

Argus White Paper: Argus Base Oil Prices Explained

Comprehensive and authoritative benchmark prices are the foundation of an effective hedging and long-term contracting program for any commodity market. If published price indices can be trusted and their methodology understood, the benefits of these prices for risk management are also immense.

In the global base oils market, participants have used a range of price substitutes for market value for many years, the most prominent being posted prices. These alternative structures have been at times unresponsive to market movements.

In a market facing immense fundamental changes, with rising supplies, volatile crude price and a structural shift in demand from Group I to premium-grade base oils, there has been a need for a price-structure that is able to reflect these changes more rapidly. In addition companies have been hindered from developing risk management tools such as swaps which must be based on reliable indices.

Posted prices play a role in the base oil market, however Argus publishes and complements these with a global array of spot price assessments based on the spot market itself. These spot prices are assessed on a weekly basis so that they always reflect the current market price and fundamentals. In most other markets, spot market prices form the foundation of long-term contracts.

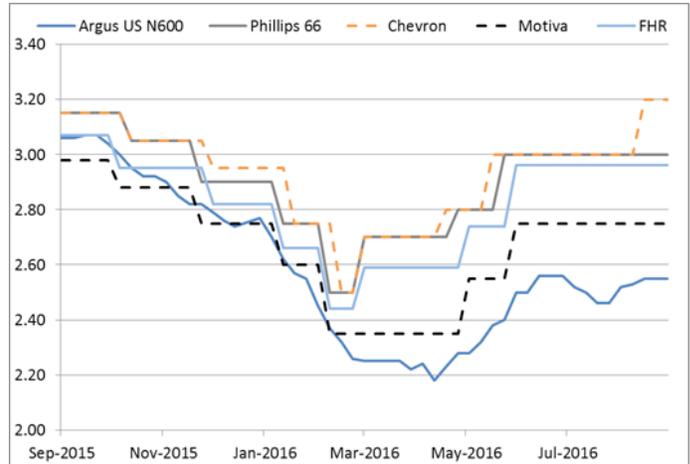
A representative benchmark price is possible

Argus is a global firm engaged solely in providing energy market prices and information, and has now applied its accepted best practices in benchmark pricing to the base oils market.

Argus prices are used globally for contract pricing of term supply, spot deals, swaps, and internal transfer pricing in crude oil, refined products, gas, and many other energy commodities. For price assessments to be used for such purposes, the market has to have confidence in the reliability and accuracy of the prices and how they are derived.

ARGUS US SPOT GROUP II N600 VS POSTED PRICES

\$/USG



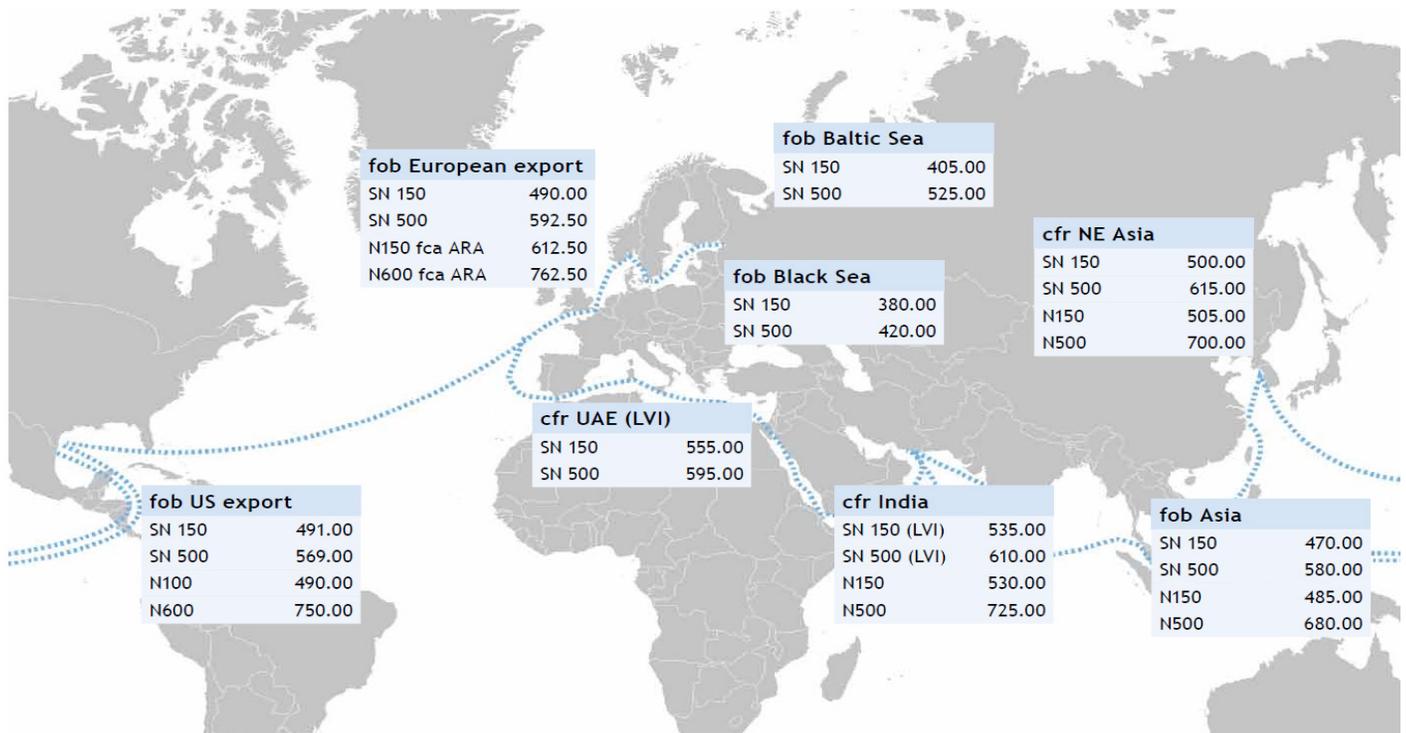
Argus assess the spot market price for base oils which is an open market price freely negotiated between buyers and sellers for individual volumes. The posted price is a non-negotiable price set by a seller for a period of time. Unless the posted price changes frequently, it tends to lag the spot price. A lagging price indicator can send inaccurate price signals, prompting inappropriate decisions and exaggerated price reactions in response.

The Argus spot market methodology

The Argus base oil prices are assessed using a formula developed specifically for the base oil market, which balances two important methods for capturing all activity in the spot market:

- 50% of the price is a weighted average of completed physical trades in the marketplace. This methodology allows actual completed transactions to participate in the index, while balancing the impact of any single trade and removing distortion by applying a weighted average.
- 50% of the price is an assessment of market value based on a survey of market participants. The market survey draws out liquidity in the market that is otherwise veiled by the lack of

ARGUS MARKET MAP



transparency in base oil spot trading. The survey therefore ensures the Argus price is a consistently comprehensive assessment of the spot market. This price assessment is also tested and cross-checked against feedstock prices and competing oil product prices, and against corresponding base oil prices in other regions. Argus also collects key fundamental data such as supply, demand, imports and exports, and compares price trends against this data to ensure accuracy.

Why Argus supports benchmark pricing in base oils

Argus sees base oils as a product that is an integral part of the refining system, rather than a stand-alone product. Refined product prices respond efficiently to changing market dynamics and to changes in the price relationship between each other. Base oil prices also respond to changing market dynamics and to changes in their price-relationship with other oil products. Efficient price discovery sends accurate prices to producers, consumers and traders alike, giving them the information they need to make appropriate decisions.

Argus assesses base oils as a global product, not just a regional product. Global products respond to and are influenced by prices and events in other regions. As a global report, Argus Base Oils is able to reflect these interactions in the price assessments. Within

the regional sections covered, Argus assesses both domestic and export prices, which respond to and are influenced by different market dynamics.

To achieve such global coverage and price assessments, Argus has staff dedicated to base oil markets in Beijing, Singapore, Moscow, London and Houston, and additional market input from reporters covering other refined products throughout the world.

Argus sees base oils as a major refined product with importance far outweighing its volume. For a product that has kept many refiners profitable when refining margins are weak, an accurate and reliable spot market price is crucial. For a market facing immense changes as it adjusts to rising supplies and more stringent lube requirements, the need for pricing tools to be able to preserve and maximize profitability is all the more important.

Argus Base Oils is a global report that provides the key price, trading, and analytical tools for improved risk-management in a market undergoing a structural transformation. It incorporates spot prices based on a strong methodology, company posted prices, freight rates, and key fundamentals data such as trade flows and refinery outages. Argus believes its benchmark prices can form the foundation for a growing market and improved risk management for the industry.

Argus base oil spot prices: Grades and locations assessed

	USGC domestic	USGC export	NWE domestic	Europe export	Baltic Sea	Black Sea	India	UAE	Singapore	Asia	NE Asia	Naushki
Paraffinic												
Group 1												
SN 150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SN 500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SN 150 (LVI)							✓	✓				
SN 500 (LVI)							✓	✓				
Brightstock	✓	✓	✓	✓			✓		✓	✓	✓	
Group 2												
N100	✓	✓	✓									
N150			✓				✓		✓	✓	✓	
N500							✓		✓	✓	✓	
N600	✓	✓	✓									
Group 3												
4cst	✓		✓				✓	✓	✓		✓	
6cst	✓		✓				✓	✓	✓		✓	
8cst	✓		✓				✓	✓			✓	
Naphthenic												
Pale oil 60	✓	✓										
Pale oil 100	✓	✓										
Pale oil 500	✓	✓										
Pale oil 2,000	✓	✓										

Who is Argus?

Price reporting is Argus' primary focus. Argus is an independent publishing business that is committed to reporting each market the way that it trades. Argus frequently consults with industry to create benchmarks to meet particular needs, such as those of the base oils market.

Argus has assessed refined product prices since 1970 and has over 750 staff in offices London, Houston, Washington, New York, San Francisco, Calgary, Rio de Janeiro, Singapore, Dubai, Beijing, Tokyo, Sydney, Moscow and other key centers of the commodity industries. Argus also publishes market prices in global crude oil, refined products, LPG, natural gas, electricity, coal, emissions, bioenergy, fertilizer, petrochemical, metals and transportation industries.

Argus prices are used around the world in long-term contracts, swaps indexation, transfer pricing, mark-to-market accounting, royalty calculations, corporate planning and many other purposes. Other markets using Argus include US domestic crude, Latin American crude, US fuel oil, European gasoline, European and Asian LPG, North Sea crude and many others.

Half of Argus employees are commodity journalists who specialize in reporting news and price information relating to physical energy and related commodity markets. They operate according to a rigorous Editorial Code of Conduct and a Compliance and Ethics Policy that align with best journalistic practice, including the avoidance of conflicts of interest.



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