quotes VAM in **Europe, Asia-Pacific** and **US Gulf**.

Frequency:

Published weekly on Fridays in Europe and Asia-Pacific, and Tuesday in the US Gulf.

VAM (Europe)

Weekly Price Assessments:

VAM Contract prices

- FD NWE Quarterly (EUR/MT & conversion to US CTS/LB)
- FD NWE Monthly (EUR/MT & conversion to US CTS/LB)

VAM Spot prices

- FD NWE (EUR/MT & conversion to US CTS/LB)

VAM Feedstock prices (Contract per quarter)

- Acetic Acid FD NWE (EUR/MT & conversion to US CTS/LB)
- Ethylene FD NWE (EUR/MT & conversion to US CTS/LB)

VAM (Asia Pacific)

Weekly Price Assessments:

VAM Spot Prices

- CFR N.E.ASIA (USD/MT & conversion to US CTS/LB)
- CFR CHINA MAIN PORT (USD/MT & conversion to US CTS/LB)
- CFR S.E.ASIA (USD/MT & conversion US CTS/LB)
- CFR S. ASIA (USD/MT & conversion US CTS/LB)

VAM (US Gulf)

Weekly Price Assessments:

VAM quarterly Contract Prices

- **DEL CONSUMER (US CTS/LB & conversion to USD/MT)**

VAM FOB Export (spot) Price

- FOB EXPORT USD/MT & conversion to US CTS/LB

VAM Feedstock prices (Contract per quarter)

- Ethylene DELIVERED monthly (US CTS/LB)

General Information:

Assessment window: Price assessments are based on information supplied by market participants through the week up to close of business on Fridays at 1700 hours in London and Singapore and on Tuesday at 1700 hours in Houston.

Specification: Min purity of 99.9%, maximum water content of 400 ppm.

Timing: Cargoes loading or delivered two-six weeks forward from the date of publication.

Terms: 30-60 days after bill of lading date.

Standard cargo size: In Europe, NWE contract prices typically define 15,000-20,000 tonnes/year sized accounts settled on a quarterly or monthly basis. Monthly quotes were introduced in March 2012. Spot tonnes can be delivered by truck, rail-tanker or vessels. In Asia, cargoes are typically 500-2,000 tonnes. For export from the US, 2,000 tonne lots are the norm, within the domestic market, material transports via tank truck or railcar, 45,000 lbs and 150,000 lbs, respectively

Assessment basis: In Europe, key plants are located in Germany, Spain and the UK, which are integrated with feedstock acetic acid production. The bulk of trade in NWE is conducted on a contract basis, with delivery by rail-tanker. Spot material is priced on a EUR FD NWE basis, and includes bulk cargoes up to 1,000 tonnes. The CFR N.E. Asia spot quote reflects transactions in the region and may take into account domestic prices in Korea and Taiwan on a netback to bulk CFR basis by the subtraction of delivery and storage costs from the local source, as well as market discussions.

The process of evaluation of the CFR CHINA MAIN PORT quote firstly takes into consideration confirmed deals, then reported deals. Best bids and offers and rumoured deals might also be partly taken into consideration in the formulation of assessments in the absence of confirmed deals, especially if they are in line with rapidly changing market fundamentals.

In the absence of trades, the published price range may be adjusted on a notional basis to accurately reflect the levels at which trading activity could take place based on the majority of market sentiment and based on highest bids or lowest offers. Factors affecting price movements including supply/demand information; plant operating rates; feedstock, domestic prices and derivative markets; deep-sea cargo movements and general sentiment, will also be taken into account.

Domestic trades in Singapore may be taken into consideration, but generally on the same basis as for Korea and Taiwan.

Domestic prices for Malaysia, Indonesia and Thailand are also taken into consideration in the final assessment of CFR S.E. Asia prices as an indication of general market conditions. The CFR South Asia range covers bulk trades into West Coast India ports.

In the US, VAM is not an actively traded commodity, though export volumes are increasing. When it does move abroad, globally placed producers generally transfer cargoes on an intra-company basis. Within the US, four main producers are vertically integrated with feedstock acetic acid production units. The vast predominance of VAM business in the US is conducted on a contract basis. The CONTRACT PRICE assessment is based on small-volume customers with quarterly negotiated pricing.

Large buyers tend to pay prices in line with the FOB Export range tracked on the US report, assessed for 2,000 tonnes quantities FOB USG.

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