

Propylene Oxide Methodology

Over 80% of propylene oxide (PO) goes into two main uses: polyether polyols (60%) and propylene glycol (21%). Polyether polyols are used in the manufacture of polyurethanes, in reaction with MDI or TDI, while propylene glycol finds a major outlet in unsaturated polyester resins (UPR). Other uses include production of propylene glycol ethers, flame retardants, synthetic lubricants, oil field drilling chemicals, butanediol, propylene carbonate, alkyl alcohol, isopropanolamines, modified starches and textile surfactants.

Propylene oxide is a volatile, colourless, flammable liquid with a characteristic ether-like odour. It is soluble in water, alcohol, ether, most organic solvents and forms a two-layer system with water. It may polymerise violently due to high temperatures or under the influence of bases, acids and metal chlorides with fire or explosion hazard.

ICIS pricing quotes Propylene Oxide in **Europe, Asia-Pacific** and the **USA**.

Frequency: Published weekly on Fridays.

Propylene Oxide (EUROPE)

Weekly Price Assessments:

PO Market Prices

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

PO Feedstock Prices

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

Propylene Oxide (ASIA-PACIFIC)

Weekly Price Assessments:

PO Quarterly Contract Prices

- DEL KOREA (KRW/KG & conversion to USD/MT)
- DEL JAPAN (JPY/KG & conversion to USD/MT)

- CFR CHINA (USD/MT)
- DEL CHINA (CNY/MT)
- DEL EAST CHINA (CNY/MT)
- DEL NORTH CHINA (CNY/MT)

Propylene Oxide (USA)

Weekly Pricing Assessment:

PO Monthly Domestic Price

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

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 1800 hours in London, Singapore and Houston.

Specification: Purity of 99.7% by weight.

Timing: Typically, cargoes loading or delivered four-six weeks forward from the date of publication. In Europe, truck loads delivered in the week, month or quarter being reported. In Japan and South Korea, prices are fixed retroactively and often on a quarterly basis. They refer to loading or delivery within the stated quarter. In China, spot domestic prices refer to product loaded within the week of writing, and spot import prices refer to cargoes delivered up to six weeks forward from the date of publication.

Terms: Typically, 30-60 days after bill of lading date. In Europe also 30 days EOM (from 30 days of date of invoice to 30 days after the end of the month in which the product was delivered).

Standard cargo size: In Europe, a typical truck size is 20-24 tonnes and a miscellaneous consumer represented in the price range buys between one to 10 trucks per month. In the US, tank trucks of 45,000 lb or railcars of 150,000-160,000 lb.

In China, domestic spot deliveries are mainly on a truck basis of 20-25 tonnes per truck. The price range for spot domestic prices includes VAT and applicable costs for delivery to the buyers. In Japan, small buyers purchase truck loads or iso-tanks at 8-10 tonnes/truck and 16-20 tonnes/iso-tank, and a few big buyers purchase PO in 500-1,000-tonne barges. In South Korea, big buyers get PO via pipeline, while small

buyers purchase PO in tank trucks or drums. The price ranges for Japan and South Korea encompass prices for small and big buyers.

Assessment basis: In Europe, the official range covers quarterly contract business for miscellaneous consumers, i.e. excluding the non-polyol sector. The contracts include both formula and freely negotiated business, although the greater proportion of the market is reflected by the first type which is based on 80% of the propylene feedstock movement.

In Europe there are two major producers and four smaller manufacturers of PO. There are also integrated players who both produce and sell PO as its derivatives. This makes it very difficult for non-integrated buyers of PO to pass on any price movements to their end-use market.

For the Asia-Pacific report, information is gathered throughout the week from market participants. The published prices do not include discounts. Certain prices may be excluded from the range if they have been negotiated in unusual circumstances, or if special conditions are thought to apply.

There are four major producers in Japan and one in South Korea. Most of these are integrated and who also make and sell PO-derivatives. Both countries are PO-self sufficient and settle contract prices on a delivered basis on formula involving feedstock costs. The contract quote for Korea reflects a major producer's quarterly contract price settlement.

In China, many domestic suppliers are also integrated producers with downstream polyol or propylene glycol capacities. As a result of this captive use, imports are necessary.

Because of limited confirmation on actual price levels, the spot import price range for China is assessed based on a combination of deals and discussions between suppliers and large buyers (large end-users and traders) in the market, news on supply-demand balance, domestic prices, and majority market sentiment. Netback assessments are avoided, but domestic prices are one of the tools used to assess whether deals are one-off or negotiated under special conditions. The spot import price range includes assessments for both duty-carrying and duty-free cargoes, without any normalisation.

The spot domestic price range for China is assessed based on a combination of deals and discussions in the market, news on supply-demand balance, and majority market sentiment.

In the USA, there are four major producers of propylene oxide, with the bulk of production being captive. Product usage is typically for integrated downstream operations, for example, mono propylene glycol. The ICIS monthly contract



assessment is a calculation based on propylene feedstock and value into the polyol and MPG sectors, and verified with the industry.

The USA report carries a price assessment with no market commentary. The Europe and Asia reports offer market commentary that includes details of traced transactions, news on the supply/demand balance, export/import information, contract price negotiations and general sentiment for price direction. Where applicable there is product information, comments on up and downstream market developments and general market intelligence.

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