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Argus Base Oils Annual Review 2019

Base oil market prices, news and analysis in 2019

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OVERVIEW

Global base oil production capacity surged in 2019 following the start-up of a wave of new plants. But the size of the rise in supply was smaller than expected even amid a relative dearth of plant closures. Instead, supply for the base oil and lube market was cut through a combination of factors. These included scheduled and unexpected maintenance work, run-cuts, unexpected production issues, and the diversion of supplies into the diesel and marine fuel markets. The effect was to curb downward price pressure and support more balanced fundamentals by the end of the year.

Asia-Pacific				$/t
	Low	Mid	High	±
Group I				
SN 150 ex-tank Singapore	600	620.00	640	-150.00
SN 500 ex-tank Singapore	615	635.00	655	-105.00
Bright stock ex-tank Singapore	775	795.00	815	-85.00
SN 150 fob Asia	510	530.00	550	-120.00
SN 500 fob Asia	520	540.00	560	-80.00
Bright stock fob Asia	660	680.00	700	-110.00
Group II				
N150 ex-tank Singapore	620	640.00	660	-110.00
N500 ex-tank Singapore	685	705.00	725	-55.00
N150 fob Asia	570	590.00	610	-30.00
N500 fob Asia	585	605.00	625	-25.00

Northeast Asia				$/t
	Low	Mid	High	±
Group I				
SN 150 cfr	570	590.00	610	-70.00
SN 500 cfr	580	600.00	620	-60.00
Bright stock cfr	720	740.00	760	-115.00
Group II				
N150 cfr	600	620.00	640	-10.00
N500 cfr	620	640.00	660	-10.00

India and UAE				$/t
	Low	Mid	High	±
Group I				
SN 150 (LVI) cfr India	550	570.00	590	-110.00
SN 500 (LVI) cfr India	555	575.00	595	-110.00
Bright stock cfr India	665	685.00	705	-150.00
SN 150 (LVI) cfr UAE	545	565.00	585	-125.00
SN 500 (LVI) cfr UAE	530	550.00	570	-140.00
Group II				
N150 cfr India	615	635.00	655	-35.00
N500 cfr India	630	650.00	670	-35.00

Russia and FSU				$/t
	Low	Mid	High	±
Group I				
SN 150 fob Baltic Sea	475	492.50	510	-127.50
SN 500 fob Baltic Sea	480	500.00	520	-120.00
SN 150 fob Black Sea	440	460.00	480	-125.00
SN 500 fob Black Sea	460	480.00	500	-130.00

US				$/t
	Low	Mid	High	±
Group I				
SN 150 fob	548	572.50	597	-61.00
SN 500 fob	566	590.00	614	-80.50
Bright stock fob	759	782.50	806	-35.00
Group II				
N100 fob	549	573.50	598	-62.00
N220 fob	546	570.50	595	-76.00
N600 fob	552	576.00	600	-93.00
Group III (domestic)				
4cst	832	857.00	882	-9.00
6cst	838	863.00	888	-31.50
8cst	838	863.00	888	-60.00
Naphthenic base oils				
Pale oil 60 fob	640	663.50	687	-21.00
Pale oil 100 fob	636	659.50	683	-3.00
Pale oil 500 fob	618	641.00	664	-28.00
Pale oil 2000 fob	593	616.00	639	-34.50

Europe		€/t						$/t
	Low	Mid	High	±	Low	Mid	High	±
Group I								
SN 150 fob domestic NWE					625	647.50	670	-85.00
SN 500 fob domestic NWE					655	675.00	695	-80.00
Bright stock fob domestic NWE					715	735.00	755	-150.00
SN 150 fob European export					555	575.00	595	-70.00
SN 500 fob European export					580	600.00	620	-50.00
Bright stock fob European export					625	645.00	665	-205.00
Group II								
N100 fca ARA	695	712.50	730	-86.00	773	792.50	812	-122.50
N150 fca ARA	690	707.50	725	-100.00	767	786.50	806	-138.50
N220 fca ARA	710	730.00	750	-88.50	790	812.00	834	-125.50
N600 fca ARA	730	752.50	775	-129.00	812	837.00	862	-173.00
Group III								
4cst fca NWE	695	755.00	815	-82.50	773	839.50	906	-120.00
6cst fca NWE	740	797.50	855	-82.50	823	887.00	951	-121.00
8cst fca NWE	705	765.00	825	-77.50	784	851.00	918	-114.50
Group III (a)								
4cst fca NWE	760	795.00	830	na	845	884.00	923	na
6cst fca NWE	800	835.00	870	na	890	929.00	968	na
8cst fca NWE	775	810.00	845	na	862	901.00	940	na
* Group III (a) refers to base oils which have Volkswagen Oil Quality Standard VW 504 00/507 00 certification								
Group III (b)								
4cst fca NWE	680	705.00	730	na	756	784.00	812	na
6cst fca NWE	695	720.00	745	na	773	801.00	829	na
8cst fca NWE	690	715.00	740	na	767	795.00	823	na

* Group III (b) refers to base oils which do not have Volkswagen Oil Quality Standard VW 504 00/507 00 certification

ASIA-PACIFIC

Asia-Pacific base oil prices face the prospect of support from firmer fundamentals and crude prices at the start of 2020 than they did a year earlier.

Asia-Pacific base oil prices fell in 2019, in response to persistent oversupply and weak demand.

Base oil prices declined more sharply in the first half of 2019, as a seasonal slowdown late in the second quarter of the year outweighed muted price gains in the first few months of the year. Prices were then steadier than expected at the end of the year, in response to more balanced market fundamentals.

Base oil prices extended their slide in January, after falling sharply during the last few weeks of 2018. Prices fell as producers sought to clear a swathe of surplus supplies at the same time as crude prices slumped in the fourth quarter of 2018.

Chinese demand revives

Market fundamentals then improved, while crude prices began a gradual recovery from early 2019. Chinese base oil imports jumped to 776,000t in the first quarter of the year, up by 37pc from the previous quarter. The rise in shipments partly reflected buyers securing supplies at unusually competitive levels at the start of the year. Many buyers had also delayed their stockbuilding ahead of the spring oil-change season in the first quarter of 2019 because of the market volatility in late 2018.

A pick-up in supplies from Asia-Pacific producers also helped to cover for plant maintenance in China and the slightly delayed start-up of several major new plants in the country.

But buyers remained cautious about holding large volumes. This caution curbed the size of the uptick in demand.

Demand from India also rose as buyers sought to cover requirements during a round of plant shutdowns in the first quarter of the year.

Demand in southeast Asia remained more muted, even as this region grew in importance as a key outlet for Asia-Pacific producers. Buyers were increasingly comfortable covering more of their requirements with flexibag volumes rather than with cargoes. The price of the flexibags was higher than cargo prices. But they were increasingly competitive with ex-tank Singapore prices. The smaller volumes and ready availability also allowed buyers to hold smaller stocks. This facilitated their cash flow and helped them curb their exposure to price volatility.

Japanese maintenance curbs supply

Japan's Group I producers had less spot availability as they built stocks in preparation for a heavy round of plant maintenance starting in the second quarter of the year. Some of them had curbed output in late 2018 and early 2019, in response to weak margins. Unlike the start of 2018, the arbitrage to move Group I bright stock from Europe to southeast Asia and China was also hard to work.

But buyers were able to secure sufficient volumes of Group I base oils from producers in southeast Asia. The volumes were supplemented with some Japanese shipments that term buyers were re-offering into the spot market.

Lower demand, crude pressures prices

Group I heavy-grade prices received support from firm Chinese demand during the first few months of the year. But demand then slowed from April. A sharp fall in crude prices in May added to the drop in buying interest. With scant alternative outlets besides China, Group I prices reversed their gains and fell. The lower prices attracted some buying interest in India for SN 500. But prices remained too high to attract demand for bright stock in this market. Buyers had instead secured the product at more competitive levels from the Mideast Gulf.

Group I	Low	Mid	High	± $/t
SN 150 ex-tank Singapore	600	620.00	640	-150.00
SN 500 ex-tank Singapore	615	635.00	655	-105.00
Bright stock ex-tank Singapore	775	795.00	815	-85.00
SN 150 fob Asia	510	530.00	550	-120.00
SN 500 fob Asia	520	540.00	560	-80.00
Bright stock fob Asia	660	680.00	700	-110.00

Group II	Low	Mid	High	± $/t
N150 ex-tank Singapore	620	640.00	660	-110.00
N500 ex-tank Singapore	685	705.00	725	-55.00
N150 fob Asia	570	590.00	610	-30.00
N500 fob Asia	585	605.00	625	-25.00

Group III	Low	Mid	High	± $/t
4cst ex-tank Singapore	790	820.00	850	-85.00
6cst ex-tank Singapore	785	815.00	845	-85.00
4cst fob Asia	750	770.00	790	-90.00
6cst fob Asia	770	790.00	810	-90.00
8cst fob Asia	705	725.00	745	-90.00

Asia SN 500 forward prices	Low	High	± $/t
Jan 2020	530.00	550.00	-80.00
Feb 2020	529.90	549.90	-79.85
Mar 2020	527.85	547.85	-82.25
1Q 2020	529.25	549.25	-80.70
2Q 2020	521.10	541.10	-90.40

"The price shows the implied forward-curve base oil price required to maintain its existing profit margin relative to Ice gasoil futures. Refer to www.argusmedia.com for methodology"

Asia SN 500 forward premium to gasoil	Midpoint	± $/t
Jan 2020	-47.75	-106.65
Feb 2020	-47.60	-106.75
Mar 2020	-45.60	-104.45
1Q 2020	-47.00	-105.95
2Q 2020	-38.80	-96.25

The premium shows the implied forward-curve profitability of fob Asia SN 500 relative to Ice gasoil futures. Refer to www.argusmedia.com for methodology

Ex-tank Singapore reference prices ($/t)				
Group I			Group II	
SN 150	SN 600	Bright stock	N150	N500
755.00	765.00	895.00	780.00	790.00

ASIA-PACIFIC

Fob Asia Group II prices rose slightly in the first quarter of the year, reflecting the weakness of the Chinese market. They then reversed these gains by the end of the first half of the year. Buyers held back in response to lower crude prices as well as rising supplies in China, where several new plants began operations during the second quarter.

Producers tap arb opportunities

Some Asia-Pacific producers sought to diversify their outlets in order to reduce the impact of lower Chinese demand. One such outlet was the US. Firm prices in this market and weak Asia-Pacific prices opened the arbitrage and triggered a rise in shipments to the US. Demand in the US for light-grade supplies had held unusually firm as large volumes of the product were moved to Mexico. This trend reflected a lower price for imported base oils in Mexico compared with imported diesel.

Another outlet for Asia-Pacific producers was India. Shipments from Taiwan to this market surged in the third quarter of the year, in response to a sustained slump in demand from China.

The ability to move supplies to outlets like the US and India reflected the unusually low fob Asia cargo prices relative to these markets. These low prices also prompted a growing number of plant run cuts or the diversion of base oils for blending with other products such as diesel and marine fuels during the second half of the year. The run cuts included some Group II heavy neutrals.

Producers limit year-end surplus

The lower operating rates and regular arbitrage shipments left Asia-Pacific producers with more balanced supplies at the start of the fourth quarter. This, combined with a pick-up in Chinese demand for light grades especially, helped them to deal better with a surge in US shipments to markets like India during the fourth quarter of the year.

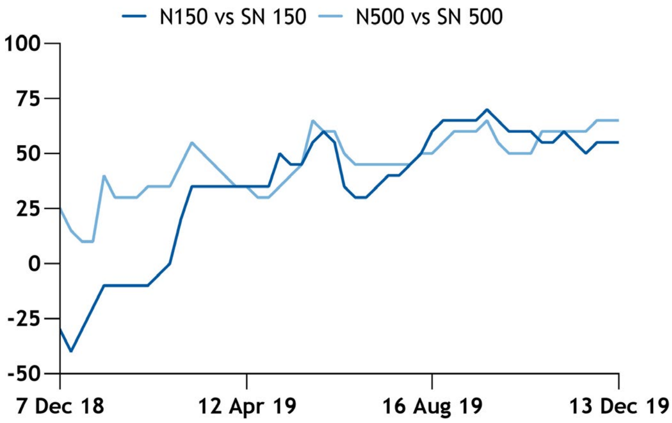
The stronger fundamentals supported steady-to-firmer prices during the last few months of the year.

Group I heavy-neutrals prices received support in the fourth quarter from steady demand in southeast Asia. Several plant shutdowns and lower-than-expected volumes from Japan also provided some support.

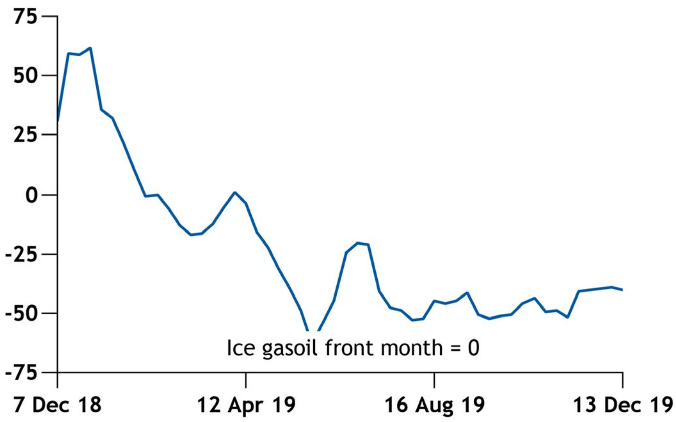
But bright stock prices remained under pressure. China remained the key market for supplies from southeast Asia. The arbitrage to move these supplies to other markets was shut.

A seasonal pick-up in Chinese demand for the product was steady. But the region then faced a wave of additional bright stock supplies from the Mideast Gulf. Their prices were more competitive than the supplies from southeast Asia and attracted growing demand throughout the region.

Fob Asia Group I vs Group II $/t



Asia SN 500 premium to Ice gasoil $/t



NORTHEAST ASIA

The northeast Asian base oils market faces the prospect in 2020 of managing a wave of new supplies that came on line in 2019.

Northeast Asian Group I base oil prices fell in 2019, with bright stock sliding the most. Group II prices ended the year at a similar level to the start of 2019, after falling mid-year.

Demand was slow at the start of the year as buyers waited for prices to bottom out from a slump during the last few weeks of 2018. Prices had fallen sharply in December 2018 in response to sliding crude prices during the fourth quarter of that year.

Buyers delay stockbuild

The drop in prices prompted buyers to hold off moves to replenish stocks until the start of 2019 rather than during the last few months of 2018. The previous year they had begun building stocks in late 2017, ahead of the spring oil-change season in early 2018.

The move to delay building stocks left buyers with lower than usual inventories just weeks ahead of a seasonal pick-up in demand from around the end of the first quarter of the year. The prolonged three-month shutdown of a Group II base oils unit in south China from February removed a major supply source from the market.

The start-up of several new base oil plants in China was also pushed back further until later in the year. They had originally been scheduled to start operations in the fourth quarter of 2018.

But, unlike in early 2017, there was no supply squeeze or significant rise in prices. Chinese buyers were instead able to secure with ease a wave of surplus supplies from other producers throughout the region. They secured the supplies at unusually competitive price levels. Imports increased from markets like South Korea, Taiwan and Singapore.

Buyers were also confident that they could secure sufficient supplies as and when required. They were also confident that prices would remain in a narrow range. This reduced their need to hold larger stocks. The strategy in turn spread over a longer period a seasonal pick-up in demand, reducing its market impact.

Imported cargo prices for Group II base oils edged slightly higher during the first quarter of the year. But the increase was small relative to the larger rise in prices in other markets like India. The increase also outpaced unusually steady domestic prices in the Chinese market during the first three months of 2019.

Tax cut benefit proves limited

Regional producers sought to benefit from a seasonal pick-up in Chinese demand from March and a subsequent cut in China's value-added tax on base oils from the start of April last year. But they struggled to raise their prices after the tax cut lowered Chinese buyers' purchasing costs. Distributors instead had to pass on the cost saving through lower prices.

Group I				$/t
	Low	Mid	High	±
SN 150 cfr	570	590.00	610	-70.00
SN 500 cfr	580	600.00	620	-60.00
Bright stock cfr	720	740.00	760	-115.00

Group II				$/t
	Low	Mid	High	±
N150 cfr	600	620.00	640	-10.00
N500 cfr	620	640.00	660	-10.00

Group III				$/t
	Low	Mid	High	±
4cst cfr	625	650.00	675	-110.00
6cst cfr	635	660.00	685	-115.00
8cst cfr	615	640.00	665	-115.00

Ex-tank East China								
	$/t				Yn/t			
	Low	Mid	High	±	Low	Mid	High	±
Group II								
N150	7,100	7,200.00	7,300	-550.00	1,013	1,027.00	1,041	-98.50
N500	7,200	7,300.00	7,400	-800.00	1,027	1,041.50	1,056	-135.00
Group III								
4cst	7,650	7,800.00	7,950	-1,050.00	1,091	1,112.50	1,134	-173.00
6cst	7,750	7,900.00	8,050	-1,100.00	1,106	1,127.00	1,148	-180.50
8cst	7,550	7,700.00	7,850	-1,100.00	1,077	1,098.50	1,120	-180.00

China domestic prices						
	Yn/t			$/t		
	Low	High	±	Low	High	±
Group I, SN 150						
Northeast						
Daqing	6,650	6,750	-200	949.00	963.00	-46.50
Dalian	6,650	6,750	-200	949.00	963.00	-46.50
North						
Yanshan	6,750	6,850	-200	963.00	977.00	-47.00
South						
Maoming	6,350	6,450	-650	906.00	920.00	-111.00
Group I, SN 400						
Northeast						
Fushun	6,650	6,750	-850	949.00	963.00	-141.00
Dalian	6,650	6,750	-850	949.00	963.00	-141.00
South						
Maoming	6,350	6,450	-1,050	906.00	920.00	-169.50
Group II, N150						
East						
Gaoqiao	6,650	6,750	-300	949.00	963.00	-61.00
South						
Huizhou	6,700	6,800	-200	956.00	970.00	-46.50

China import price calculator *						
	Yn/t			$/t		
	Low	High	±	Low	High	±
Group I (imported prices)						
SN 150	6,720	7,056	-684	959.00	1,007.00	-117.00
SN 500	6,804	7,140	-600	971.00	1,019.00	-105.00
Bright stock	7,980	8,316	-1,075	1,138.00	1,186.00	-177.50
Group II (imported prices)						
N150	6,972	7,308	-178	995.00	1,042.00	-45.00
N500	7,140	7,476	-179	1,019.00	1,066.00	-45.00

** inc. 6% customs duty, 13% VAT and 1,711.52 Yuan/t consumption tax.*

NORTHEAST ASIA

A wave of new Chinese base oils production capacity then began to start commercial operations or test runs from the end of the first quarter. This trend continued during the second quarter. The new plants included Shanxi Lu'an's 300,000 Group III+ coal-to-liquids base oils unit and Hengli Petrochemical's Group III unit in northeast China.

New plants close arbitrage

The availability of these new supplies at competitive prices put pressure on rival domestic producers and overseas refiners alike. Term buyers in China sought to divert some of these overseas supplies to other markets instead in response to the closed arbitrage to the country.

The subsequent rise in regional supplies put pressure on imported cargo prices. These then fell steadily from May. By the end of the first half of 2019, Group II cargo prices had fallen below price levels at the start of the year to their lowest levels since 2017. These weak prices forced domestic refiners in China to cut run rates and offer more of their supplies as white oils. They also forced regional producers to target other markets instead where prices were at higher levels.

Chinese demand remained unusually weak throughout the third quarter of the year. Blenders and distributors preferred to work down stocks and delay any replenishment plans. The moves triggered a slump in Chinese base oil imports in July to their lowest level since 2013.

The lack of buying interest prompted a wave of Group II shipments from Taiwan to move to India instead during the third quarter. Falling domestic Group III prices in China also halted shipments to this market from the UAE.

Demand revives from September

Chinese buying interest revived from September as blenders and distributors moved to replenish depleted stocks. Besides lower imports, supplies had tightened after some Chinese refiners trimmed output because of weaker margins. Lower prices for light-grade base oils relative to diesel also boosted the attraction of blending these supplies with diesel.

Prices also got support from rising demand for supplies classified as base oils. Most of China's new plants were offering their supplies as white oils to benefit from avoiding the cost of China's consumption tax. But a repercussion was more limited availability of base oils. Buyers turned instead to imported supplies, and especially shipments from Taiwan.

Firmer demand for base oils supported a steady rise in China's domestic Group II prices from September. These climbed to levels that made the arbitrage more feasible to import supplies from Asia-Pacific. The firmer demand and higher prices prompted Taiwan to direct most of its supplies to China in the fourth quarter. A repercussion was a sharp drop in supplies to other markets like India.

The Group I base oils market also faced sustained pressure throughout the year because of muted demand and competitive prices for Group II base oils. Buying interest focused mostly on bright stock, for which China is structurally short.

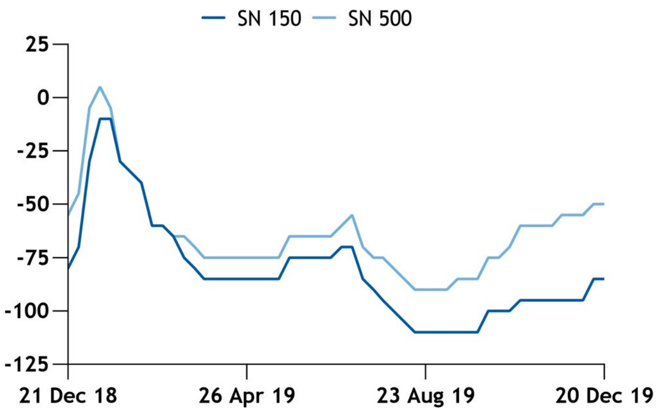
Bright stock faces sustained pressure

A closed arbitrage from Europe and a heavy round of plant maintenance in Japan prompted buyers to focus on covering requirements with supplies from producers in southeast Asia during this period.

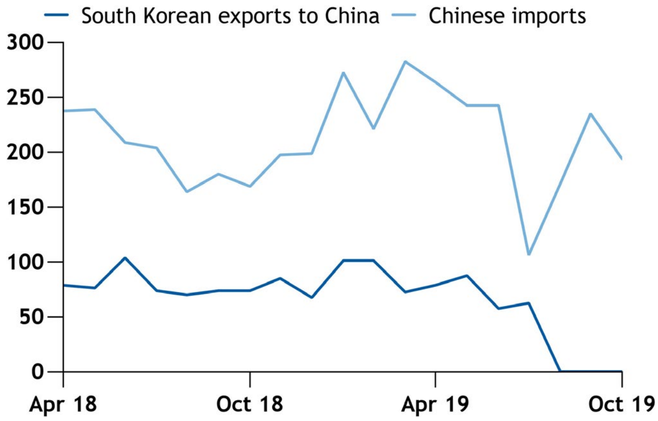
Even with the more limited supply options, these volumes proved to be sufficient. Imported cargo prices rose by some $50-60/t in the two months to April in response to the seasonal pick-up in demand, before steadying. Prices then began a sustained slide from the end of this month to early September amid slower demand and a lack of alternative outlets.

Bright stock prices edged up at the end of the third quarter ahead of several plant shutdowns in southeast Asia in the fourth quarter. But supplies from the Mideast Gulf then supplemented steady availability in Asia-Pacific during the last few months of 2019. The ample availability put renewed pressure on prices at the end of the year.

China import prices vs domestic prices $/t



South Korean exports to China/Chinese imports '000 t



INDIA

Indian base oil prices are likely to hold firmer in early 2020, contrasting with an ongoing slide in prices the same time a year earlier.

Indian base oil prices fell in 2019 in response to healthy availability and unusually slow demand during the second half of the year. But the price drop was relatively small, with trading activity holding in a narrow price range.

Group II prices fell at the beginning of last year as producers in northeast Asia slashed their prices to clear a supply overhang from the previous year. Buyers had held back in late 2018 in order to lock in lower prices following the slump in crude prices during the fourth quarter of that year.

Some buyers also secured arbitrage shipments of US origin, adding to the swathe of supplies.

Tighter supply supports prices

But prices steadied and then rose from February as buyers became aware of additional plant maintenance during the first quarter of the year. They had long anticipated and readied for a Group III plant shutdown in South Korea at the end of the first quarter. They were less prepared for the shutdown of a plant in the Mideast Gulf during the first quarter.

An expected wave of Group II supplies from the US also failed to materialise. Several large shipments were lined up to move to India in the first quarter of the year. But US producers first raised their export prices to levels that made the arbitrage unfeasible. They then withdrew any offers of supplies.

The moves partly reflected US producers' focus on maximising shipments to Mexico, where buyers were paying higher prices than Indian buyers. It also reflected the impact of an unexpectedly heavy round of plant maintenance or production issues in the country during the first quarter.

Shipments from Taiwan to India also slowed as this market's Group II producer focused on moving more cargoes to China to cover for an anticipated seasonal rise in demand and prices. Supplies from Spain to India also slowed.

At the same time, a sustained rebound in crude and diesel prices from the start of the year left producers with increasingly squeezed margins.

These higher crude prices, along with the almost simultaneous shutdown of two plants that were key suppliers of very-light grade base oils to India and more limited shipments from the US and Taiwan, prompted buyers to prioritise security of supplies. The move provided other Asia-Pacific producers with the leverage to target higher prices.

Group II prices rose by $60-70/t over the course of about a month before steadying in first-half March. They then held around this level for most of the next three months. The period coincided with the shutdown of the South Korean Group III plant for maintenance.

Group I				*$/t*
	Low	**Mid**	**High**	**±**
SN 150 cfr	565	585.00	605	-75.00
SN 500 cfr	570	590.00	610	-90.00
SN 150 (LVI) cfr	550	570.00	590	-110.00
SN 500 (LVI) cfr	555	575.00	595	-110.00
Bright stock cfr	665	685.00	705	-150.00

Group II				*$/t*
	Low	**Mid**	**High**	**±**
N70 cfr	630	650.00	670	+10.00
N150 cfr	615	635.00	655	-35.00
N500 cfr	630	650.00	670	-35.00

Group III				**$/t**
	Low	**Mid**	**High**	**±**
4cst cfr	650	670.00	690	-45.00
6cst cfr	650	670.00	690	-50.00
8cst cfr	635	655.00	675	-65.00

Domestic refinery prices				
	*Rs/l **	±	*$/t*	±
Group I				
IOC prices, Chennai				
SN 70	68.30	-6.05	1,178.00	-126.00
SN 150	62.80	-7.65	1,018.00	-143.00
SN 500	59.45	-7.50	948.00	-138.00
Bright stock	79.60	-6.90	1,243.00	-131.00
IOC prices, Mumbai				
SN 70	66.30	-6.05	1,144.00	-125.00
SN 150	60.80	-7.65	986.00	-143.00
SN 500	54.95	-7.50	876.00	-137.00
Bright stock	77.60	-7.35	1,212.00	-138.00
Group II				
IOC prices, Chennai				
N70	90.06	+2.31	1,514.00	+13.00
N150	63.60	-7.65	1,054.00	-147.00
N500	60.21	-7.50	985.00	-142.00
IOC prices, Mumbai				
N70	69.00	-7.65	1,160.00	-151.00
N150	61.60	-7.65	1,021.00	-146.00
N500	56.15	-7.50	919.00	-140.00

** prices in Rs/l effective from 01 Dec*

Sufficient supply caps price gains

But prices failed to rise further even as crude prices extended their climb through late April. Supplies from some sources were more plentiful than expected, even with maintenance taking place. The arrival of arbitrage shipments from the US in April-May further replenished buyers' stocks. At the same time, demand eased from the start of the new financial month in April.

Sliding crude oil prices from mid-May then prompted buyers to hold back. The resumption of normal exports from several plants following maintenance work added to supply. Producers' move to link more of their light-grade supplies with regional gasoil prices guaranteed that base oil prices would fall to reflect the lower diesel prices. Buyers were comfortable to hold back until this happened. Prices subsequently fell in June back to their levels at the start of the year.

Even with the lower prices, imported cargo prices in India maintained a steeper-than-usual premium to imported cargo prices into northeast Asia. That premium in 2018 averaged around $39/t for Group II N150. It averaged $60/t in the first half of 2019 and peaked at $90/t in early March.

INDIA

Buyers secure more SN 500

Group I base oil prices remained in an even narrower range than Group II prices. A small discount to Group II prices at the start of 2019 dampened demand. A widening discount through the second quarter of the year then boosted demand for Group I supplies, especially of heavy grades. The relative price weakness of Group I reflected plentiful availability in Europe as well as the Mideast Gulf. Supplies were also available from southeast Asia by the end of the second quarter.

The healthy availability more than countered the impact of a drop in supplies from Japan and any slowdown in shipments from Iran following the re-imposition of US sanctions on this country from late 2018.

Group III base oil prices rose more than Group II prices in the first half of the year. Their widening premium to Group II reflected more limited supply from a major producer in the Mideast Gulf. More of its supplies moved instead to other markets like the US, Europe and China. But there was unusually plentiful availability from another producer in that region.

Taiwan supplies move to India

Group II cargo prices stayed low in a narrow range throughout the third quarter of the year. Demand slowed during an unusually prolonged monsoon season. Supply was supplemented with large volumes from the Mideast Gulf and from Taiwan.

The country's domestic producers faced similarly weak fundamentals. They responded by offering surplus volumes at unusually competitive prices. The moves added to domestic supply.

The weak fundamentals left buyers focusing on managing their inventories carefully to avoid a large supply build. The move curbed Asia-Pacific producers' leverage to raise their prices in response to persistently squeezed margins.

Some producers targeted higher prices from October to tap an expected seasonal rise in consumption during the peak demand season in the fourth quarter. Demand and prices for very-light grade base oils had already remained firm throughout the third quarter.

But the pick-up in demand lagged expectations amid lingering monsoon rains and slumping car sales.

US shipments add to supplies

Supply then got a boost in the fourth quarter as several US producers cleared a large volume of surplus cargoes through the export market. A large portion of the supplies moved to India, with prices at a small discount to cfr India cargo prices. The shipments prompted Indian buyers to target similar prices for supplies from Asia-Pacific.

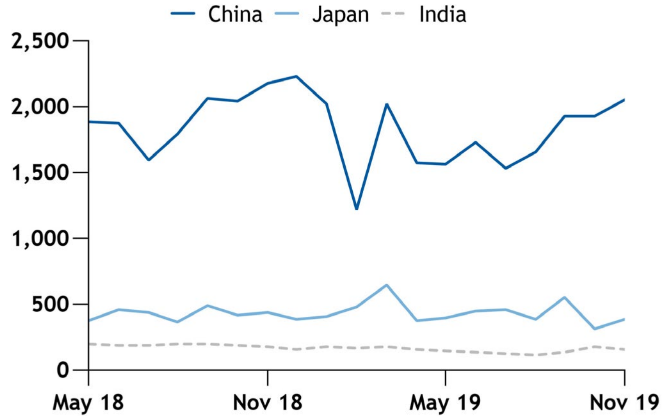
But the impact of this wave of US supplies was more muted than usual.

The steadier prices reflected a slowdown in supplies from other markets like South Korea and Taiwan during the last few months of the year.

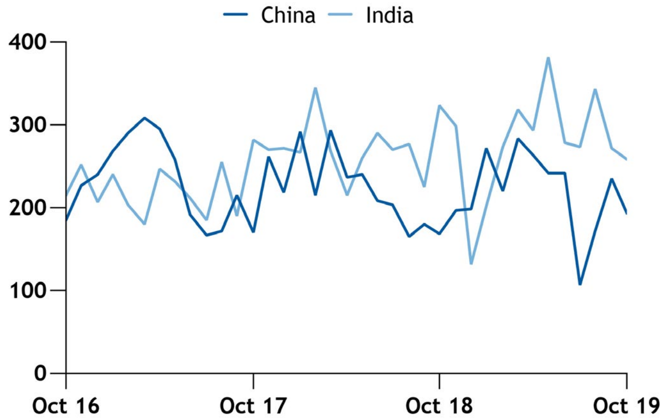
Group I prices faced persistent pressure during the second half of the year amid a regular flow of supplies to India. A large volume of the supplies were from Iran. These were supplemented with several large shipments of Russian origin, as well as large volumes of supplies from domestic producers.

A steady flow of bright stock was also available from the Mideast Gulf. Prices were at levels that kept shut the arbitrage from other markets.

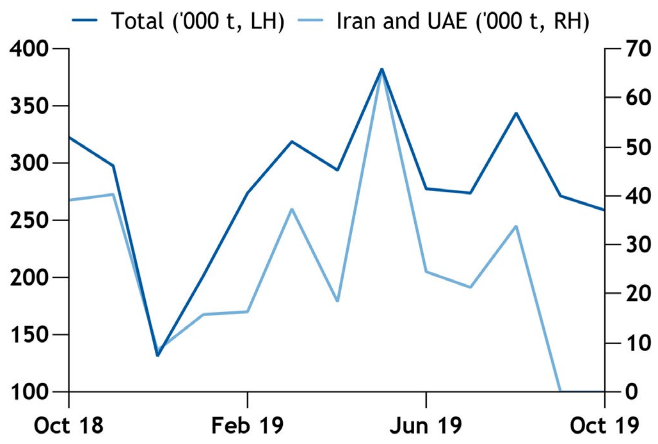
China vs Japan vs India car sales 'ooo



Chinese vs Indian base oil imports 'ooo t



Indian base oil imports 'ooo t



MIDEAST GULF

Mideast Gulf base oil prices are to start 2020 with the prospect of fewer arbitrage cargo opportunities than in early 2019.

Mideast Gulf base oil prices fell in 2019 amid weaker demand and pressure from arbitrage shipments from Europe, the US and Asia-Pacific.

Mideast Gulf base oil prices fell in the first half of last year, extending a sustained price drop that began in the second quarter of 2018. Prices were steadier in the second half of 2019.

Prices fell in 2018 in response to the persistent availability of Group I supplies from southeast Asia and Japan. These cargoes supplemented steady flows from Iran. The addition of Group II shipments from Asia-Pacific and the US at the start of 2019 added to the regional supplies. Price levels for these supplies were unusually competitive versus Group I base oils.

The availability of Group I supplies from Asia-Pacific slowed from late 2018 in response to tighter supplies caused by refinery run cuts in Japan. Producers in this market then built stocks in early 2019 ahead of a heavy round of plant maintenance starting in the second quarter of the year. The move curbed their availability of spot volumes.

European supplies move to Mideast Gulf

Mideast Gulf buyers turned instead to an increasingly steady flow of Group I supplies from producers in Europe. Sliding prices in this market opened the arbitrage to move European cargoes to the Mideast Gulf. This arbitrage had been shut throughout most of 2018 because European Group I export prices had been too high. The high prices and closed arbitrages exacerbated the supply overhang that European producers had faced at the start of 2019.

To move shipments to the Mideast Gulf, European cargo prices had to fall even more sharply than regional prices that were already sliding. They also had to compete with Group I supplies from within the region. These volumes were also available at increasingly competitive price levels.

The supplies included shipments from Iran. The availability of these supplies in turn dampened interest in cargoes of Russian origin from the Black Sea market because their prices were deemed to be too high. The weaker demand exacerbated the overhang of Russian Group I supplies in this market.

Group I prices had in previous years firmed from the end of the first quarter of the year in response to a drop in supplies of Iranian origin during the country's new year festivals from late March. In 2019 the fall in prices paused during this period. But there was no price recovery.

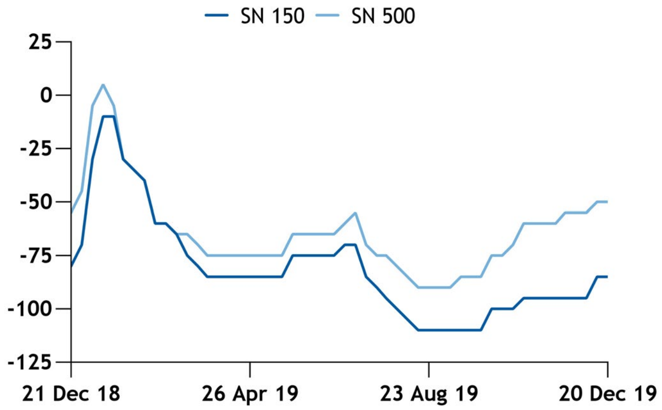
The plentiful availability exacerbated the demand weakness by curbing buyers' urgency to build larger stocks. They were comfortable to secure additional volumes more on a need-to basis. The drop in crude prices in May added to that preference in a bid to limit exposure to lower prices.

Group I				$/t
	Low	Mid	High	±
SN 150 cfr UAE	580	600.00	620	-65.00
SN 500 cfr UAE	590	610.00	630	-70.00
SN 150 (LVI) cfr UAE	545	565.00	585	-125.00
SN 500 (LVI) cfr UAE	530	550.00	570	-140.00

Group II				$/t
	Low	Mid	High	±
N150 ex-tank UAE	635	655.00	675	-90.00
N500 ex-tank UAE	670	690.00	710	-80.00

Group III				$/t
	Low	Mid	High	±
4cst ex-tank UAE	680	700.00	720	-45.00
6cst ex-tank UAE	690	710.00	730	-50.00
8cst ex-tank UAE	700	720.00	740	-50.00

Black Sea vs UAE (LVI) $/t



Demand for Group II base oils slowed during the second quarter of the year. Tighter availability and a surge in prices closed the arbitrage from the US. Asia-Pacific producers moved more supplies to China and India at slightly firmer prices. The trend highlighted the sporadic availability of these supplies in the Mideast Gulf market and supported regional blenders' continuing preference for Group I base oils.

MIDEAST GULF

Group II arbitrage reopens

But this arbitrage to move Group II base oils to the region reopened late in the second quarter of the year. A sustained drop in Chinese demand left Asia-Pacific producers with a growing surplus and falling prices. These lower prices made the arbitrage more feasible again and more competitive versus Group I supplies.

Group III base oil prices held in a narrow range in the first half of the year. The region absorbed a large volume of supplies that were available at unusually competitive prices on an ex-tank basis, especially compared with Group III cargo prices. Some buyers purchased these supplies in place of Group II base oils.

A producer also had a larger than expected volume of surplus cargoes during the first five months of the year. A large portion of these shipments moved to India.

Asia-Pacific producers targeted the Mideast Gulf market with more Group II supplies in the third quarter of the year. Weaker Chinese demand left them with persistent surplus supplies that they redirected towards this region.

Tensions increase freight costs

But higher freight costs complicated some of these arbitrage opportunities. Some vessel operators added a war risk premium to their freight costs in response to several incidents in the region that raised geopolitical tensions.

Steadier European Group I prices also kept shut the arbitrage from this region throughout the third and fourth quarters of the year.

Buyers responded by securing more supplies from within the Mideast Gulf. These were readily available and priced at competitive levels. Slow finished lube demand throughout the region and in east Africa curbed further their need for arbitrage volumes.

Buyers secured arbitrage supplies of Group II base oils from the US in the fourth quarter of the year, after producers in this market slashed their prices to clear a large surplus.

These competing supplies prompted some Asia-Pacific producers to trim their price offers in response. But other producers were comfortable to maintain their price offers in response to a more manageable surplus. The result was a slowdown in arbitrage shipments from Asia-Pacific to the Mideast Gulf in the fourth quarter of the year.

Group III ex-tank and cargo prices fell in the third quarter as the region struggled with oversupply. There was a sustained slowdown in shipments to China, and an increasingly competitive Group III market in Europe. There had been a lack of shipments to India for several months.

Lower prices then triggered a wave of shipments to India and China, clearing the surplus. Group III price offers then rose during the last couple of months of 2019.

EUROPE

European base oil prices were under downward pressure for most of 2019. Oversupply of all grades countered the impact of a seasonal pick-up in demand in the first half of the year, spurring an unusual fall in prices during that period.

Production issues, maintenance and run-cuts trimmed the overhang in the second half of the year. The more balanced fundamentals helped prices to avoid the kind of downward pressure that they typically face at the end of each year.

Competition for market share narrowed the price spread between Group I, Group II and Group III base oils to as little as \$150/t, from around \$250/t a year earlier. The narrow price-gap between the different types of base oils gave blenders more options to switch between grades, or to avoid those prices that they deemed to be less competitive.

Prices in 2020 are likely to continue to face pressure from structural oversupply and competition between base oil groups. But the market begins the year better balanced than at the same time in early 2019.

Group I falls in 1H 2019

Regional Group I prices fell by 7pc in the first six months of 2019. The price drop contrasted with a typical rise in prices during that period in previous years. Prices steadied in the third quarter, before easing further in the fourth quarter.

Bright stock prices fell the most, reflecting that product's switch from tightness to growing oversupply following the start-up of new capacity in the Mideast Gulf.

Persistent oversupply and competition in 2019 squeezed base oil values relative to crude and diesel to multi-year lows. The differential of Group I SN 150 to gasoil fell in 2019 to the lowest level in at least 10 years. Prices for SN 150 held at a premium to gasoil for only six weeks of the year. The weak values prompted refiners to cut run rates and to prioritise fuel production.

Reduced output throughout most of 2019 curbed spot availability and left the market more balanced during the last few months of the year. Some prolonged plant maintenance in the first half of the year and persistent industrial action or production issues in France from the second quarter also curbed output.

Fundamentals improve at year-end

Regional availability remained sufficient. But spot volumes in the export market were unusually limited in the fourth quarter compared with previous years. The limited availability gave producers the leverage to avoid cutting prices to create arbitrage opportunities.

Lower inventory levels at year-end were likely to provide some support for Group I prices at the start of 2020.

The implementation of the International Maritime Organisation's (IMO) 0.5pc sulphur cap on marine fuels from the start of 2020 is likely to increase demand for low-sulphur feedstock and distillates. The move raised the prospect of putting additional pressure on base oil margins amid rising fuels and feedstocks prices.

Group I				\$/t
	Low	Mid	High	±
SN 150 fob domestic NWE	625	647.50	670	-85.00
SN 500 fob domestic NWE	655	675.00	695	-80.00
Bright stock fob domestic NWE	715	735.00	755	-150.00
SN 150 fob European export	555	575.00	595	-70.00
SN 500 fob European export	580	600.00	620	-50.00
Bright stock fob European export	625	645.00	665	-205.00

Group II	€/t				\$/t			
	Low	Mid	High	±	Low	Mid	High	±
N100 fca ARA	695	712.50	730	-86.00	773	792.50	812	-122.50
N150 fca ARA	690	707.50	725	-100.00	767	786.50	806	-138.50
N220 fca ARA	710	730.00	750	-88.50	790	812.00	834	-125.50
N600 fca ARA	730	752.50	775	-129.00	812	837.00	862	-173.00

Group III	€/t				\$/t			
	Low	Mid	High	±	Low	Mid	High	±
4cst fca NWE	695	755.00	815	-82.50	773	839.50	906	-120.00
6cst fca NWE	740	797.50	855	-82.50	823	887.00	951	-121.00
8cst fca NWE	705	765.00	825	-77.50	784	851.00	918	-114.50

Group III (a) *	€/t				\$/t			
	Low	Mid	High	±	Low	Mid	High	±
4cst fca NWE	760	795.00	830	na	845	884.00	923	na
6cst fca NWE	800	835.00	870	na	890	929.00	968	na
8cst fca NWE	775	810.00	845	na	862	901.00	940	na

** Group III (a) refers to base oils which have Volkswagen Oil Quality Standard VW 504 00/507 00 certification*

Group III (b) *	€/t				\$/t			
	Low	Mid	High	±	Low	Mid	High	±
4cst fca NWE	680	705.00	730	na	756	784.00	812	na
6cst fca NWE	695	720.00	745	na	773	801.00	829	na
8cst fca NWE	690	715.00	740	na	767	795.00	823	na

** Group III (b) refers to base oils which do not have Volkswagen Oil Quality Standard VW 504 00/507 00 certification*

Turkey Group I				\$/t
	Low	Mid	High	±
SN 150 cfr Gebze	565	585.00	605	-115.00
SN 500 cfr Gebze	590	610.00	630	-105.00

European SN 150 forward prices			\$/t
	Low	High	±
Jan 2020	565.00	585.00	-70.00
Feb 2020	564.90	584.90	-69.85
Mar 2020	562.85	582.85	-72.25
1Q 2020	564.25	584.25	-70.70
2Q 2020	556.10	576.10	-80.40

The price shows the implied forward-curve base oil price required to maintain its existing profit margin relative to Ice gasoil futures.

European SN 150 forward premium to gasoil		\$/t
	Midpoint	±
Jan 2020	-12.75	-96.65
Feb 2020	-12.60	-96.75
Mar 2020	-10.60	-94.45
1Q 2020	-12.00	-95.95
2Q 2020	-3.80	-86.25

The premium shows the implied forward-curve profitability of fob Europe SN 150 relative to Ice gasoil futures.

Refer to www.argusmedia.com for methodology

EUROPE

Refineries seeking to optimise profitability would face pressure to cut base oil production even more. There would be an incentive to pour light-viscosity Group I supplies especially back into the fuels pool after higher-value bright stock and wax cuts are removed.

But any upward price support is likely to be capped because of sufficient availability. While production has been cut throughout 2019, no permanent Group I plant closures have been announced.

There have also been scant announcements on planned plant maintenance work in 2020. That contrasts with a relatively heavy round of plant maintenance throughout 2019.

Rising Group II supply entices blenders

Ready availability of Group II base oils is also likely to curb any significant rise in Group I prices in 2020. The wide gap between Group I and Group II prices in 2019 helped to sustain steady demand for Group I base oils.

Group II prices fell by around €100/t ($112/t) in the first five months of 2019. They then held in a narrow range for the rest of the year.

Prices fell following the start-up of a new 900,000 t/yr Group II base oils unit in the Netherlands in the first quarter of 2019. The supplies added to regional Group II base oil imports that had been rising strongly in recent years.

Total supply from domestic production and imports peaked at 980,000t in the first half of 2019. The volume was up from 814,000t during the same time a year earlier.

Lower prices and greater security of supply increased the incentive for blenders to switch from Group I to Group II base oils.

But the discount of Group I to Group II light grades widened steadily throughout the fourth quarter of the year to levels that were similar to the first quarter of the year. The wide discount incentivized blenders to stick with Group I.

Uncertainty about Group II supplies and prices in 2020 added to that incentive following the EU's decision to remove a Group II import duty waiver from the start of this year. It has instead introduced a 200,000t import quota between January and June 2020. Imports above the quota from countries that do not have a free trade agreement with the EU will be subject to a 3.7pc import tax.

Uncertainties caused by these changes could boost the attraction of using regional Group II supplies. They could also deter blenders from switching to Group II. They could instead take advantage of plentiful availability of Group III base oils at increasingly competitive prices.

Group II faces competition from Group III

Group III base oil prices fell in 2019 in response to plentiful supply and limited demand, particularly in northwest Europe.

The spread between prices for supplies with and without approvals narrowed from $146/t in April 2019 to $100/t by the end of the year. The narrowing spread reflected the growing competition between these two segments of the market as producers competed for market share.

Lower prices for supplies without approvals also left their prices at a widening discount to regional Group II prices by the end of 2019.

The pressure on prices reflected the impact of rising global supply, especially in China. Producers without OEM approvals targeted Europe with surplus supply amid even lower prices in their regional markets.

New production capacity also started up in the US in September. These supplies had OEM approvals. The first cargo from this new capacity reached Europe in the fourth quarter of 2019.

While supply rose, demand slowed. A fire at an additives plant in northwest Europe in September curbed Group III demand as blenders slowed operations.

Competition in the Group III markets for both approved and non-approved base oils is expected to keep pressure on prices in the first half of 2020. But maintenance work is set to impact several Group III plants during that period. Any impact on supply could provide price support. But any significant price-support could impact the product's attraction relative to Group II base oils.

European forward prices						$/t
	SN 150			SN 500		
	Low	**High**	**+/-**	**Low**	**High**	**±**
Jan 2020	565.00	585.00	-70.00	590.00	610.00	-50.00
Feb 2020	564.90	584.90	-69.85	589.90	609.90	-49.85
Mar 2020	562.85	582.85	-72.25	587.85	607.85	-52.25
1Q 2020	564.25	584.25	-70.70	589.25	609.25	-50.70
2Q 2020	556.10	576.10	-80.40	581.10	601.10	-60.40

The price shows the implied forward-curve base oil price required to maintain its existing profit margin relative to Ice gasoil futures.

European forward premium to gasoil				$/t
	SN 150		SN 500	
	Midpoint	**±**	**Midpoint**	**±**
Jan 2020	-12.75	-96.65	12.20	-76.70
Feb 2020	-12.60	-96.75	12.35	-76.80
Mar 2020	-10.60	-94.45	14.35	-74.50
1Q 2020	-12.00	-95.95	12.95	-76.00
2Q 2020	-3.80	-86.25	21.15	-66.30

The premium shows the implied forward-curve profitability of fob Europe SN 150 and SN 500 relative to Ice gasoil futures.

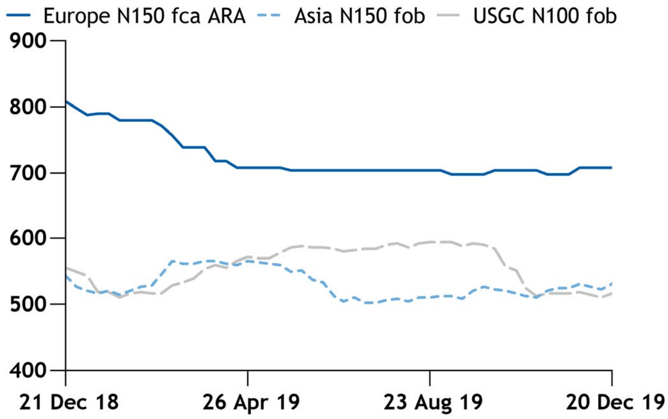
Freight rates to Gebze, Turkey					$/t
Route	3,000t	5,000t	Route	3,000t	5,000t
Black Sea	25-27	18-20	Antwerp	53-58	42-46
Augusta	37-39	27-29	Baltic	88-92	75-80
UAE	75-80	62-65			

** provided at market close on 20 December by Borachart (www.borachart.com)*

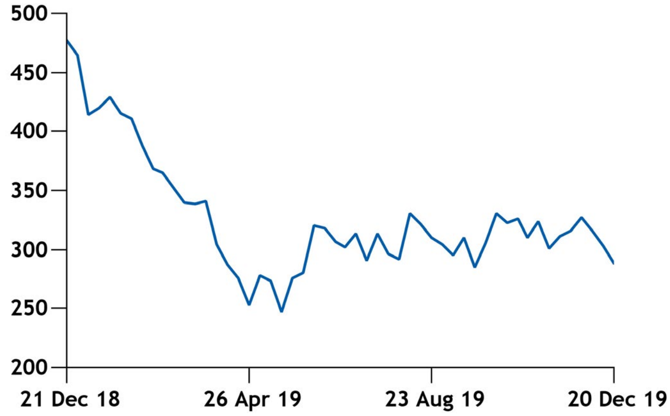
Refer to www.argusmedia.com for methodology

EUROPE

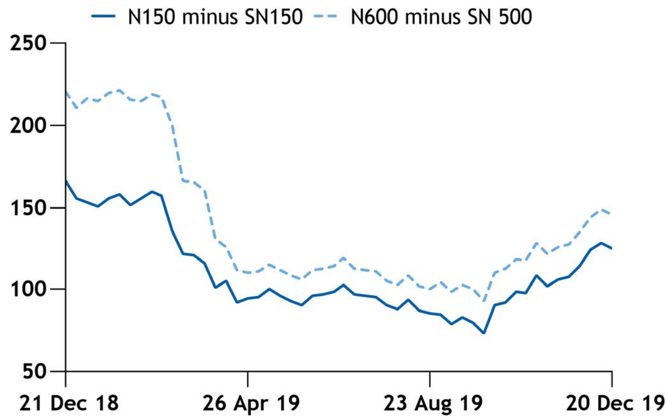
Group II Europe vs Asia vs US comparison, light grades €/t



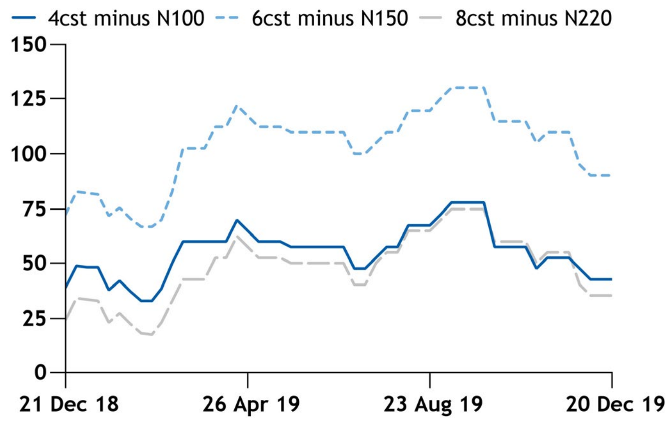
European N220 premium to VGO 2% €/t



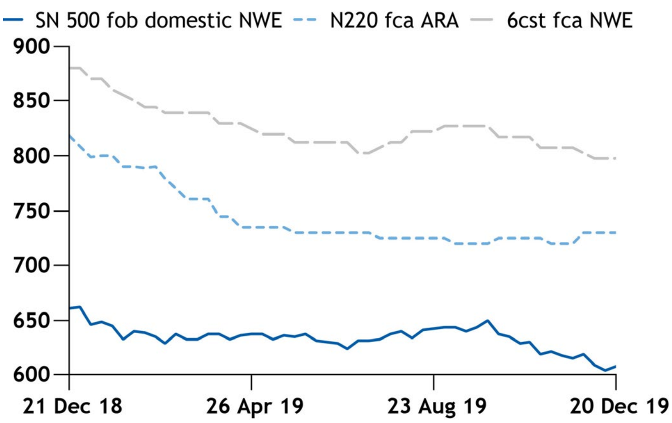
European Group II vs Group I €/t



European Group III vs Group II €/t



European Group I vs II vs III comparison, heavy grades €/t



RUSSIA AND FSU

Base oil prices in the Baltic and Black Sea markets are set to start 2020 with much more balanced fundamentals than the same time a year earlier.

Base oil prices in the Baltic and Black Sea markets fell in 2019, with most of the drop in the first quarter of the year. Group I base oil prices fell sharply during that period, in response to increasingly weak demand in key outlets like Europe and Africa, combined with healthy availability. Prices then steadied and held in a narrow range for the rest of the year.

Group I prices in the Baltic market had slipped during the fourth quarter of 2018. But the price drop was smaller than the fall in prices in other markets like Europe and the US.

Closed arb pressures prices

The effect was an increasingly narrow price gap between Baltic and domestic European Group I prices at the start of 2019. The trend made the arbitrage to Europe increasingly hard to work. The discount of fob Baltic prices to European export prices narrowed even more sharply to a two-year low of just $15/t.

Besides waning competitiveness versus European supplies, the fob Baltic Group I premium to US Group II heavy-grade export prices fell to less than $20/t early in the year. It had already held at less than $50/t throughout much of the second half of 2018.

The relative strength of fob Baltic prices reflected persistently firm demand and prices from buyers in the Baltic region, and from Ukraine especially. This steady buying interest prompted regional producers to maintain higher price offers.

But the effect was to close off arbitrage opportunities to key outlets like west Africa, Turkey and the Mideast Gulf.

Instead, buyers in these markets secured Group I supplies from Europe and heavy-grade Group II supplies from the US. With requirements covered at competitive prices, there was less interest in Russian supplies, even at lower price levels.

While demand for Russian base oils slowed, supply was expected to remain healthy during the first half of 2019. The weak fundamentals and concern about lower prices deterred Baltic trading firms from seeking to replenish stocks. In previous years, they had often sought to lock in supplies at the end of the previous year and the start of the new year in anticipation of tighter availability because of plant maintenance. This supply tightness and a seasonal rise in demand then supported higher prices.

But this trend failed to materialise in the first half of 2019. Instead, the weak buying interest prompted a sharp slowdown in Russian base oil supplies to Baltic ports, and in shipments from Baltic ports to other markets during the first few months of the year.

Total Russian base oil exports by rail to Baltic ports fell to 82,000t in the first quarter of the year, down from 124,000t during the same period in 2018. Cargo loadings from Baltic ports similarly fell to just 77,000t in the first quarter, down from 139,000t during the same period a year earlier.

Baltic Sea Group I				$/t
	Low	Mid	High	±
SN 150 fob	475	492.50	510	-127.50
SN 500 fob	480	500.00	520	-120.00

Black Sea Group I				$/t
	Low	Mid	High	±
SN 150 fob	440	460.00	480	-125.00
SN 500 fob	460	480.00	500	-130.00

Naushki Group I				$/t
	Low	Mid	High	±
SN 150 cpt	350	370.00	390	-60.00
SN 500 cpt	355	375.00	395	-65.00

Russian base oil, lubes rail/river exports by supplier 'ooot							
	Nov	Oct	±		Nov	Oct	±
Volgograd	19.42	30.86	-11.44	Yaroslavl	4.14	3.70	+0.44
by rail	14.52	12.06	+2.46	Ufa	1.18	0.29	+0.89
by river	4.90	18.80	-13.90	Orgkhim	5.65	4.60	+1.05
N.Novgorod	0.00	0.00	nc	Obninsk	1.38	1.37	+0.01
Perm	18.15	16.63	+1.52	Sofrino	0.14	0.15	-0.01
Novokuibyshevsk	11.00	9.95	+1.05	Orenbu rg	0.00	0.00	nc
Angarsk	7.40	6.41	+0.99	Omsk	7.90	4.63	+3.27
Nizhnekamsk	8.52	9.94	-1.42	Other	2.68	3.83	-1.15
Total					87.55	92.35	-4.80

Russian base oils, lubes rail/river exports							'ooot
	Nov	Oct	±		Nov	Oct	±
Rail							
Overland	35.55	35.53	+0.01	Baltic	37.26	26.79	+10.48
Afganistan	0.05	0.06	-0.01	Kaliningrad	8.45	8.70	-0.25
Armenia	0.00	0.00	nc	Liepaja	2.03	0.55	+1.48
Azerbaijan	0.66	0.46	+0.20	Riga	16.26	14.80	+1.47
Belarus	2.74	2.59	+0.16	Ventspils	9.32	2.25	+7.07
China	1.80	1.05	+0.74	St.Petersburg	1.20	0.50	+0.71
Hungary	0.00	0.00	nc				
North Korea	0.00	0.00	nc	Black Sea	5.13	4.26	+0.87
Finland	0.30	0.92	-0.62	Taganrog	0.00	0.00	nc
Kazakhstan	4.72	3.82	+0.90	Yeisk	0.00	0.00	nc
Kyrgyzstan	1.06	0.76	+0.30	Kavkaz	1.00	0.47	+0.53
Latvia	2.29	2.72	-0.43	Novorossiysk	1.17	3.79	-2.62
Lithuania	6.52	5.93	+0.59	Reny	0.00	0.00	nc
Moldova	0.00	0.00	nc	Odessa	0.00	0.00	nc
Mongolia	0.39	0.73	-0.34	Temryuk	2.96	0.00	+2.96
Romania	0.39	0.24	+0.15				
Poland	0.85	1.45	-0.60	River			
Georgia	0.06	0.00	+0.06	Volgograd	4.90	18.80	-13.90
Tajikistan	1.28	1.14	+0.15				
Turkmenistan	0.40	0.24	+0.16	Far East			
Ukraine	10.47	11.93	-1.45	Nakhodka	4.72	3.56	+1.16
Uzbekistan	1.59	1.52	+0.07				
Total Russia rail, river exports					87.55	92.35	-4.80

Russian and Belarusian base oil export duty *					$/t
Jan 2020	**Dec 2019**	**Nov 2019**	**Oct 2019**	**Sep 2019**	**Aug 2019**
23.10	27.10	26.40	26.10	27.20	28.20
Jul 2019	**Jun 2019**	**May 2019**	**Apr 2019**	**Mar 2019**	**Feb 2019**
30.00	33.10	31.30	29.20	27.30	24.20

** tax paid by producer for base oils export outside of Russia, Belarus, Kazakhstan, Tajikistan and Kyrgyzstan*

RUSSIA AND FSU

Prices slump in 1Q

The weak demand and closed arbitrages prompted a sharp price correction, with prices falling by more than $100/t during the last two months of the first quarter.

Prices were more stable in the second quarter of 2019 as supply tightened because of planned, unexpected and extended plant maintenance. A seasonal pick-up in domestic demand in Russia and persistent buying interest from Ukraine provided further support.

Prices had also moved to wider discounts versus Europe and US export prices, boosting arbitrage opportunities. But steady demand from Russian and Ukrainian buyers meant Baltic trading firms had to bid at higher price levels in order to secure supplies. Any such move then closed off those arbitrage opportunities. Unable to secure supplies at workable prices, export activity from the Baltic market remained slow in the second quarter of the year. Cargo loadings from Baltic ports came to around 85,000t during the second quarter, down from 95,000t during the same period in 2018.

Black Sea supplies rise

Prices also faced pressure in the Black Sea market because of limited arbitrage opportunities. Demand in Turkey remained weak, while prices in the Mideast Gulf faced persistent pressure from competitive prices for Iranian supplies. While demand was slow, fob Black Sea cargo prices faced additional pressure from unusually plentiful supplies of Russian base oils that moved to Black Sea ports during the first half of the year. Russian base oil exports to Black Sea ports came to 148,000t during this period, up from 85,000t in the first half of 2018.

Group I prices in the Baltic market held steady during most of the second half of the year. Strong demand from Russia and Ukraine supported firm inland prices. Baltic buyers were unable to compete with these prices without closing arbitrage opportunities to other markets. But by maintaining lower bids, they failed to secure supplies. A large portion of cargoes from Baltic ports reflected just term shipments.

2H surplus lags expectations

Inland Group I prices eased in September-October in response to a seasonal slowdown in domestic demand in Russia. But the size of the price drop was relatively muted. Buyers expected a more sizeable price drop as producers moved to clear surplus supplies before the end of the year.

But the size of that surplus was smaller than expected. Lower run rates and maintenance curbed some of the overhang. Firmer-than-usual domestic demand also absorbed more supplies. Prices close to or below regional diesel prices also incentivised moves to blend base oils with the motor fuel.

The limited fall in inland prices curbed the downward pressure on fob Baltic cargo prices. These remained at levels that deterred buyers from seeking to rebuild stocks.

Prices in the Black Sea market extended their fall at the start of the third quarter amid pressure from rising surplus supply. A large volume of supplies then moved to markets like Turkey, India and Asia-Pacific. With fundamentals more balanced, prices then held relatively steady during the last few months of 2019.

Russian domestic lube/base oil supplies ‘000t

Supplier	Nov 19	± Oct 19
Lukoil Volgograd	12.34	4.90
Rosneft Novokuibyshevsk	14.56	-2.09
Bashneft Ufa	7.36	-4.96
Lukoil Perm	8.04	-3.13
Rosneft Angarsk	10.64	0.79
Gazpromneft Omsk	13.16	-0.79
Gazpromneft/Rosneft Yaroslavl	9.63	3.52
Orgkhim	3.99	0.93
Tatneft Nizhnekamsk	5.05	-1.45
Rosa-1	0.24	-0.24
Lukoil Tyumen	0.39	-0.29
Shaumyan lube plant	0.06	-1.89
Devon Group	0.30	-0.14
Sofrino lube plant	0.06	-0.04
Rosneft Ryazan	0.12	0.12
Experimental plant Neftekhim	0.06	-0.18
Obninskorgsintez	0.81	-1.11
Others	50.03	3.71
TOTAL	**136.83**	**-2.32**

Naftan base oil offers and trades, 13-19 Dec *

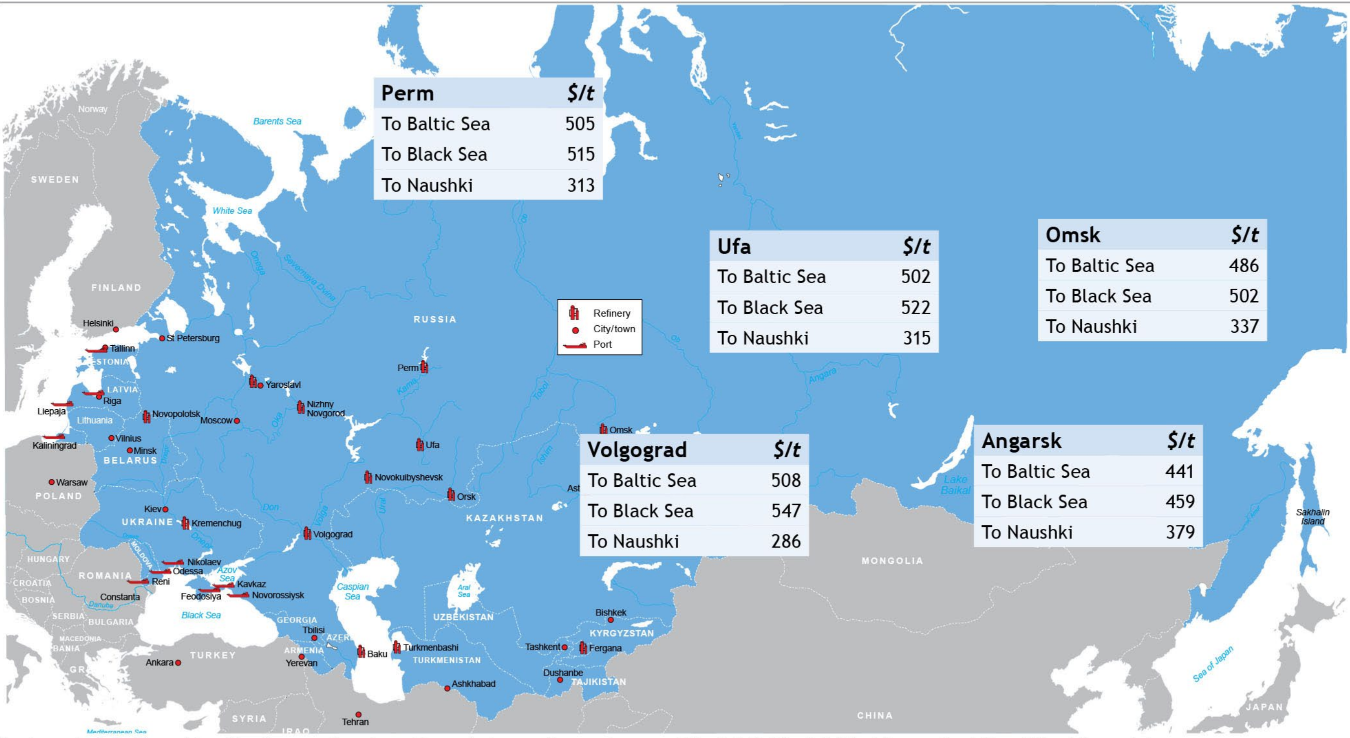
Grade	Volume offered (t)	Price, fca (€/t)	Price, fca ($/t)	Volume sold (t)
SN 150	1,000	501	558	-
SN 500	1,000	426	475	-
SN 1,200	1,000	481	536	-
4cst	500	511	569	-

** for imports into EU, Turkey, USA import tax of 3.7% will be charged*

— BNTD, traders

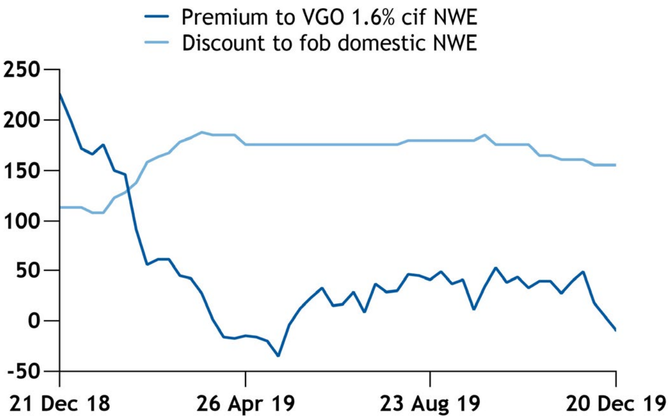
RUSSIA AND FSU

FSU KEY PRODUCERS' SN 500 PRICE (NETBACK) * $/t

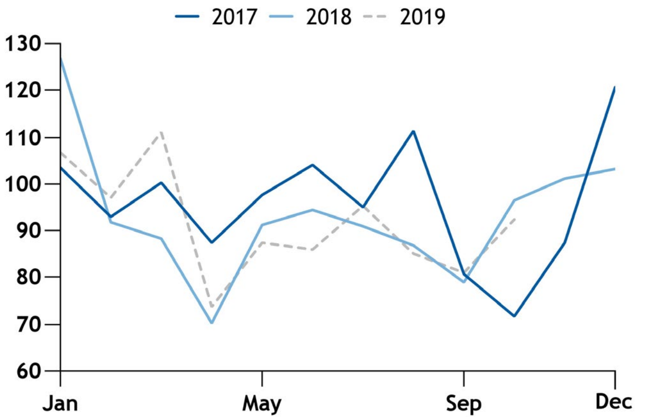


** price calculated by subtracting transport costs and taxes between the producer and the fob Baltic, fob Black Sea and cpt Naushki pricing point.*

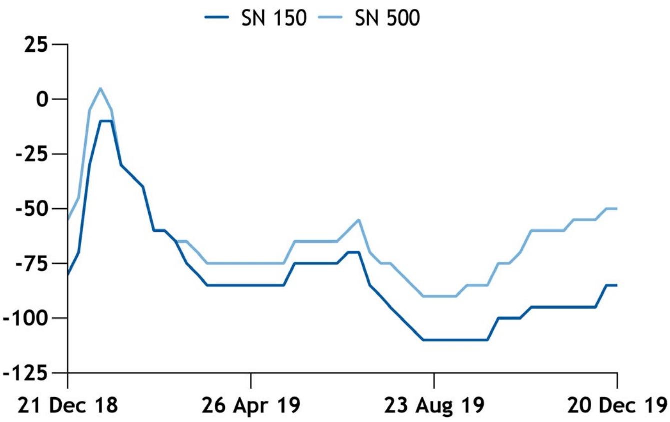
Baltic SN 150 vs VGO, vs domestic NWE $/t



Russian base oil and lubricants rail exports – '000 t



Black Sea vs UAE (LVI) $/t



US

US base oils prices are starting 2020 firmer, after they finished last year lower than end-2018 levels.

Prices in the first and fourth quarters of last year were depressed because of weak supply-demand fundamentals. More balanced supplies and steady demand helped support firmer prices through the second and third quarters of the year.

The weakness in the first and fourth quarters of the year outweighed the firmer prices in mid-2019. But that relative price strength in the middle of the year helped to cushion the pressure on base oils margins.

The Argus domestic spot US Group II N100 premium to four-week average low-sulphur vacuum gasoil (VGO) finished the year at $0.35/USG, down by $0.23/USG from year-earlier levels. But the N100 premium to low-sulphur VGO averaged $0.45/USG for the full year, down only slightly from $0.46/USG in 2018.

The Argus domestic spot US Group II N100 premium to four-week average diesel fell to $0.20/USG by the end of 2019, down by $0.22/USG from year-earlier levels. The N100 premium to diesel averaged $0.28/USG for the full year, down from $0.29/USG the previous year.

Producers responded to the weaker margins by changing their production slates or cutting production runs to curb their excess output. Some refiners incorporated contingency plans this year in response to squeezed margins. The plans involved shifting their feedstocks to produce alternative fuels like diesel when base oils margins were compressed.

These run cuts, along with an array of other unexpected production issues, resulted in a sharp drop in base oils production, especially in the first half of the year. US paraffinic base oils production averaged 4.21mn bl/month during January-October, down by 12.8pc from 4.83mn bl/month during the same period in 2018.

But weaker domestic demand helped to keep surplus supplies readily available. Demand averaged 3.44mn bl/month during January-October, down by 5.3pc from 3.63mn bl/month during the same period last year. The consumption level was the weakest for during January-October since the EIA began keeping records in 1981.

Producers change postings less often

Producers changed their posted prices less frequently than usual amid more balanced supply-demand fundamentals in the second and third quarters of the year, and then less downwards price pressure than expected in the fourth quarter.

Posted prices were raised only twice in the whole year, in March and April. The prices were raised in response to higher feedstock costs combined with firmer seasonal demand and unexpectedly low production during this period.

Posted prices then remained unchanged for the rest of the year. A couple of key US Gulf coast (USGC) producers sought to raise their prices in July and September in response to higher feedstocks prices. But these price increases were rescinded either before they took effect or shortly after.

Argus USGC Group I bulk export prices

	$/USG				$/t			
	Low	Mid	High	±	Low	Mid	High	±
SN 150 fob	1.81	1.89	1.97	-0.20	548	572.50	597	-61.00
SN 500 fob	1.90	1.98	2.06	-0.27	566	590.00	614	-80.50
Bright stock fob	2.58	2.66	2.74	-0.12	759	782.50	806	-35.00
Volume: 1,000t minimum								

Argus USGC Group II bulk export prices

	$/USG				$/t			
	Low	Mid	High	±	Low	Mid	High	±
N100 fob	1.77	1.85	1.93	-0.20	549	573.50	598	-62.00
N220 fob	1.79	1.87	1.95	-0.25	546	570.50	595	-76.00
N600 fob	1.84	1.92	2.00	-0.31	552	576.00	600	-93.00
Volume: 1,000t minimum								

Argus USGC domestic prices

	$/USG				$/t			
	Low	Mid	High	±	Low	Mid	High	±
Group I								
SN 150	2.05	2.13	2.21	-0.02	621	645.50	670	-6.00
SN 500	2.21	2.29	2.37	-0.04	659	682.50	706	-12.00
Bright stock	3.12	3.21	3.29	+0.11	917	942.00	967	+30.50
Group II								
N100	2.01	2.09	2.17	-0.02	623	648.00	673	-6.00
N220	2.06	2.14	2.22	-0.04	628	652.50	677	-12.50
N600	2.11	2.19	2.27	-0.12	633	657.00	681	-36.00
Group III								
4cst	2.64	2.72	2.80	-0.03	832	857.00	882	-9.00
6cst	2.66	2.74	2.82	-0.10	838	863.00	888	-31.50
8cst	2.66	2.74	2.82	-0.19	838	863.00	888	-60.00
Volume: 50t minimum								

Argus USGC naphthenic domestic prices

	$/USG				$/t			
	Low	Mid	High	±	Low	Mid	High	±
Pale oil 60	2.62	2.70	2.78	+0.03	776	800.00	824	+9.00
Pale oil 100	2.60	2.68	2.76	+0.03	762	785.50	809	+9.00
Pale oil 500	2.64	2.72	2.80	-0.08	758	781.00	804	-23.00
Pale oil 2000	2.65	2.73	2.81	-0.01	756	779.00	802	-3.00
Volume: 20t minimum								

Argus USGC naphthenic bulk export prices

	$/USG				$/t			
	Low	Mid	High	±	Low	Mid	High	±
Pale oil 60 fob	2.16	2.24	2.32	-0.07	640	663.50	687	-21.00
Pale oil 100 fob	2.17	2.25	2.33	-0.01	636	659.50	683	-3.00
Pale oil 500 fob	2.15	2.23	2.31	-0.10	618	641.00	664	-28.00
Pale oil 2000 fob	2.08	2.16	2.24	-0.12	593	616.00	639	-34.50
Volume: 1,000t minimum								

Pemex Salamanca prices

	MXN/t *		$/t		$/USG	
	Price	±	Price	±	Price	±
Group I						
SN 100	16,924.84	-345.70	892.84	+24.25	2.90	+0.08
SN 150	16,885.79	-592.90	890.78	+11.73	2.90	+0.04
SN 250	16,841.77	-446.31	888.46	+18.99	2.92	+0.06
SN 500	17,489.31	-2,122.94	922.62	-63.74	3.06	-0.21
SN 650	18,845.67	-2,678.94	994.17	-88.37	3.34	-0.29
Bright stock	24,338.07	-1,578.92	1,283.92	-19.52	4.32	-0.07

** prices in Mexican peso/t effective from 01 Dec*

US

Producers held off lowering their postings in the fourth quarter when supply-demand fundamentals weakened and spot prices fell. Producers instead gave their domestic customers discounts, or temporary voluntary allowances. The removal of a large volume of supplies through the export market also helped to leave the domestic market more balanced.

The unchanged posted prices lifted their premium to Argus domestic spot US Group II prices to their highest levels since Argus began covering the base oils market in 2010.

Motiva's Group II posted prices premium to Argus' domestic spot US Group II prices averaged $0.48-0.51/USG in 2019, up from $0.29-0.32/USG in 2018. Motiva's Group II postings ended the year at their highest premium to Argus domestic spot US Group II prices, at $0.65-0.75/USG.

Exports remain high

Besides lower output, producers kept the US market balanced by maintaining high export volumes. These held at 32.34mn bl during January-October. The volume was down slightly from year-earlier volumes of 32.72mn bl. But it was still the second-highest on record.

Exports to Europe remained high despite the start-up of new Group II base oils production in this region. Exports to Latin America continued to grow as Group I production in the region fell.

Shipments to Mexico rose even higher. Exports of 10.56mn bl to this market during January-October rose by 26.6pc from 8.34mn bl during the same period the previous year.

Base oils shipments to the country surged even as Mexico's domestic finished lubricants demand continued to weaken. But Mexico's growing appetite for light-grade base oils has mostly been driven by the increasingly widespread use of the lubricant feedstock as a diesel extender.

The trend has left the US increasingly reliant on the Mexican market to keep its supplies balanced. Shipments to Mexico accounted for 32.6pc of total US exports during January-October. This share was up from 25.5pc during the same period in 2018.

Exports to other Latin American countries also rose. Total exports to Brazil rose to 3.75mn bl during January-October, up by 27.6pc from 2.94mn bl during the same period the previous year. This rise in shipments to Brazil coincided with a steady drop in Group I production at the country's largest refinery.

Lower production and higher exports helped to cushion the impact of rising imports of premium-grade base oils. These rose by 6.7pc to 14.4mn bl during January-October. A larger share of these Group III base oils were supplied from the Mideast Gulf.

The more plentiful supplies of Group III base oils put more downwards pressure on these prices compared with Group II light grades.

US SN 500 forward prices

	$/USG			$/t		
	Low	High	±	Low	High	±
Jan 2020	1.96	2.01	-0.27	582.60	597.50	-80.45
Feb 2020	1.95	2.00	-0.27	582.00	596.90	-78.75
Mar 2020	1.94	1.99	-0.27	579.40	594.30	-78.65
1Q 2020	1.95	2.00	-0.27	581.35	596.25	-79.30
2Q 2020	1.92	1.97	-0.28	571.10	586.00	-84.10

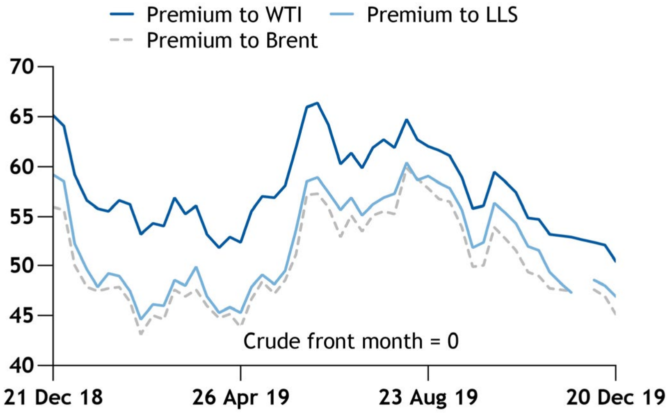
The price shows the implied forward-curve base oil price required to maintain its existing profit margin relative to Nymex heating oil futures.

US SN 500 forward premium to heating oil

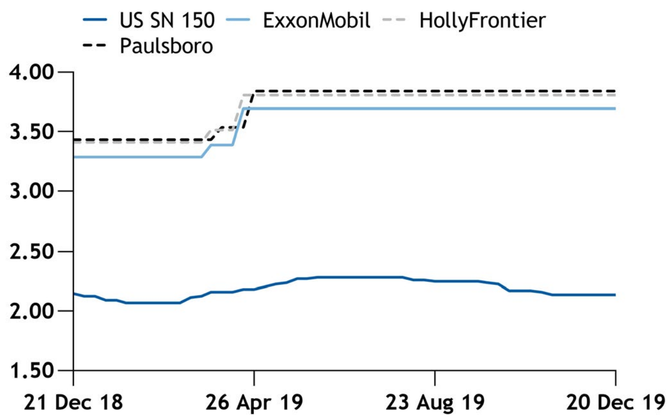
	$/USG		$/t	
	Midpoint	±	Midpoint	±
Jan 2020	0.03	-0.37	8.30	-110.05
Feb 2020	0.03	-0.37	8.90	-111.75
Mar 2020	0.04	-0.37	11.55	-111.80
1Q 2020	0.03	-0.38	8.95	-113.25
2Q 2020	0.07	-0.35	20.85	-104.30

The premium shows the implied forward-curve profitability of fob US export SN 500 relative to Nymex heating oil futures.

Argus spot US Pale oil 60 premium to crude $/bl



Argus spot US SN 150 vs posted prices $/USG



Refer to www.argusmedia.com for methodology

US

Naphthenic base oils

US naphthenic base oils prices were mostly weaker in 2019 compared with the previous year. Domestic prices for heavy-grade naphthenics and export prices for all grades were lower than year-earlier levels. Domestic prices for light-grade pale oils ended the year slightly higher than year-earlier levels.

A surplus overhang of heavy-grade naphthenics persisted through 2019. Producers needed to clear their surplus heavy grades into the export spot market. This kept the Argus export US pale 2000 price at a discount to pale 60 throughout the year. The heavy-grade price also fell to a discount to pale 60 in the domestic market for several weeks during the spring and autumn months.

Light-grade supplies were more balanced. Production run cuts and moves by several refiners to shift their feedstock to produce more diesel when margins were squeezed helped to curb excess light grade production.

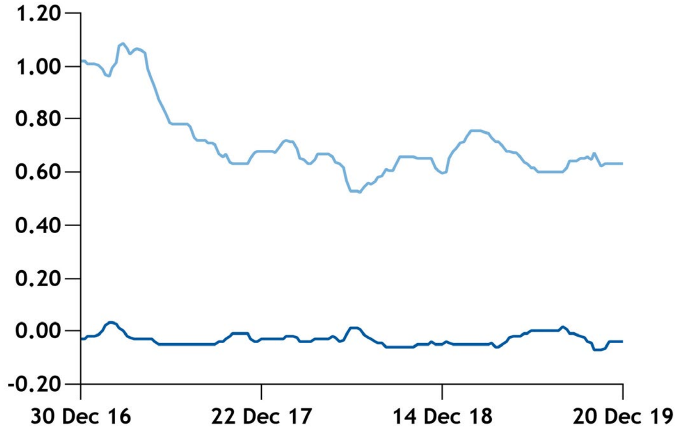
Any surplus light grades that failed to found outlets for lubricant applications in the domestic and export markets moved into the Mexican market for use as a diesel extender.

Even with the run cuts, total naphthenic production rose to 8.61mn bl during January-October. The volume was up by 3pc from 8.33mn bl during the same period in 2018. Naphthenic base oils output averaged 17pc of total US base oils production during January-October, up from a 14.8pc share during the same period in 2018.

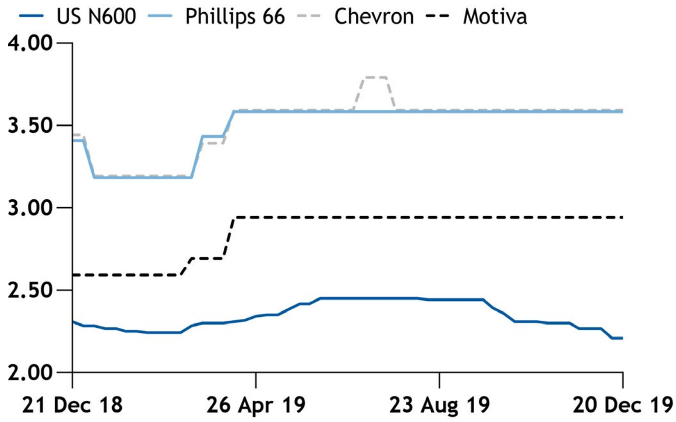
The US market ended the year facing the prospect of more balanced supplies after the closure of a 2,500 b/d USGC unit by the end of 2019. More demand is expected from overseas regions, mainly Europe. A key producer in the region has continued to experience financial and logistical difficulties stemming from US sanctions on Venezuela.

Weaker crude prices in 2019 helped to support firmer naphthenic base oils margins. The average pale 60 premium to four-week average WTI crude rose to $57.96/bl in 2019, up from $54.18/bl the previous year. The average pale 60 premium to four-week average Light Louisiana Sweet increased to $52.08/bl, up from $49.14/bl the previous year. The average pale 60 premium to four-week average Brent crude prices rose to $50.40/bl, up from $47.46/bl in 2018.

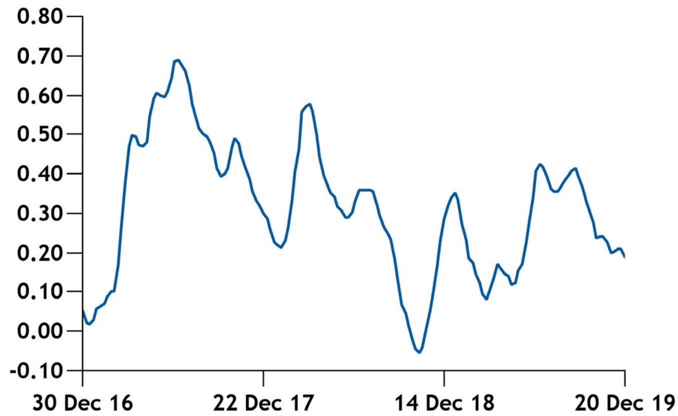
US N100 vs SN 150, US 4cst vs N100 **$/USG**



US domestic N600 vs posted prices **$/USG**



Argus spot US SN 150 premium to NY heating oil **$/USG**



AMERCIAS POSTED PRICES $/USG

Group I *	ExxonMobil Gulf coast			HollyFrontier			Paulsboro Refining east coast			Calumet Shreveport		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±
70/75				18 Apr 19	3.63	+0.30						
100	18 Apr 19	3.64	+0.30	18 Apr 19	3.63	+0.30	23 Apr 19	3.89	+0.30			
150	18 Apr 19	3.69	+0.301	8 Apr 19	3.81	+0.30	23 Apr 19	3.84	+0.30			
250				18 Apr 19	3.67	+0.25						
300/350	18 Apr 19	3.51	+0.25									
500				18 Apr 19	4.42	+0.25	23 Apr 19	4.03	+0.25			
600/650	18 Apr 19	3.89	+0.25							23 Apr 19	4.20	+0.25
700							23 Apr 19	4.06	+0.25			
Bright stock	18 Apr 19	5.11	+0.35	18 Apr 19	5.14	+0.35	23 Apr 19	5.26	+0.35	23 Apr 19	5.29	+0.35

Group II *	Excel Paralubes Gulf coast			Chevron Gulf coast			Motiva Gulf coast		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±
70	11 Apr 19	3.42	+0.15						
80	11 Apr 19	3.42	+0.15						
100/110	11 Apr 19	3.38	+0.15	23 Jul 19	3.39	-0.20	09 Apr 19	2.74	+0.30
220/225	11 Apr 19	3.39	+0.15	23 Jul 19	3.39	-0.20	09 Apr 19	2.81	+0.25
600	11 Apr 19	3.58	+0.15	23 Jul 19	3.59	-0.20	09 Apr 19	2.94	+0.25

Group II *	ExxonMobil Gulf coast			Calumet Shreveport			Petro-Canada Mississauga			SK Lubricants Gulf coast		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±
70							12 Apr 19	3.30	+0.15			
80				23 Apr 19	3.59	+0.20						
100				23 Apr 19	3.46	+0.20	12 Apr 19	3.29	+0.15			
150				23 Apr 19	3.89	+0.20						
200/220	18 Apr 19	3.71	+0.25				12 Apr 19	3.30	+0.15			
325				23 Apr 19	4.20	+0.20						
350							12 Apr 19	3.63	+0.15			
650							12 Apr 19	3.85	+0.15			
Bright stock										01 May 19	5.29	+0.35

Group II+ *	SK Lubricants Gulf coast			Phillips 66 Gulf coast			ExxonMobil Gulf coast			Petro-Canada Mississauga		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±
50/60				01 May 19	4.80	+0.25						
65										09 May 19	4.98	+0.25
70/80	06 May 19	4.73	+0.25	01 May 19	4.81	+0.25						
100										18 Apr 19	4.14	+0.30
110/130							18 Apr 19	4.14	+0.30			

Group III *	SK Lubricants Gulf coast			Phillips 66 Gulf coast			Motiva Gulf coast			Petro-Canada Mississauga		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±Effe	ctive	$/USG	±
4cst	06 May 19	5.05	+0.25	01 May 19	5.01	+0.25	09 Apr 19	3.25	+0.30	09 May 19	5.27	+0.25
6cst	06 May 19	5.15	+0.25				09 Apr 19	3.15	+0.25	09 May 19	5.27	+0.25
8cst	06 May 19	5.23	+0.25	01 May 19	5.19	+0.25				09 May 19	5.37	+0.25

Group II+ * Kleen Performance Products	midcontinent and Canada			northeast and eastern Canada			west coast		
	Effective	$/USG	±	Effective	$/USG	±	Effective	$/USG	±
110/130	15 Apr 19	4.11	+0.30	15 Apr 19	4.16	+0.30	15 Apr 19	4.26	+0.30
240	15 Apr 19	4.26	+0.25	15 Apr 19	4.31	+0.25	15 Apr 19	4.41	+0.25

Avista Oil midwest/east coast *	Effective	$/USG	±
Group II N150	15 Apr 19	3.90	+0.20
Group III 4cst	18 Mar 19	4.32	+0.10

** the ± column shows the price difference between the current and previous posted price.*

AMERICAS POSTED PRICES $/T

Group I *	ExxonMobil Gulf coast			HollyFrontier			Paulsboro Refining east coast			Calumet Shreveport		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
70/75				18 Apr 19	1,125.30	+93.00						
100	18 Apr 19	1,121.12	+92.40	18 Apr 19	1,118.04	+92.40	23 Apr 19	1,194.23	+92.10			
150	18 Apr 19	1,132.83	+92.10	18 Apr 19	1,169.67	+92.10	23 Apr 19	1,159.68	+90.60			
250				18 Apr 19	1,115.68	+76.00						
300/350	18 Apr 19	1,063.53	+75.75									
500				18 Apr 19	1,334.84	+75.50	23 Apr 19	1,209.00	+75.00			
600/650	18 Apr 19	1,159.22	+74.50							23 Apr 19	1,251.60	+74.50
700							23 Apr 19	1,201.76	+74.00			
Bright stock	18 Apr 19	1,517.67	+103.95	18 Apr 19	1,526.58	+103.95	23 Apr 19	1,556.96	+103.60	23 Apr 19	1,570.02	+103.88

Group II *	Excel Paralubes Gulf coast			Chevron Gulf coast			Motiva Gulf coast		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
70	11 Apr 19	1,060.20	+46.50						
80	11 Apr 19	1,053.36	+46.20						
100/110	11 Apr 19	1,054.56	+46.80	23 Jul 19	1,047.51	-61.80	09 Apr 19	849.40	+93.00
220/225	11 Apr 19	1,040.73	+46.05	23 Jul 19	1,033.95	-61.00	09 Apr 19	857.05	+76.25
600	11 Apr 19	1,081.16	+45.30	23 Jul 19	1,082.39	-60.30	09 Apr 19	887.88	+75.50

Group II *	ExxonMobil Gulf coast			Calumet Shreveport			Petro-Canada Mississauga			SK Lubricants Gulf coast		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
70							12 Apr 19	1,023.00	+46.50			
80				23 Apr 19	1,107.87	+61.72						
100				23 Apr 19	1,063.12	+61.45	12 Apr 19	1,012.86	+46.18			
150				23 Apr 19	1,191.74	+61.27						
200/220	18 Apr 19	1,131.55	+76.25				12 Apr 19	1,007.82	+45.81			
325				23 Apr 19	1,279.61	+60.93						
350							12 Apr 19	1,100.94	+45.49			
650							12 Apr 19	1,169.05	+45.55			
Bright stock										01 May 19	1,592.82	+105.39

Group II+ *	SK Lubricants Gulf coast			Phillips 66 Gulf coast			ExxonMobil Gulf coast			Petro-Canada Mississauga		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
50/60				01 May 19	1,548.00	+80.63						
65										09 May 19	1,578.66	+79.25
70/80	06 May 19	1,489.95	+78.75	01 May 19	1,539.20	+80.00						
100										18 Apr 19	1,301.99	+94.35
110/130							18 Apr 19	1,295.82	+93.90			

Group III *	SK Lubricants Gulf coast			Phillips 66 Gulf coast			Motiva Gulf coast			Petro-Canada Mississauga		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
4cst	06 May 19	1,590.75	+78.75	01 May 19	1,590.68	+79.38	09 Apr 19	1,030.06	+95.08	09 May 19	1,655.36	+78.53
6cst	06 May 19	1,622.25	+78.75				09 Apr 19	985.95	+78.25	09 May 19	1,659.31	+78.72
8cst	06 May 19	1,647.45	+78.75	01 May 19	1,624.47	+78.25				09 May 19	1,674.85	+77.97

Group II+ * Kleen Performance Products	midcontinent and Canada			northeast and eastern Canada			west coast		
	Effective	$/t	±	Effective	$/t	±	Effective	$/t	±
110/130	15 Apr 19	1,281.09	+93.51	15 Apr 19	1,296.67	+93.51	15 Apr 19	1,327.84	+93.51
240	15 Apr 19	1,320.17	+77.48	15 Apr 19	1,335.67	+77.48	15 Apr 19	1,366.66	+77.48

Avista Oil midwest/east coast *			
	Effective	$/t	±
Group II N150	15 Apr 19	1,213.60	+62.24
Group III 4cst	18 Mar 19	1,358.51	+31.45

** the ± column shows the price difference between the current and previous posted price.*

The $/t price is converted from the $/USG price. Refer to www.argusmedia.com for methodology with the gallons-to-tonnes conversion factors.

MAINTENANCE AND SHUTDOWNS

Upcoming / recent base oil plant maintenance / shutdowns / closures

Refiner	Location	Timing	Capacity	Capacity affected	Cause
Total	Gonfreville, France	2021	240,000 t/yr	All	Maintenance
Cosmo	Yokkaichi, Japan	Q3 2020 for 2 months	175,000 t/yr	All	Maintenance
JXTG	Negishi, Japan	Mid-Sep to end-Oct 2020	210,000 t/yr	All	Maintenance
Naftan	Novopolotsk, Belarus	Late-Aug 2020 for 3 weeks	200,000 t/yr	All	Maintenance
Rosneft	Angarsk, Russia	Late-Aug 2020 for 2 weeks	250,000 t/yr	All	Maintenance
S-Oil	Onsan, South Korea	2H Aug 2020 for 1 month	41,000 b/d	All, Group I/II	Maintenance
Formosa	Mailiao, Taiwan	01 Jun to 10 Jul 2020	600,000 t/yr	All, Group II	Maintenance
Neste	Porvoo, Finland	Q2 2020	250,000 t/yr	All Group III	Refinery maintenance
JXTG	Kainan, Japan	Q2 2020 for 2-3 weeks	200,000 t/yr	All	Maintenance
Sapref	Durban, South Africa	May to Jun 2020	175,000 t/yr	NA	Maintenance
Adnoc	Abu Dhabi, UAE	Mar 2020 for 1 month	620,000 t/yr	All	Maintenance
Rosneft/Gazpromneft	Yaroslavl, Russia	Feb to Apr 2020	350,000 t/yr	All, Group I	Maintenance
Excel Paralubes	Westlake, Louisiana, US	Feb 2020 for 4 weeks	22,000 b/d	All	Maintenance
San Joaquin Refining	Bakersfield, California, US	01 Feb 2020 for 2 weeks	8,100 b/d	NA	Maintenance
Ergon Refining	Vicksburg, Mississippi, US	Q1 2020	25,000 b/d	NA	Maintenance
Shell	Bukom, Singapore	2020	380,000 t/yr	NA	CDU+HCU maintenance
Total	Gonfreville, France	From 14 Dec 2019	240,000 t/yr	All	Fire
Calumet	Shreveport, Louisiana, US	Ely-Dec 2019 for 2-3 weeks	8,000 b/d	Partial, Light/Mid	Maintenance
Avista Oil	Peachtree, Georgia, US	Ely-Dec 2019 for 6-8 days	1,600 b/d	All	Maintenance
Cepsa	San Roque, Spain	Ely-Nov 2019 for 1 month	265,000 t/yr	All	Maintenance
HCC	Indianapolis, Indiana, US	Ely-Nov 2019 for 2 weeks	2,500 b/d	All	Maintenance
Sinopec	Maoming, China	Nov 2019 for 2 months	700,000 t/yr	Partial, All Grp I	Maintenance
Holly Frontier	Tulsa, Oklahoma, US	End-Oct to Ely-Dec 2019	9,500 b/d	All	Maintenance
Petronas	Melaka, Malaysia	22 Oct to 12 Dec 2019	300,000 t/yr	Partial	Maintenance
SK-Pertamina	Dumai, Indonesia	1H Oct to Mid-Nov 2019	505,000 t/yr	Partial	Maintenance
IRPC	Rayong, Thailand	18 Oct 2019 for 1 month	320,000 t/yr	NA	Refinery maintenance
Calumet	Shreveport, Louisiana, US	Mid-Oct 2019 for 2-3 weeks	8,000 b/d	Partial, Heavy	Maintenance
SK-Repsol	Cartagena, Spain	Mid-Oct 2019 for 10 days	630,000 t/yr	NA	Maintenance
Pertamina	Cilacap, Indonesia	Ely-Oct to 18 Nov 2019	440,000 t/yr	Partial, Group I	Refinery maintenance
Shanxi Lu'anTaihang	Shanxi, China	End-Sep 2019 for 1 month	Up to 600,000 t/yr	All, Group III+ CTL	Maintenance
Tupras	Izmir, Turkey	24 Sep to Mid-Oct 2019	300,000 t/yr	All	Run-cut
Naftan	Novopolotsk, Belarus	Ely-Sep to 2H Nov 2019	200,000 t/yr	Partial, Full fr. Oct	Maintenance
IOC	Haldia, India	Sep-Dec 2019	260,000 t/yr	Partial	Refinery maintenance
JXTG	Mizushima A, Japan	Ely-Sep to mid-Nov 2019	180,000 t/yr	All	Maintenance
Repsol	Cartagena, Spain	09 Sep 2019 for 15-20 days	135,000 t/yr	All, Group I	Maintenance
Petrochina	Daqing, China	From 25 Aug 2019	450,000 t/yr	All, Group II	Refinery maintenance
IOC	Chennai, India	Aug-Oct 2019	270,000 t/yr	Partial	Refinery maintenance
JXTG	Kainan, Japan	Aug-Dec 2019	200,000 t/yr	Partial, SN 500	Lower production
JXTG	Negishi, Japan	Aug-Dec 2019	210,000 t/yr	Partial, SN 500	Lower production
JXTG	Mizushima B, Japan	Aug-Dec 2019	225,000 t/yr	Partial, SN 500	Lower production
Total	Gonfreville, France	Mid-Jul to 29 Aug 2019	240,000 t/yr	All	Strike action
Xintai Petrochemical	Shandong, China	09-19 Jul 2019	200,000 t/yr	All	Maintenance
SK Lubricants	Ulsan, South Korea	04-22 Jul 2019	26,000 b/d	Partial, Group III	Maintenance
ExxonMobil	PAC, Singapore	End-Jun-20 Aug 2019	660,000 t/yr	All, Group I	Maintenance
Shandong Huanghe	Shandong, China	Mid-Jun to late-Aug 2019	180,000 t/yr	All	Maintenance
Bapco	Bahrain	Jun to 26 Jul 2019	400,000 t/yr	All	Maintenance
Cosmo	Yokkaichi, Japan	Jun 2019 for 1 month	175,000 t/yr	Partial	Refinery maintenance
Shandong Hengrunde	Shandong, China	Mid-Jun to late-Jul 2019	150,000 t/yr	All	Maintenance

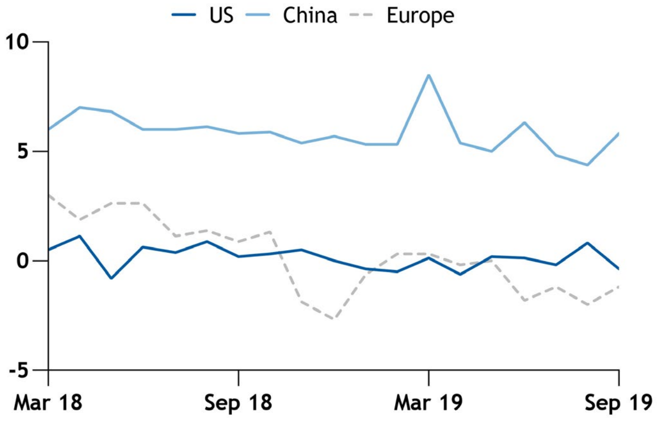
Every effort has been made to verify information directly with appropriate company sources. Some information has been obtained from usually reliable sources, but cannot be officially confirmed with the refinery concerned. The list will be updated when new information becomes available.

MARKET FUNDAMENTALS

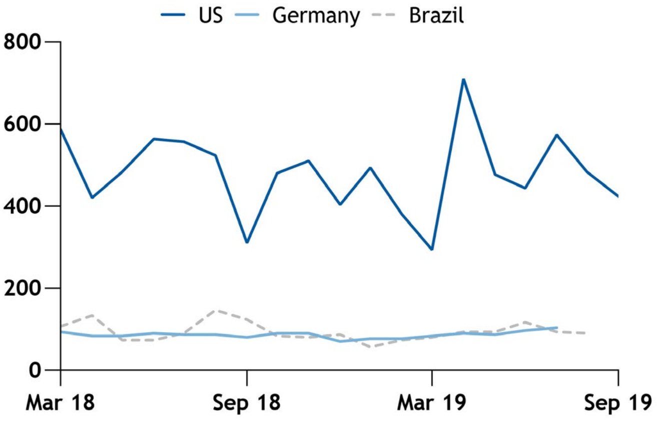
Oct 2019	Industrial overview				Lube/base oils overview											
	Automobile Sales			Industrial growth	Production			Sales			Import			Export		
	'000	Mom%	Yoy%	Yoy%	'000t	Mom%	Yoy%	'000t	Mom%	Yoy%	'000t	Mom%	Yoy%	'000t	Mom%	Yoy%
China	1,928	-0	-6	+4.70				†			193.7	-17	+15	2.8	+14	+185
Japan*	315	-43	-25		174.3	+9	+5	100.9	-18	-15	18.7	+18	-11	60.4	-20	-13
Europe	1,178	-6	+9													
US*	1,338	+5	-0		746.1	-4	-1	567.7	+34	+18	326.5	+204	+63	379.0	-4	-18
France	189	+9	+9					46.2	+5	-12	91.0	+9	-8	71.1	+44	+28
Germany	285	+16	+13								0.0	0	-100	0.0	0	-100
Greece											4.3	-65	-35	26.9	+13	+64
Italy	157	+10	+7					37.3	-1	+5						
Netherlands											23.3	-76	-84	29.8	-78	-77
Portugal											4.3	+5	-12	14.5	+67	+46
Russia	152	-3	-5											92.4	+14	-4
Spain	94	+15	+6					39.1	+11	-5	45.8	+21	-26	270.9	+86	+27
Turkey	49	+17	+128					†			23.1	-24	+21	0.0	0	0
UK	143	-58	-7	-1.40	19.0	-17	-68	30.0	+0	-14	35.1	+6	-4	33.1	+17	-24
Australia*	82	-6	-9		0.0	0	0	25.4	+5	+5	43.9	+19	+3	2.0	-94	-84
Hong Kong											37.1	+14	+162	21.7	-26	-21
India	174	+32	-6		78.0	-9	+19	298.0	-9	-16	258.1	-5	-20			
Singapore				+4.00							27.4‡	-44	-14	263.7‡	+5	+11
South Korea											50.2	+178	+85	328.3	-14	-18
Taiwan*	41	+25	+17	-2.92	95.9^	+8	-6	65.2	+79	+46	6.1	+411	-41	49.9	+16	+87
Thailand*	77	+1	-11	-8.45	45.4	+25	-10	72.0†	+109	-1				8.3	-63	-58
Argentina*	27	+1	-27													
Brazil*	253	+8	-1		34.7	+22	-22	97.3†	+14	+18	70.5	+12	+41	7.9	+31	-34
Mexico*	107	+6	-9								95.2	+16	+41	0.0	-100	-100

** The conversion factor used is 159 litres to a barrel and 7.1 barrels to a metric tonne. † Apparent demand. ‡ 4 weeks to end-month.*
^ Taiwan lube production plus imports

Global industrial growth Yoy %



Global lubricating oils demand '000 t



Sources: Country data for base oil and lube sales, production, imports and exports taken from national sources

US: Energy Information Administration. Japan: Petroleum Association of Japan. Italy: Unione Petrolifera. Singapore: International Enterprise. Country data for industrial production growth taken from national sources. Automobile sales data taken from national automobile associations. US: Autodata Corp. Russia: Association of European Businesses in the Russian Federation. Australia: Federal Chamber of Automotive Industries. India: Society of Indian Automobile Manufacturers. Thailand: Toyota Motor Thailand.

MARKET FUNDAMENTALS

Upcoming / recent expansions / conversions / new plants

Refiner	Location	Timing	New capacity	Grade	Expansion / New
IOC	Haldia, India	NA	270,000 t/yr	Group III	New
Modrica refinery	Modrica, Bosnia	NA	200,000 t/yr	Group III	Expansion
Saudi Aramco/Sabic	Yanbu, Saudi Arabia	2025	NA	NA	New
ExxonMobil	Jurong, Singapore	2023	1mn t/yr	Group II N150, N600, high-vis base oils	New
Hainan Handi	Hainan, China	2022	300,000 t/yr	Group II re-refinery	New
Gazpromneft	Omsk, Russia	2021-2022	Up to 180,000 t/yr	Group II/III 2cst, 4cst, 6cst and 8cst	Expansion
BPCL	Mumbai, India	2021	450,000 t/yr	Group II and Group III	Expansion
Shenghong Petrochemical	Lianyungang, China	2021	620,000 t/yr	Group II/III	Cancelled
Sasol	Louisiana, US	After 2020	NA	GTL	Cancelled
SK-Repsol	Cartagena, S pain	After 2020	Up to 50pc higher	Group III	Expansion
Tayras	Selimiye, Turkey	Oct 2020	40,000 t/yr	Group II+ re-refinery	New
HILL	Chimkent, Kazakhstan	2020	250,000 t/yr	Group I/II/III	New
Hainan Handi	Hainan, China	2020	1mn t/yr	Group II+/III	New
Avista Oil	Kalundborg, Denmark	2Q 2020	100,000 t/yr	Group I+ re-refinery	New
Gen III Oil Corporation	Bowden, Canada	2Q 2020	2,240 b/d	700 b/d Group II, 1,540 b/d Group III	New
Liaohe Petrochemical	Liaoning, China	4Q 2019	400,000 t/yr	Naphthenic base oils	New
Sinopec	Jingmen, China	End-Oct 2019	550,000 t/yr	Group II heavy and white oils	New
Petrochina	Karamay, China	Oct 2019	30,000 t/yr each	Naphthenic bright stock, rubber oil	Expansion
Neste	California, US	3Q 2019	NA	Group III	Conversion
ExxonMobil	Jurong, Singapore	2Q 2019	100,000 t/yr	Group II	Expansion
Hengli Petrochemical	Dalian, China	Apr 2019	600,000 t/yr	Group II and III	New
ExxonMobil	Rotterdam, Netherlands	1Q 2019	900,000 t/yr	Group II	New
Puraglobe	Tampa, US	1Q 2019	50,000 t/yr	Group III	New
Henan Junheng	Henan, China	1Q 2019	280,000 t/yr	Group II	New
Lub-rref Bangladesh Ltd	Chittagong, Bangladesh	1Q 2019	50,000 t/yr	Group II N70, N150, N500/600 re-refinery	New
Shandong Qingyuan	Shandong, China	1Q 2019	800,000 t/yr	Group II+/III	New
Shandong Huanghe	Shandong, China	1Q 2019	180,000 t/yr	White oils and base oils, Group II	New
Shanxi Lu'an Taihang	Shanxi, China	1Q 2019	Up to 600,000 t/yr	Group III+ CTL, 2/3/4/8cst	New
Shida Changsheng	Shandong, China	Jan 2019	300,000 t/yr	Group II	New
VN Oil	Hiep Phuoc, Vietnam	After 2018	50,000 t/yr	Group II re-refinery	Cancelled
Liaoning Haihua	Liaoning, China	Dec 2018	300,000 t/yr	Naphthenic/paraffinic base oils, Group II	New
Luberef	Yanbu, Saudi Arabia	End-Dec 2018	170,000 t/yr	Group I bright stock	Expansion
Hyundai-Shell	Daesan, South Korea	3Q 2018	200,000 t/yr	Group II	Expansion
Pemex	Salamanca, Mexico	2018	3,300 b/d	Group II	Delayed
Holly Frontier	Wood Cross, US	2018	10,000-12,000 b/d	Group III	Delayed
Luberef	Yanbu, Saudi Arabia	4Q 2017	715,000 t/yr	Group II	New
Panjin Northern Asphalt	Liaoning, China	2H Nov 2017	300,000 t/yr	Naphthenic base oils	New
Slavneft	Yaroslavl, Russia	2Q 2017	100,000 t/yr	Group III	New
Petrobras	Comperj, Brazil	2017	355,000 t/yr	Group II	Cancelled
S-Oil	Onsan, South Korea	Dec 2016	200,000 t/yr	Group II N500	Conversion
CNOOC	Taizhou, China	Oct 2016	600,000 t/yr	Group II	New
Ergon Refining	Vicksburg, US	3Q 2016	3,000 b/d	Group I bright stock	New
Shandong Qingyuan	Shandong, China	Jun 2016	600,000 t/yr	Group II	New
Sinopec	Maoming, China	Jun 2016	400,000 t/yr	Group II+, Group III	Expansion
Adnoc	Abu Dhabi, UAE	Apr 2016	620,000 t/yr	500,000 t/yr Group III, 120,000 t/yr Group II	New
Jinling Petrochemical	Nanjing, China	Mar 2016	200,000 t/yr	Group II	New
ExxonMobil	Jurong, Singapore	1Q 2015	300,000 t/yr	Group II	Expansion
ExxonMobil	Baytown, US	1Q 2015	300,000 t/yr	Group II	Expansion

Every effort has been made to verify information directly with appropriate company sources. The list will be updated when new information becomes available. #Additional/updated plant data over the past week

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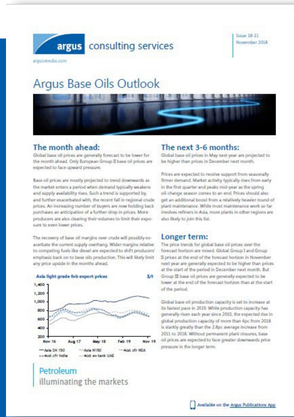

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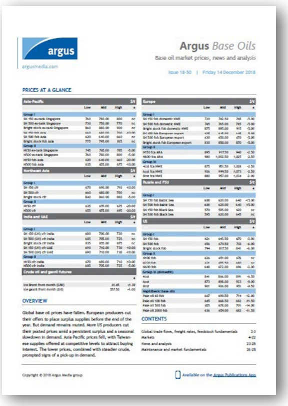


Overview

Argus Base Oils provides weekly base oils spot prices, posted prices, and market analysis for all the key markets globally, as well as valuable price analytics information on base oil premiums to VGO, crude and gasoil. Argus Base Oils is the only market service to capture the full spectrum of base oils trade in the international market in a single report.

Market coverage

- Asia-Pacific
- Northeast Asia
- India
- Mideast Gulf
- Europe and Turkey
- Russia and the FSU
- Americas

Data

- Global base oils plant maintenance and shutdowns
- Global base oils trade statistics

Key features

- Weekly market spot price assessments and analysis for Group I, Group II and Group III base oils in key global markets
- Daily market-moving news with historical data
- Daily updates of forward curves and profit margins for base oils production
- Detailed economics and profitability data and analysis from a global leader in petroleum indexation

Argus China Base Oils


argus

阿格斯中国基础油周报

Overview

Published in Mandarin Chinese, Argus China Base Oils provides an overview of the week's market activities, as well as detailed base oil price assessments and analysis of the northeast Asia base oil market. The report includes valuable price analytics information on base oil premiums to crude and gasoil. The report is part of the Argus Base Oils service, a global publication that captures the full spectrum of base oils trade in the international market.

Key features

- Weekly market spot price assessments and analysis for Group I, Group II, and Group III base oils in Asia-Pacific and northeast Asia
- Chinese producers' posted prices
- Domestic Chinese ex-tank prices for Group II and Group III base oils
- Asia-Pacific shipping freight rates
- Global refinery maintenance and new plants tables
- Key global fundamentals data on base oil supply and demand, imports and exports

Market coverage

Asia-Pacific

- Ex-tank Singapore and fob Asia Group I: SN 150, SN 500 and bright stock
- Ex-tank Singapore and fob Asia Group II: N150 and N500
- Ex-tank Singapore and fob Asia Group III: 4cst, 6cst and 8cst
- Dubai crude front month and SN 500 premium to Dubai crude
- Singapore 0.05pc gasoil, gasoil premium to Dubai crude and SN 500 premium to gasoil

Northeast Asia

- Cfr Group I: SN 150, SN 500 and bright stock
- Cfr Group II: N150 and N500
- Cfr Group III: 4cst, 6cst and 8cst
- Ex-tank east China: Group II N150 and N500
- Ex-tank east China: Group III 4cst, 6cst and 8cst
- Chinese domestic producer prices and import price calculator

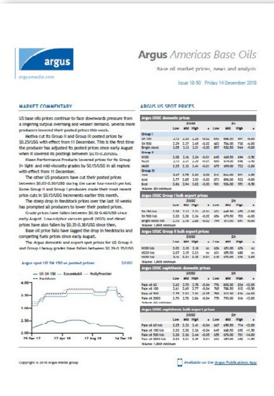
Russia

- Cpt Naushki Group I: SN 150 and SN 500

Data

- Global base oils plant maintenance and shutdowns
- China base oils trade statistics

Argus Americas Base Oils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Argus Americas Base Oils

Overview

Argus Americas Base Oils provides weekly US base oil spot prices, North American producer posted prices and market analysis for the Americas base oils market. It also includes price analytics information such as base oil premiums to crude, vacuum gasoil and heating oil. Every issue offers an overview of the week's market activity, as well as detailed base oil price assessments and analysis. The report is part of the Argus Base Oils service, a global publication that captures the full spectrum of base oils trade in the international market in a single report.

Key features

- US base oils market commentary, news and analysis with detailed coverage on Latin America
- Weekly market spot price assessments for paraffinic and naphthenic base oils in the US Gulf coast
- All North American producer posted prices for Group I, Group II, Group II+ and Group III base oils
- US Gulf coast shipping freight rates, vessel enquiries and fixtures, and arbitrage opportunities
- Up-to-date base oil plant maintenance and shutdown information
- Key regional fundamentals data on North American base oil production, supply and demand, imports and exports

Market coverage

- Group I domestic and export prices: SN 150, SN 500 and bright stock
- Group II domestic and export prices: N100, N200, N220 and N600
- Group III domestic prices: 4cst, 6cst and 8cst\ • Naphthenic base oils domestic and export prices: Pale oil 60, 100, 500 and 2000
- Feedstocks: Nymex WTI crude front month, US Gulf coast low-sulphur vacuum gasoil 0.5pc and high-sulphur vacuum gasoil 2pc
- Feedstock premiums: SN 500 premium to WTI and SN 500 premium to VGO 2pc
- Oil products prices: New York Harbor heating oil barge and US Gulf coast 10ppm diesel cargo
- Oil products premiums: Heating oil premium to WTI, heating oil premium to VGO 2pc and SN 500 premium to heating oil

Data

- Americas base oils plant maintenance and shutdowns
- Americas, Brazil and Mexico base oils trade statistics

Argus European Base Oils


Argus European Base Oils

Overview

Argus European Base Oils provides weekly regional spot prices and market analysis for the European base oils market. It also includes price analytics information such as base oil premiums to crude, vacuum gasoil and gasoil. Every issue offers an overview of the week's market activity, as well as detailed base oil price assessments and analysis. The report is part of the Argus Base Oils service, a global publication that captures the full spectrum of base oils trade in the international market in a single report.

Key features

- Europe, Baltic and Black Sea base oils market commentary, news and analysis
- Weekly regional market spot price assessments for Group I, Group II and Group III prices in Europe
- Weekly Baltic, Black Sea and Turkey market spot assessments for Group I base oils
- Four Group II price assessments, with more than five years' price history
- Three sets of Group III base oil price assessments, distinguished by whether they have VW 504/507 certification.
- European shipping freight rates, vessel enquiries and fixtures, arbitrage opportunities
- Europe/Russia refinery maintenance and shutdowns
- Key regional fundamentals data on base oil supply and demand, imports and exports

Market coverage

- Group I domestic and export prices: SN 150, SN 500, bright stock
- Group I Baltic, Black Sea and Turkey prices: SN 150, SN 500
- Group II domestic prices: N100, N150, N220, N600
- Group III domestic, domestic (a) and domestic (b) prices: 4cst, 6cst and 8cst
- Feedstocks: Ice Brent crude, North Sea Dated crude, NWE vacuum gasoil 0.5% barge and vacuum gasoil 2.0% barge, NWE fuel oil 3.5% barge, straight run M-100 fuel oil cargo
- Feedstock premiums: SN 500 premium to North Sea Dated crude, SN 500 premium to VGO 2.0%
- Oil products prices: Ice gasoil, NWE heating oil 0.1% barge
- Oil products premiums: SN 500 premium to heating oil, heating oil premium to VGO 2.0%

Data

- European base oils plant maintenance and shutdowns
- France, Germany, Greece, Italy, Netherlands, Portugal, Russia, Spain, Turkey, UK base oils trade statistics

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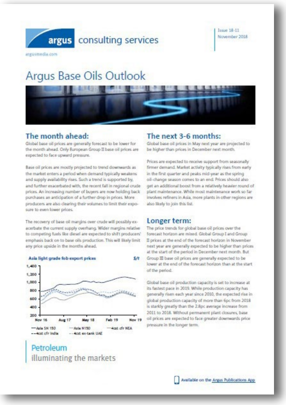
Argus Base Oils Outlook


Argus Base Oils Outlook

Overview

Argus Base Oils Outlook, published monthly, uses a proprietary short-term model to forecast future prices by identifying and quantifying the relationships between a set of price determinant variables. It taps Argus coverage and data of the global base oils spot market and fundamentals to facilitate the analysis of its forecasts. Each base oils price forecast uses a different model. This captures the unique price dynamics of each group/grade of base oil with their most appropriate and influential price determinants.

Key Determinants

- Historical prices: Historical base oil prices capture the latest "price formation" dynamics in the market. This provides a good indicator of how prices are going to behave in the near term and incorporates factors such as seasonality.
- Supply schedule: Short-term supply shocks like planned or unplanned shutdowns or temporary increases in run-rates can have a profound impact on short-term prices. Argus uses its extensive global market-feedback channels and research-coverage to maintain an up-to-date base oil supply database at country, plant and viscosity level.
- Crude, gasoil, diesel prices and crack spreads: Relevant crudes prices, and oil products like vacuum gasoil and diesel, have an impact on base oil prices. Argus incorporates this determinant using its extensive database of global spot crude and oil product prices.

Key features

- Facilitates short-term planning/budgeting
- Reduces exposure to spot-market volatility
- Provides a third-party reference-price to measure against internal price-targets

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illuminating the markets