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ARGUS ASIA-PACIFIC PRODUCTS

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The most up-to-date *Argus Asia-Pacific Products* methodology is available on www.argusmedia.com

About Argus Asia-Pacific Products

Argus Asia-Pacific Products is a daily market report that publishes prices and market commentary on the international bulk spot market for petroleum products in Asia and the Pacific Rim.

It is one of the leading reports serving the oil industry and is widely used as a reference in the pricing of petroleum products. *Argus Asia-Pacific Products* contains price assessments for different types of spot contracts at specified locations. Market commentary is provided for the three main regional markets — the bulk spot market fob Singapore, the bulk spot market c+f Japan and the bulk spot market fob Mideast Gulf.

Price assessments and netbacks are also shown for some other locations. *Argus Asia-Pacific Products* provides prices that are used in third-party contracts, risk management contracts (such as swaps), internal price transfers, internal benchmarking, mark-to-market pricing and market analysis.

The assessed prices are based on prices from the open spot market whenever possible. Some Argus price series however, such as fob Mideast Gulf, are netback prices.

Methodological principles

Argus quotations are based upon the structure of the market as established by market participants. So if market participants trade and price products in relation to certain benchmarks, then Argus will publish prices in relation to these benchmarks.

The Argus method includes trades from various platforms — close of market windows, e-commerce portals, third-party transactions and over-the counter swaps — to reflect a daily consensus on the price of the day.

The Argus methodology relies on a survey and analysis of market inputs. It often varies from “market on close” methodologies which only recognise select transactions, bids or offers at a specific closing time of each day. The Argus method considers inputs received throughout the entire day up until its daily timestamp.

Argus price assessments for Asia-Pacific petroleum products reflect standardised specifications under the general terms and conditions employed for standard contracts in common use.

Argus publishes prices that report and reflect prevailing levels for open-market arm's length transactions (please see the Argus Global Compliance Policy for a detailed definition of arm's length).

Market survey

Argus market specialists conduct comprehensive daily surveys of key industry participants to collect trade information and gauge prevailing market sentiment. Through interrogative enquiries and analysis, Argus market reporters consider a broad range of trade data, including physical transactions, fixed-price deals, formula-related deals, premiums, discounts, reported but unconfirmed trades,

tender results, netbacks, bids, offers, swaps, spreads and supply/demand fundamentals before making their assessment of the open market price for each product.

Argus reporters use the telephone and various electronic mail and messaging services to acquire and cross check its information. Argus does not restrict itself to one subsection of the market such as a single trading platform or single informational channel for its market information. The market surveys are balanced in their approach and are conducted by well trained specialists who are part of a dedicated team responsible for the *Argus Asia-Pacific Products* report.

The market surveys will involve up to 30 market participants in each market segment contacted by telephone or electronically. The information will be verified and analysed. The approach is methodical and standardised and the assessments will be tested against the views of other market participants. Information from the survey is verified as best possible and archived in databases.

Price assessments

Transactions and buy sell ranges outside of the Argus loading/delivery periods and for specifications not directly included in the methodology are considered when assessing prices if market participants believe they have affected market values for the products under the standardised terms reported in the *Argus Asia-Pacific Products* report.

Deals, bids and offers must be considered repeatable and representative to be reflected in daily assessments. Information collected during the course of the day is taken into account but if the market shows high intra-day volatility, Argus will weight the assessments towards trading activity at the end of the working day up to the cut-off time in the specifications listed below.

When outright deals are unavailable, Argus will take into account underlying swaps values and discussed premiums/discounts for the purpose of price assessments. For example, if the underlying gasoil swaps value is within a range of \$50/bl to \$50.20/bl for a particular loading window and the premium for gasoil on that particular day is discussed within a range of \$0.40/bl to \$0.60/bl for the same loading window, it indicates that the fixed price assessment for that loading window is equivalent to \$50.60/bl.

Some assessments are published as a service to the industry which are not supported by an open traded market. These price assessments will be constructed by comparing price values from the liquid traded open markets adjusted for freight and any other appropriate costs. Most of the Mideast Gulf prices are constructed on this basis. Argus uses Singapore and Japan prices to establish prices in the Mideast Gulf in the absence of an open market price for the product.

All assessments and formulas refer to the price of the product on the day of the published report and are expressed in US dollars unless otherwise stated. The prices are for contracts under whatever general terms and conditions are accepted as standard and prevailing in that particular market. Price changes refer to the last published report.

Overview & Prices at a glance (page 1)

Argus provides an overview of the day's product market activity, highlighting changes in key product prices and the price differences among the various regional pricing centres. The report allows readers to quickly understand the key market drivers.

Argus provides an at-a-glance summary of the majority of the prices contained within the report, illustrating each product's performance in relation to other oil products. See the relevant sections of this methodology for full details of each price assessment.

Gasoline (Argus Asia-Pacific Products page 2)

Singapore

97R gasoline

Motor gasoline 97R (97-RON, Research Octane Number) unleaded. Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 50,000 bl to 100,000 bl.

The basis is fob Singapore.

The specifications are 97 RON unleaded, maximum 0.01g/l lead, RVP 9-10psi, typically 0.750 specific gravity, maximum 500ppm sulphur, maximum 10pc MTBE with maximum 14pc total oxygenates, and maximum 5pc benzene.

The timestamp is 4:30pm Singapore time.

95R gasoline

Motor gasoline 95R (95-RON, Research Octane Number) unleaded. Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 50,000 bl to 100,000 bl.

The basis is fob Singapore.

The specifications are 95 RON unleaded, maximum 0.01g/l lead, RVP 9-10psi, typically 0.740 specific gravity, maximum 500ppm sulphur, maximum 10pc MTBE with maximum 14pc total oxygenates, and maximum 5pc benzene.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) 95R gasoline.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

92R gasoline

Motor gasoline 92R (92-RON, Research Octane Number) unleaded. Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 50,000 bl to 100,000 bl.

The basis is fob Singapore.

The specifications are 92 RON unleaded, maximum 0.01g/l lead, RVP 9-10psi, typically 0.740 specific gravity, maximum 500ppm sulphur, maximum 10pc MTBE with maximum 14pc total oxygenates, and maximum 5pc benzene.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) 92R gasoline.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

Mideast Gulf

95R gasoline

Motor gasoline 95R (95-RON, Research Octane Number) unleaded. Prices are in US dollars/barrel.

The basis is fob Mideast Gulf. The Mideast Gulf quotations are netted back daily from the 95R Singapore gasoline price.

The netback is calculated using Argus spot freight assessments of medium-range (MR) freight with one port loading.

India

India reference

Motor gasoline 89R (89-RON, Research Octane Number) unleaded. Prices are in US dollars/barrel.

The Indian reference price for 89R unleaded gasoline is calculated based on the Argus fob Singapore naphtha price plus one half of the difference between the Argus naphtha and Argus 92R unleaded gasoline fob Singapore price quotations.

Singapore reforming spread

The Singapore reforming spread shows the value of producing the three grades of gasoline (92R, 95R and 97R) from naphtha in Singapore.

The reforming spread is calculated by subtracting the price of front-month Singapore naphtha swaps from the price of 92R, 95R and 97R fob Singapore gasoline cargoes.

Naphtha (Argus Asia-Pacific Products page 3)

Singapore

Naphtha 65pc paraffins.

Prices are in US dollars/barrel.

The pricing period is for loading 15-30 days forward from date of publication.

The fob Singapore naphtha quotation is based on a netback from the most prompt period shown within the c+f Japan forward table.

The netback utilises MR freight (30,000t), one port discharge average of Chiba/Singapore and Mizushima/Singapore.

The Argus conversion factor is 9 bl to 1 metric tonne.

Size is standardised to 25,000t.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) naphtha. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication. The timestamp is 4:30pm Singapore time.

Japan

Naphtha 65pc paraffins. Prices are in US dollars/tonne. The pricing period is for delivery 45-75 days forward from date of publication. This 45-75 days quotation is derived from the lowest bid and highest offer in the 45-60 and 60-75 day forward periods shown in the Japan open-specification naphtha swaps table.

So, if Argus assessments for the three half-month periods are:
 30-45 days = \$475.00/476.00
 45-60 days = \$473.50/474.50
 60-75 days = \$472.50/473.50
 the Argus c+f Japan assessment for that day will be \$472.50/474.50.

The forward periods will roll on the 1st and 16th of the month, or, in the event of a holiday or weekend, on the next working day.

Size is standardised to 25,000t. The basis is c+f Japan. The specifications reflect following open specification quality, 65pc minimum paraffins, 0.65/0.74 specific gravity at 60°F; maximum 1pc olefins; colour (Saybolt) minimum +20, RVP (PSI) maximum 13, lead (PPB) maximum 150, sulphur maximum 650ppm, minimum 25°C IBP, max 204°C FBP. The differential shown is the assessed market premium (or discount) to Mean of Platts Japan (Mopj) naphtha. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions. The timestamp is 4:30pm Singapore time.

Mideast Gulf

Naphtha LR1

Naphtha using LR1 (long-range 1) freight. Prices are in US dollars/tonne. The basis is fob Mideast Gulf. The Mideast Gulf quotations are netted back daily using Argus spot freight assessments. The naphtha LR1 netback is calculated from the Argus Japan c+f naphtha quotation using LR1 freight (55,000t), with an average freight using a two port loading of Jubail/Ruwais to Quoin Island and Mina al-Ahmadi/Ras Tanura to Quoin Island and using a two port discharge of Chiba/Mizushima plus 50pc of the Saudi port charge (currently \$0.27/t). The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) naphtha on a LR1 vessel.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication. The premiums/discounts are for full range naphtha, typically 0.680-0.700 specific gravity. Argus will also take into consideration open specification naphtha sold fob India when making an assessment of the premium/discount for naphtha. The premiums/discounts for fob India cargoes will be adjusted to LR1 freight size (55,000t) and take into account the difference in freight cost between the Mideast Gulf to Japan and one port loading average of Mumbai/Kandla to Japan. This will give the fob Mideast Gulf equivalent for naphtha cargoes sold fob India. Argus will only consider cargoes sold fob India that meet the specifications laid out for fob Mideast Gulf cargoes — minimum 65pc paraffins, typically 0.680-0.700 specific gravity. The timestamp is 4:30pm Singapore time.

Naphtha LR2

Naphtha using LR2 (long-range 2) freight. Prices are in US dollars/tonne. The basis is fob Mideast Gulf. The Mideast Gulf quotations are netted back daily using Argus spot freight assessments. The naphtha LR2 netback is calculated from the Argus Japan c+f naphtha quotation using LR2 freight (75,000t), with an average freight using a two port loading of Jubail/Ruwais to Quoin Island and Mina al-Ahmadi/Ras Tanura to Quoin Island and using a two port discharge of Chiba/Mizushima plus 50pc of the Saudi port charge (currently \$0.27/t).

Japan open-specification naphtha forward prices

Naphtha 65pc paraffins open-specification forward prices. Prices are in US dollars/tonne. The pricing period is for delivery in half-month periods (1st to 15th and 16th to end of month). The forward periods will roll on the 1st and 16th of the month, or, in the event of a holiday or weekend, on the next working day. Forward prices are assessed three consecutive half-month periods forward. Size is standardised to 25,000t. The basis is c+f Japan. The specifications reflect following open specification quality, 65pc minimum paraffins, 0.65/0.74 specific gravity at 60°F, maximum 1pc olefins, colour (Saybolt) minimum +20, RVP (PSI) maximum 13, lead (PPB) maximum 150, sulphur (PPM) maximum 650, minimum 25°C IBP, max 204°C FBP. The timestamp is 4:30pm Singapore time.

Singapore naphtha swaps

Naphtha 65pc paraffins swaps. Prices are in US dollars/barrel. Naphtha swaps are assessed three consecutive months forward. The last day of quotation of the first month of the swaps table will be the 15th of that month.

The monthly contracts will roll on the 16th of the month, or, in the event of a holiday or weekend, on the next working day.

Size is standardised to 50,000 bl.

The specifications reflect following open specification quality, 65pc minimum paraffins, 0.65/0.74 specific gravity at 60°F, maximum 1pc olefins, colour (Saybolt) minimum +20, RVP (PSI) maximum 13, lead (PPB) maximum 150, sulphur (PPM) maximum 650, minimum 25°C IBP, max 204°C FBP.

The timestamp is 4:30pm Singapore time.

Jet-kerosine (*Argus Asia-Pacific Products page 4*)

Singapore

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 100,000 bl to 250,000 bl.

The basis is fob Singapore.

The specifications reflect the latest UK Defence Standard specifications.

Some third-party carriers of Argus price information provide the Argus jet/kero price in alternative units. The conversion factor used by these third parties is 7.88 bl to a metric tonne.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) jet/kerosine.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

South Korea

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob South Korea of 100,000 bl to 250,000 bl.

The basis is fob South Korea.

The specifications reflect the latest UK Defence Standard specifications.

Some third-party carriers of Argus price information provide the Argus jet/kero price in alternative units. The conversion factor used by these third parties is 7.88 bl to a metric tonne.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) jet-kerosine.

Premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for cargoes fob South Korea loading 15-30 days forward from date of publication.

The timestamp is 4:30pm Singapore time.

Mideast Gulf

Prices are in US dollars/barrel.

The basis is fob Mideast Gulf. The Mideast Gulf quotations are netted back daily using Argus spot freight assessments.

The jet-kerosine netback is calculated from the Argus fob Singapore

jet-kerosine quotation using LR1 freight (55,000t), with an average freight using a two port loading of Bahrain/Jubail to Singapore plus 50pc of the Saudi port charge (currently \$0.27/t).

The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) jet-kerosine.

The timestamp is 4:30pm Singapore time.

Japan

Prices are in US dollars/barrel.

The pricing period is for delivery 20-40 days forward from date of publication.

Assessments are standardised to cargoes c+f Japan of 100,000 bl to 250,000 bl.

The basis is c+f Japan.

The specifications reflect the latest UK Defence Standard specifications.

Some third-party carriers of Argus price information provide the Argus jet/kero price in alternative units. The conversion factor used by these third parties is 7.88 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Singapore jet-kerosine swaps

The specifications reflect jet A-1.

Prices are in US dollars/barrel.

Forward swaps are assessed three consecutive months and three quarters forward.

The last day of quotation of the first month of the swaps table will be the 15th of that month.

The forward months will roll on the 16th of the month, or, in the event of a holiday or weekend, on the next working day.

The last day of quotation of the first calendar quarter of the forward strips table will be the 15th of the first month in a calendar quarter (15 January, 15 April, 15 July and 15 October).

Size is standardised to 50,000 bl for the monthly swaps and 150,000 bl for the quarterly swaps.

The timestamp is 4:30pm Singapore time.

Gasoil (*Argus Asia-Pacific Products page 5*)

Singapore

Gasoil 0.5%

Gasoil of 0.5pc sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 100,000 bl to 250,000 bl.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) 0.5pc sulphur gasoil.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The specifications are 0.5pc maximum sulphur, pour point 6-9°C_{pp},

maximum 370°C distillation point at which 90pc recovered, minimum 48 cetane number, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.5pc sulphur gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Gasoil 0.25%

Gasoil of 0.25pc sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 100,000 bl to 250,000 bl.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) for 0.5pc sulphur gasoil. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The specifications are 0.25pc maximum sulphur, pour point 6-9°C_{pp}, maximum 370°C distillation point, minimum 48 cetane number, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.25pc gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Gasoil 0.05% (500ppm)

Gasoil of 0.05pc (500 parts per million) sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 100,000 bl to 250,000 bl.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) for 0.5pc sulphur gasoil. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The specifications are 0.05pc maximum sulphur, pour point 6-9°C_{pp}, maximum 370°C distillation point at which 95pc recovered, minimum 48 cetane number, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.05pc gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Gasoil 0.005% (50ppm)

Gasoil of 0.005pc (50 parts per million) sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 100,000

bl to 250,000 bl.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) for 0.5pc sulphur gasoil. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The specifications are 0.005pc maximum sulphur, pour point 6-9°C_{pp}, maximum 360°C distillation point at which 95pc recovered, minimum 51 cetane number, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.005pc gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Gasoil 0.001% (10ppm)

Gasoil of 0.001pc (10 parts per million) sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from the date of publication.

Assessments are standardized to cargoes fob Singapore of 100,000 bl to 250,000 bl.

The basis is fob Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) for 0.5pc sulphur gasoil. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The specifications are 0.001pc maximum sulphur, pour point 6-9°C_{pp}, maximum 360°C distillation point at which 95pc recovered, minimum 51 cetane number, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.001pc gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

South Korea

Gasoil of 0.5pc sulphur.

Prices are in US dollars/barrel.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob South Korea of 100,000 bl to 250,000 bl.

The basis is fob South Korea.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) 0.5pc sulphur gasoil. The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for cargoes fob South Korea loading 15-30 days forward from the date of publication.

The specifications are 0.5pc maximum sulphur, high pour 6-9°C_{pp}, low pour less than 6°C_{pp}, maximum 370°C distillation point at which 90pc recovered, typically 48 cetane index, colour maximum 2.

Some third-party carriers of Argus price information provide the Argus 0.5pc sulphur gasoil price in alternative units. The conversion factor used by these third parties is 7.46 bl to a metric tonne.

The timestamp is 4:30pm Singapore time.

Mideast Gulf

Gasoil 0.5%

Gasoil of 0.5pc sulphur.

Prices are in US dollars/barrel.

The basis is fob Mideast Gulf.

The Mideast Gulf quotation is netted back daily using Argus spot freight assessments.

The gasoil 0.5pc netback is calculated from the Argus fob Singapore gasoil 0.5pc quotation using LR1 freight (55,000t), with an average freight using a two port loading of Bahrain/Jubail to Singapore plus 50pc of the Saudi port charge (currently \$0.27/t).

The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) 0.5pc sulphur gasoil.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

Gasoil 0.2%

Gasoil 0.2pc sulphur.

Prices are in US dollars/barrel.

The basis is fob Mideast Gulf.

The assessment of 0.2pc sulphur gasoil fob Mideast Gulf is calculated from the 0.5pc sulphur gasoil fob Mideast Gulf assessment plus the difference in the assessed market premium (or discount) for the two grades.

The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) 0.5pc sulphur gasoil.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

Gasoil 0.05% (500ppm)

Gasoil 0.05pc (500 parts per million) sulphur.

Prices are in US dollars/barrel.

The basis is fob Mideast Gulf.

The assessment of 0.05pc sulphur gasoil fob Mideast Gulf is calculated from the 0.5pc sulphur gasoil fob Mideast Gulf assessment plus the difference in the assessed market premium (or discount) for the two grades.

The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) 0.5pc sulphur gasoil.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

Japan

Gasoil 0.005% (50ppm)

Gasoil of 0.005pc (50 parts per million) sulphur.

Prices are in US dollars/barrel.

The pricing period is for delivery 20-40 days forward from date of publication.

Assessments are standardised to cargoes c+f Japan of 100,000 bl to 250,000 bl.

The basis is c+f Japan.

The specifications are 0.005pc maximum sulphur; minus 20°C pp to minus 5°C pp; typically less than 0.5 colour; ASTM, minimum plus 5 colour saybolt; 50 minimum cetane index; maximum 350°C distillation point at which 90pc recovered.

The timestamp is 4:30pm Singapore time.

Gasoil cargo swaps

Closing bid/asked range for gasoil cargo swaps.

Gasoil (0.5pc sulphur, high pour) swaps.

Prices are in US dollars/barrel.

Forward swaps are assessed three consecutive months and three quarters forward.

The last day of quotation of the first month of the forward swaps table will be the 15th of that month.

The forward months will roll on the 16th of the month, or, in the event of a holiday or weekend, on the next working day.

The last day of quotation of the first calendar quarter of the forward strips table will be the 15th of the first month in a calendar quarter (15 January, 15 April, 15 July and 15 October).

Size is standardised to 50,000 bl for the monthly swaps and 150,000 bl for the quarterly swaps.

The timestamp is 4:30pm Singapore time.

Gasoil arbitrage

Price spread between Singapore gasoil swaps and Ice gasoil futures.

Prices are in US dollars/tonne.

The spreads included compare the first month of Singapore gasoil swaps with each of the first three months of the Ice gasoil futures Singapore minute marker price.

When the first month of Ice gasoil futures expires and rolls to the next month ahead of Singapore gasoil swaps, the price spread will use the second forward month of the Singapore swaps table until the forward months roll on the 16th of the month. From the 16th of the month, the spread reverts to using the first month of Singapore gasoil swaps.

The timestamp is 4:30pm Singapore time.

Fuel oil (Argus Asia-Pacific Products page 6)

Singapore

HSFO 180 cst

High-sulphur fuel oil of 180 centistokes.

Prices are in US dollars/tonne.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 20,000t to 50,000t.

The basis is fob Singapore.

The specifications are 180cst, 3.5pc maximum sulphur, cracked fuel oil, typically 0.991 specific gravity, maximum 24°C pp, CCR 16pc on a weight basis, vanadium 200ppm, sodium 100ppm, flashpoint 66°C minimum, ash 0.1pc, water by distillation 0.50pc volume, sediment by extraction 0.1pc maximum, aluminium + silicon 80ppm maximum, aluminium 30ppm, Shell hot filtration test 0.150pc maximum.

The conversion factor is 6.45 bl to 1 metric tonne.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) high-sulphur fuel oil 180cst.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

HSFO 380 cst

High-sulphur fuel oil of 380 centistokes.

Prices are in US dollars/tonne.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob Singapore of 20,000t to 50,000t.

The basis is fob Singapore.

The specifications are 380cst, 4.2pc maximum sulphur, cracked fuel oil, typically 0.991 specific gravity, maximum 24°C pp, CCR 18pc on a weight basis, vanadium 200ppm, sodium 100ppm, flashpoint 66°C minimum, ash 0.1pc, water by distillation 0.50pc volume, sediment by extraction 0.15pc maximum, aluminium + silicon 80ppm maximum, Shell hot filtration test 0.10pc maximum.

The conversion factor is 6.45 bl to 1 metric tonne.

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) HSFO 380cst.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

Mideast Gulf

HSFO 180 cst

High-sulphur fuel oil 180 centistokes.

Prices are in US dollars/tonne.

The basis is fob Mideast Gulf.

The Mideast Gulf quotations are netted back daily using Argus spot freight assessments.

The HSFO 180cst netback is calculated from the Argus fob Singapore HSFO 180cst quotations using LR2 freight (80,000t), with an average freight using a two port loading of Bahrain/Mina al-Ahmadi to Quoin Island to Singapore.

The timestamp is 4:30pm Singapore time.

HSFO 380 cst

High-sulphur fuel oil 380 centistokes.

Prices are in US dollars/tonne.

The basis is fob Mideast Gulf.

The Mideast Gulf quotations are netted back daily using Argus spot freight assessments.

The HSFO 380cst netback is calculated from the Argus fob Singapore

HSFO 380cst quotations using LR2 freight (80,000t), with an average freight using a two port loading of Bahrain/Mina al-Ahmadi to Quoin Island to Singapore.

The differential shown is the assessed market premium (or discount) to Mean of Platts Arab Gulf (Mopag) for high-sulphur fuel oil 380 centistokes.

The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

The timestamp is 4:30pm Singapore time.

South Korea

HSFO 180 cst

High-sulphur fuel oil of 180 centistokes.

Prices are in US dollars/tonne.

Prices are for cargoes loading 15-30 days forward from date of publication.

Assessments are standardised to cargoes fob South Korea of 20,000t to 50,000t.

The basis is fob South Korea.

The specifications are 180cst, 3.5pc maximum sulphur, cracked fuel oil, typically 0.991 specific gravity, maximum 24°C pp, CCR 16pc on a weight basis, vanadium 200ppm, sodium 100ppm, flashpoint 66°C minimum, ash 0.1pc, water by distillation 0.50pc volume, sediment by extraction 0.1pc maximum, aluminium + silicon 80ppm maximum, aluminium 30ppm, Shell hot filtration test 0.150pc maximum.

The timestamp is 4:30pm Singapore time.

Japan

HSFO 180 cst

High-sulphur fuel oil of 180 centistokes.

Prices are in US dollars/tonne.

The pricing period is for delivery 20-40 days forward from date of publication.

Assessments are standardised to cargoes c+f Japan of 20,000t to 50,000t. The basis is c+f Japan.

The specifications are 180cst, 3.5pc maximum sulphur, cracked fuel oil, typically 0.991 specific gravity, maximum 24°C pp, CCR 16pc on a weight basis, vanadium 200ppm, sodium 100ppm, flashpoint 66°C minimum, ash 0.1pc, water by distillation 0.50pc volume, sediment by extraction 0.1pc maximum, aluminium + silicon 80ppm maximum, aluminium 30ppm, Shell hot filtration test 0.150pc maximum.

The timestamp is 4:30pm Singapore time.

Singapore fuel oil swaps

High-sulphur fuel oil swaps.

Prices are in US dollars/tonne.

Forward swaps are assessed three consecutive months and three quarters forward.

The last day of quotation of the first month of the forward swaps table will be the 15th of that month.

The forward months will roll on the 16th of the month, or, in the event of a holiday or weekend, on the next working day.

The last day of quotation of the first calendar quarter of the forward strips table will be the 15th of the first month in a calendar quarter (15 January, 15 April, 15 July and 15 October).

Size is standardised to 5,000t for the monthly swaps and 15,000t for the quarterly swaps.

The specifications reflect HSFO fob Singapore 180cst, 3.5pc sulphur.

The timestamp is 4:30pm Singapore time.

China fuel oil (*Argus Asia-Pacific Products page 7*)

South China fuel oil (fob)

HSFO 180 cst barge STS

High-sulphur fuel oil of 180 centistokes.

Prices are in Chinese yuan/tonne.

Prices are for barges for loading 0-5 days forward from date of publication.

Prices are inclusive of 24.2pc duties and taxes at the destination.

Assessments are standardised to barges fob south China (basis ship-to-ship transfer) of minimum 500t and maximum 3,000t.

The basis is fob south China (basis ship-to-ship transfer).

The specifications are 180cst, 3.5pc maximum sulphur, cracked fuel oil, typically 0.980 specific gravity, maximum 24°C pp, CCR 13-14.2pc on a weight basis, vanadium 150ppm.

The timestamp is 4:30pm Singapore time.

M-100 c+f east China

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) HSFO 180 cst fob for M-100 fuel oil.

Prices are in US dollars/tonne.

The differentials shown are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

Premiums are exclusive of duties and taxes at destination.

Assessments are standardised to cargoes c+f east China of minimum 15,000t.

The basis is c+f east China.

Typical specifications are 1.0-1.5pc maximum sulphur, straight-run oil, 100-390cst, typically 0.92-0.95 specific gravity, vanadium 20-30ppm, water content 0.5-1.5pc.

The timestamp is 4:30pm Singapore time.

M-100 c+f south China

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) HSFO 180cst fob for M-100 fuel oil.

Prices are in US dollars/tonne.

The differentials shown are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.

Premiums are exclusive of duties and taxes at destination.

Assessments are standardised to cargoes c+f south China of minimum 15,000t.

The basis is c+f south China.

Typical specifications are 1.0-1.5pc maximum sulphur, straight-run oil, 100-390cst, typically 0.92-0.95 specific gravity, vanadium 20-30ppm, water content 0.5-1.5pc.

South China fuel oil (c+f)

High-sulphur fuel oil of 180 centistokes.

Prices are in US dollars/tonne.

Prices are for cargoes for delivery 15-30 days forward from date of publication.

Prices are exclusive of duties and taxes at destination.

Assessments are standardised to cargoes c+f south China of minimum 15,000t.

The basis is c+f south China. The specifications are 180cst, 3.5pc maximum sulphur, cracked fuel oil, typically 0.980 specific gravity, maximum 24°C pp, CCR 13-14.2pc on a weight basis, vanadium 150ppm.

The forward physical prices for cfr south China fuel oil are for two consecutive months forward.

The last day of quotation of the first month of the forward physical table will be the 15th of that month.

The timestamp is 4:30pm Singapore time.

Bunkers (*Argus Asia-Pacific Products, page 7*)

Singapore 180 cst

Bunkers 180cst delivered on board Singapore.

Prices are in US dollars/tonne.

Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.

Assessments are standardised to reflect prices for 1,000t to 3,000t.

Specification is maximum sulphur content of 3.5pc, 0.5pc maximum water by volume, maximum density of 0.991.

The timestamp is 5:30pm Singapore time.

Singapore 380 cst

Bunkers 380cst delivered on board Singapore.

Prices are in US dollars/tonne.

Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.

Assessments are standardised to reflect prices for 1,000t to 3,000t.

Specification is maximum sulphur content of 4.2pc, 0.5pc maximum

water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

South Korea 180 cst

Bunkers 180cst delivered on board South Korea.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 500t to 1,000t.
Specification is maximum sulphur content of 3.5pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

South Korea 380 cst

Bunkers 380cst delivered on board South Korea.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 500t to 1,000t.
Specification is maximum sulphur content of 4.2pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Fujairah 180 cst

Bunkers 180cst delivered on board Fujairah.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 1,000t to 3,000t.
Specification is maximum sulphur content of 3.5pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Fujairah 380 cst

Bunkers 380cst delivered on board Fujairah.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 1,000t to 3,000t.
Specification is maximum sulphur content of 4.2pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Russian Far East 180 cst

Bunkers 180cst delivered on board Russian Far East ports of Vladivostok, Nakhodka, Vostochniy, Slavyanka, and Kozmino.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 1-20 days forward from the date of assessment.
Assessments are standardised to reflect prices for 200t to 2,000t.
Payment terms – maximum 15 days after.
Specification is maximum sulphur content of 2.5pc, 0.5pc maximum

water by volume, maximum density of 0.991.
The timestamp is 2:00pm Moscow time (7:00pm Singapore time).

Hong Kong 380 cst

Bunkers 380cst delivered on board Hong Kong.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardized to reflect prices for 1,000t to 3,000t.
Specification is maximum sulphur content of 4.2pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Shanghai 380 cst

Bunkers 380cst delivered on board Shanghai.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardized to reflect prices for 1,000t to 3,000t.
Specification is maximum sulphur content of 4.2pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Qingdao 380 cst

Bunkers 380cst delivered on board Qingdao.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardized to reflect prices for 1,000t to 3,000t.
Specification is maximum sulphur content of 4.2pc, 0.5pc maximum water by volume, maximum density of 0.991.
The timestamp is 5:30pm Singapore time.

Marine gasoil and marine diesel (page 7)

Singapore MDO

Bunker marine diesel oil delivered on board Singapore.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 50t to 100t.
Specification is ISO specification in its latest revision.
The timestamp is 5:30pm Singapore time.

Singapore MGO

Bunker marine gasoil delivered on board Singapore.
Prices are in US dollars/tonne.
Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
Assessments are standardised to reflect prices for 50t to 100t.
Specification is ISO specification in its latest revision.
The timestamp is 5:30pm Singapore time.

S Korea MDO

Bunker marine diesel oil delivered on board South Korea.
 Prices are in US dollars/tonne.
 Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
 Assessments are standardised to reflect prices for 50t to 100t.
 Specification is ISO specification in its latest revision.
 The timestamp is 5:30pm Singapore time.

S Korea MGO

Bunker marine gasoil delivered on board South Korea.
 Prices are in US dollars/tonne.
 Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
 Assessments are standardised to reflect prices for 50t to 100t.
 Specification is ISO specification in its latest revision.
 The timestamp is 5:30pm Singapore time.

Fujairah MDO

Bunker marine diesel oil delivered on board Fujairah.
 Prices are in US dollars/tonne.
 Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
 Assessments are standardised to reflect prices for 50t to 100t.
 Specification is ISO specification in its latest revision.
 The timestamp is 5:30pm Singapore time.

Fujairah MGO

Bunker marine gasoil delivered on board Fujairah.
 Prices are in US dollars/tonne.
 Prices reflect transactions done and other trade information on a delivered basis 3-7 days forward from the date of assessment.
 Assessments are standardised to reflect prices for 50t to 100t.
 Specification is ISO specification in its latest revision.
 The timestamp is 5:30pm Singapore time.

Russian Far East MGO

Bunker marine gasoil delivered on board Russian Far East ports of Vladivostok, Nakhodka, Vostochniy, Slavyanka, and Kozmino.
 Prices are in US dollars/tonne.
 Prices reflect transactions done and other trade information on a delivered basis 1-20 days forward from the date of assessment.
 Assessments are standardised to reflect prices for 50t to 100t.
 Payment terms – maximum 15 days after.
 Specification is ISO specification in its latest revision.
 The timestamp is 2:00pm Moscow time (7:00pm Singapore time).

LSWR V-500 (Argus Asia-Pacific Products p8)

Indonesia

Low-sulphur waxy residue V-500.

Prices are in US dollars/barrel.
 Assessments are standardised to cargoes fob Indonesia of 100,000 bl to 300,000 bl.
 Prices are for V-500 cargoes loading 10-30 days forward from date of publication.
 Information of c+f transactions for LSWR to Asian destinations will be considered by Argus using the netback equivalent to fob Indonesia if the loading date (after deduction for the estimated loading, voyage transit time and discharge) falls within this timing.
 The specifications are 0.3pc maximum sulfur, a maximum pour point of 130 degrees Fahrenheit and a maximum viscosity of either 136 CST or 550 Seconds Redwood 1 at 140 degrees Fahrenheit.
 The timestamp is 4:30pm Singapore time.

Premium to Formula

The differential shown is the assessed market premium (or discount) to Mean of Platts Singapore (Mops) HSFO 180cst.
 Prices are in US dollars/barrel.
 The premiums/discounts are based on reported transactions, bids, offers and relevant market discussions for trade 15-30 days forward from the date of publication.
 Assessments are standardised to cargoes fob Indonesia of 100,000 bl to 300,000 bl. Information of c+f transactions for LSWR to Asian destinations will be considered by Argus using the netback equivalent to fob Indonesia if the loading date (after deduction for the estimated loading, voyage transit time and discharge) falls within this timing.
 Prices are in US dollars/barrel.
 The timestamp is 4:30pm Singapore time.

Freight rates (Argus Asia-Pacific Products p8)

Mideast Gulf-Singapore fuel oil

The spot freight rate that is used to calculate the Mideast Gulf fuel oil netback.
 The rate is for 80,000t vessels.
 The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Mideast Gulf-Singapore gasoline

The spot freight rate that is used to calculate the Mideast Gulf gasoline netback.
 The rate is for 35,000t vessels.
 The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Mideast Gulf-Singapore gasoil

The spot freight rate that is used to calculate the Mideast Gulf gasoil netback.
 The rate is for 55,000t vessels.
 The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Mideast Gulf-Singapore jet

The spot freight rate that is used to calculate the Mideast Gulf jet netback.

The rate is for 55,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Mideast Gulf-Japan naphtha

The spot freight rate that is used to calculate the Mideast Gulf naphtha netback.

The rate is for 55,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Mideast Gulf-Japan naphtha

The spot freight rate that is used to calculate the Mideast Gulf naphtha netback.

The rate is for 75,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Singapore-Japan clean products

The spot freight rate that is used to calculate the Japan gasoil and jet-kerosine netback.

The rate is for 30,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Indonesia-Japan fuel oil

The spot freight rate that is used to calculate the value of HSFO on a delivered basis.

The rate is for 80,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Indonesia-Japan LSWR

The rate is for 30,000t vessels.

The spot rate is assessed in London and Singapore by Argus using information on the Asian shipping market.

Crack spreads (*Argus Asia-Pacific Products p9*)

Crack spreads represent the nominal profit a refiner makes from producing petroleum products from crude oil. Argus crack spreads compare prices for petroleum products with crude prices to calculate this profit.

Singapore fuel oil 180cst crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between the fob Singapore HSFO 180cst swaps and Dubai crude swaps for the promptest

complete calendar month.

Singapore gasoil crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between fob Singapore 0.5pc sulphur gasoil swaps and Dubai crude swaps for the promptest complete calendar month.

Singapore jet crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between fob Singapore jet-kerosine swaps and Dubai crude swaps for the promptest complete calendar month.

Japan naphtha c+f half month crack spreads

The crack spread is shown in US dollars/tonne.

The spreads represent the difference between c+f Japan naphtha forward prices and the Ice Brent crude oil futures price for the same specified period.

Singapore naphtha crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between the price of naphtha fob Singapore and front month Ice Brent crude oil futures.

Singapore 97R gasoline crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between the price of 97R gasoline fob Singapore and front month Ice Brent crude oil futures.

Singapore 95R gasoline crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between the price of 95R gasoline fob Singapore and front month Ice Brent crude oil futures.

Singapore 92R gasoline crack spread

The crack spread is shown in US dollars/barrel.

The spread represents the difference between the price of 92R gasoline fob Singapore and front month Ice Brent crude oil futures.

Issued tenders (*Argus Asia-Pacific Products p10*)

Argus provides a list of the tenders to buy and sell oil products that have not yet been awarded. Argus provides as much detail as possible in terms of the quantities, timing, location, closing date and validity date of bids and offers.

Argus Asia-Pacific Products (USWC section)

As an additional service, subscribers to *Argus Asia-Pacific Products* also receive a standalone supplement *Argus Asia-Pacific Products* (USWC section), which provides pricing and comment about the

products markets on the US West Coast.

This supplement is sent out as a separate report after close of business in Houston.

For the methodology underlying the USWC product assessments please see the published methodology for *Argus US Products*, which is available on www.argusmedia.com.