



RIM Petrochemicals Assessment Methodology

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Price Assessment Principle:

RIM understands that petrochemical markets are structured with three groups of business parties: Producers, Traders, Importers/Consumers.

RIM price assessments indicate the current range in which a standard spot transaction could take place on the day of publication.

RIM defines a standard spot market transaction as follows:

- **producer sells to trader**
- **producer sells to importer/consumer**
- **producer sell to another producer**
- **trader sells to producer**
- **trader sells to importer/consumer**
- **trader sell to another trader**
- **importer/consumer sells to a producer**
- **importer/consumer sells to a trader**
- **importer/consumer sells to another importer/consumer**

RIM understands values of commodities change even in the absence of deals. RIM defines prices as measures to indicate fluctuating values of commodities.

RIM understands values of commodities are determined by a variety of factors such as supply-demand fundamentals, production costs, conditions in other markets and players' speculation.

RIM understands the latest transactions, bids/offers and buying/selling interest represent current values of commodities.

RIM understands values of commodities are determined by competition among sellers and competition among buyers. RIM considers higher bids to be closer to the current values than lower bids. RIM considers lower offers to be the closer to current values than higher offers.

RIM understands prices for each transaction reported from any party are to be translated into prices based on standard terms and conditions such as cargo sizes, timing of delivery or loading, product specifications and payment terms.



Petrochemical Products and Markets Assessed:

AROMATICS

- Benzene: FOB Korea, FOB East Japan, FOB West Japan, CFR Japan
- Toluene: FOB Korea
- Isomer Mixed-Xylene: FOB Korea, CFR Taiwan
- Styrene Monomer: FOB Korea, CFR China
- Paraxylene: FOB Korea, CFR Northeast Asia

OLEFINS

- Ethylene: CFR Northeast Asia, CFR Southeast Asia, FOB Korea
- Propylene: CFR Northeast Asia, CFR Southeast Asia, FOB Korea
- Butadiene: CFR Northeast Asia, CFR Southeast Asia, FOB Korea

POLYMERS

- Low Density Polyethylene (LDPE) Film: CFR China, CFR Southeast Asia
- Linear Low Density Polyethylene (LLDPE) Film: CFR China, CFR Southeast Asia
- High Density Polyethylene (HDPE) Film: CFR China, CFR Southeast Asia
- High Density Polyethylene (HDPE) Yarn: CFR China, CFR Southeast Asia
- Polypropylene (PP) Homo – BOPP: CFR China, CFR Southeast Asia
- Polypropylene (PP) Homo – Yarn/INJ: CFR China, CFR Southeast Asia
- Polypropylene (PP) Block Co – INJ: CFR China, CFR Southeast Asia
- Poly Vinyl Chloride (PVC) - CMP (CIF China Main Port)
- PET Chip (Bottle Grade): FOB Northeast Asia

INTERMEDIATES

- Phenol: CFR China
- Bisphenol – A: CFR China
- Ethylene Glycol: CFR China
- Ethylenedichloride: CFR China
- Vinylchloride Monomer: CFR China
- Acrylonitrile: CFR China
- Purified Terephthalic Acid (PTA): CFR China
- Caprolactum: CFR China

CHINA DOMESTIC MARKET

- Propylene: East China & Shandong
- Polypropylene (PP) Homo – Yarn/INJ: East China
- Butadiene: East China
- Styrene Butadiene Rubber (SBR): East China
- Butadiene Rubber (BR): East China
- Styrene Monomer (SM): East China
- Expanded Polystyrene (EPS): East China
- Low Density Polyethylene (LDPE): East China
- Linear Low Density Polyethylene (LLDPE): East China
- High Density Polyethylene (HDPE) Film: East China
- High Density Polyethylene (HDPE) Yarn: East China
- Mono Ethyleneglycol (MEG): East China
- Purified Terephthalic Acid (PTA): East China



Assessment Methodology:

AROMATICS MARKETS:

BENZENE:

Assessment Window: RIM's assessment window for benzene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for benzene are in US dollars (\$) for all markets. All units are metric ton (mt).

Assessment Timing: A month is divided into two periods:

- First-Half (H1): first 15 days of the month
- Second-Half (H2): all days after the 15th of the month

Assessment timing is divided into three periods.

During H1 of the month;

- **FOB Korea:** H1 and H2 of the following month and H1 of the month after the next
- **FOB East Japan:** H2 of the month, H1 and H2 of the following month
- **FOB West Japan:** H2 of the month, H1 and H2 of the following month
- **CFR Japan:** H2 of the month, H1 and H2 of the following month

During H2 of the month;

- **FOB Korea:** H2 of the following month, H1 and H2 of the month after the next
- **FOB East Japan:** H1, H2 of the following month and H1 of the month after the next
- **FOB West Japan:** H1, H2 of the following month and H1 of the month after the next
- **CFR Japan:** H1, H2 of the following month and H1 of the month after the next

RIM Index: the average of the second and third periods as indicated in the physical and forward price assessments.

Note: the period changes on the 1st day and 16th day of the month. If the 1st or the 16th fall on a non-business day or holiday in Japan, the period change will take place the next business day.

Standard Volume: 1,000 metric tons **Quality Standard:** ASTM D-2359

Standard delivery points:

- **FOB Korea:** main ports in South Korea that can handle 3,000mt cargoes
- **FOB East Japan:** Tokyo Bay (*other loading points considered in FOB Japan prices assessments are Kashima in Ibaraki prefecture, Sendai in Miyagi prefecture, Muroran in Hokkaido and Omuta in Fukuoka prefecture*).
- **FOB West Japan:** locations on the Inland Sea of Japan
- **CFR Japan:** standard is Mizushima in Okayama prefecture, a port on the Inland Sea of Japan.



TOLUENE:

Assessment Window: RIM's assessment window for toluene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for toluene are in US dollars (\$) for all markets. All units are metric ton (mt).

Assessment Timing: A month is divided into two periods:

- First-Half (H1): first 15 days of the month
- Second-Half (H2): all days after the 15th of the month

Assessment timing is divided into three periods.

During H1 of the month;

- **FOB Korea:** H1, H2 of the following month and H1 of the month after the next

During H2 of the month;

- **FOB Korea:** H2 of the following month, H1 and H2 of the month after the next

RIM Index: the average of the second and third periods as indicated in the physical and forward price assessments.

Note: the period changes on the 1st day and 16th day of the month. If the 1st or the 16th fall on a non-business day or holiday in Japan, the period change will take place the next business day.

Standard Volume: 2,000 metric tons **Quality Standard:** ASTM D-841

Standard delivery points:

- **FOB Korea**

ISOMER MIXED-XYLENE:

Assessment Window: RIM's assessment window for isomer mixed-xylene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for isomer mixed-xylene are in US dollars (\$) for all markets. All units are metric ton (mt).

Assessment Timing: A month is divided into two periods:

- First-Half (H1): first 15 days of the month
- Second-Half (H2): all days after the 15th of the month

Assessment timing is divided into three periods.

During H1 of the month;

- **FOB Korea:** H1, H2 of the following month and H1 of the month after the next
- **CFR Taiwan:** H1, H2 of the following month and H1 of the month after the next



During H2 of the month;

- **FOB Korea:** H2 of the following month, H1 and H2 of the month after the next
- **CFR Taiwan:** H2 of the following month, H1 and H2 of the month after the next

RIM Index: the average of the second and third periods as indicated in the physical and forward price assessments.

Note: the period changes on the 1st day and 16th day of the month. If the 1st or the 16th fall on a non-business day or holiday in Japan, the period change will take place the next business day.

Standard Volume: 3,000 metric tons **Quality Standard:** ethyl benzene < 20%

Standard delivery points:

- **FOB Korea**
- **CFR Taiwan**

STYRENE MONOMER:

Assessment Window: RIM's assessment window for styrene monomer closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for styrene monomer are in US dollars (\$) for all markets except China Domestic markets where prices are indicated in Chinese RMB (Yuan/mt). All units are metric ton (mt).

Assessment Timing: each month is split into two periods:

- First-Half (H1): first 15 days of the month
- Second-Half (H2): all days after the 15th of the month

Assessment Periods: three periods of 15 days each (H1, H2...)

FOB Korea and CFR China Assessments:

- First-half (H1) assessments apply to H1 and H2 of the next month; H1 of the following month.
- Second-half (H2) assessments apply to H2 of the next month; H1 and H2 for the following month.

RIM Index: the average of the second and third periods as indicated in the physical and forward price assessments.

Note: the period changes on the 1st day and 16th day of the month. If the 1st or the 16th fall on a non-business day or holiday in Japan, the period change will take place the next business day.

Standard Volume:

- 2,000-3,000 metric tons for FOB Korea & CFR China
- 500 and above metric tons for China Domestic, next-day delivery, ex-tank COD



Quality Standard: ASTM D-2827

Standard delivery points:

- **FOB Korea**
- **CFR China**
- **China Domestic:** East China market

PARAXYLENE

Assessment Window: RIM's assessment window for paraxylene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for paraxylene are in US dollars (\$) for all markets. All units are metric ton (mt).

Assessment Timing: A month is divided into two periods:

- **First-Half (H1):** first 15 days of the month
- **Second-Half (H2):** all days after the 15th of the month

Assessment timing is divided into three periods.

During H1 of the month;

- **FOB Korea:** H2 of the month, H1 and H2 of the following month
- **CFR Northeast Asia:** H2 of the month, H1 and H2 of the following month

During H2 of the month;

- **FOB Korea:** H1, H2 of the following month and H1 of the month after the next
- **CFR Northeast Asia:** H1, H2 of the following month and H1 of the month after the next

RIM Index: the average of the second and third periods as indicated in the physical and forward price assessments.

Note: the period changes on the 1st day and 16th day of the month. If the 1st or the 16th fall on a non-business day or holiday in Japan, the period change will take place the next business day.

Standard Volume: 5,000 metric tons **Quality Standard:** purity level \geq 99.7%

Standard delivery points:

- **FOB Korea**
- **CFR Northeast Asia**



OLEFINS MARKETS:

ETHYLENE:

Assessment Window: RIM's assessment window for ethylene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for ethylene are in US dollars (\$) for all markets. All units are metric ton (mt).

Standard delivery points:

- **CFR Northeast Asia**
- **CFR Southeast Asia**
- **FOB Korea**

Standard Volume:

- 3,000-3,500 metric tons for material of Asian origin
- 3,000-5,000 metric tons for material of Middle East origin are also considered depending on circumstances while material that originates out of Iran is not always reflected in the assessment as market participants who can trade in Iranian cargoes are limited.

Delivery Timing: within two to six weeks of transaction date

Quality Standard: purity level \geq 99.9%

PROPYLENE:

Assessment Window: RIM's assessment window for propylene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for propylene are in US dollars (\$) for all markets except China Domestic markets where prices are indicated in Chinese RMB (Yuan/mt). All units are metric ton (mt).

Standard delivery points:

- **CFR Northeast Asia**
- **CFR Southeast Asia**
- **FOB Korea**
- **China Domestic:** East China & Shandong markets

Standard Volume:

- 1,500-1,800 metric tons cargoes with 3,000-9,000 metric ton cargoes also considered for CFR Northeast Asia, CFR Southeast Asia and FOB Korea.
- 100-500 metric tons for China Domestic, ex-tank COD



Delivery Timing: within two to six weeks of transaction date

Quality Standard: purity level $\geq 99.5\%$

BUTADIENE:

Assessment Window: RIM's assessment window for butadiene closes each business day at 18:30 Tokyo time.

Price and Unit: Prices for butadiene are in US dollars (\$) for all markets except China Domestic markets where prices are indicated in Chinese RMB (Yuan/mt). All units are metric ton (mt).

Standard delivery points:

- **CFR Northeast Asia**
- **CFR Southeast Asia**
- **FOB Korea**
- **China Domestic:** East China market

Standard Volume:

- 1,000-5,000 metric tons for CFR Northeast Asia, CFR Southeast Asia and FOB Korea.
- 50-200 metric tons for China Domestic, ex-tank COD

Delivery Timing: within two to six weeks of transaction date

Quality Standard: purity level $\geq 99.5\%$ and dimer content is $\leq 1,000$ PPM