

WORLD'S TOP CHEMICAL TANKER TRADE ROUTES 2019

MARCH 2019

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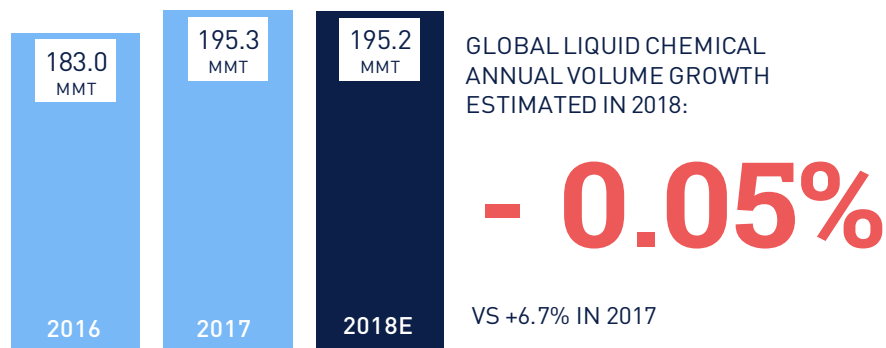
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WORLD'S LIQUID CHEMICAL TRADE VOLUME STAGNATES IN 2018

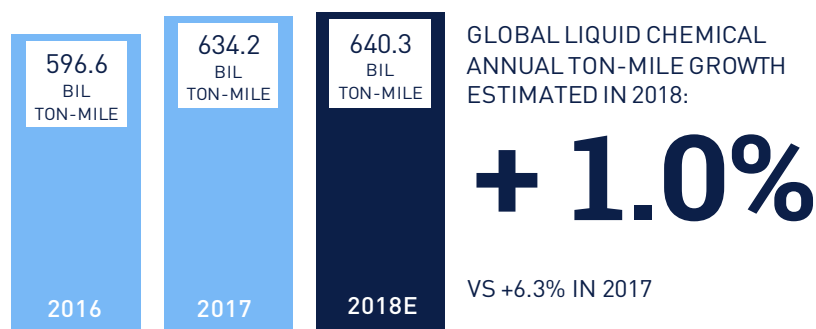
Liquid chemical cargoes traded and shipped around the world stagnated in 2018 after an exceptional growth of 7% in the preceding year. While overall chemical tanker ton-miles demand increased marginally at 1%, there are some major changes both in terms of volume and ton-miles in some trade routes. It does pay for chemical tanker operators to keep abreast of these continual changes.

CHART 1: ANNUAL GLOBAL CHEMICAL TRADE VOLUME & TON-MILE

IN TERMS OF CARGO VOLUME:



IN TERMS OF TON-MILE:



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WORLD'S TOP 20 TRADE ROUTES

BY VOLUME

The intra-North East Asia and Intra-European Continental trade routes secure their top positions in terms of absolute trade volumes and continue to prove the proximity proposition. Increase in South-East Asia exports to North-East Asia let this trade route move one rank up to 5th position, while NAFTA trade to North-East Asia also moved up one rank to 6th position.

TABLE 1: TOP 20 TRADE ROUTES BY CARGO VOLUME

| RANK | TRADE ROUTE | 2018 VOLUME (MMT) | 2017 VOLUME | % CHANGE | RANK CHANGE |
|------|-----------------|-------------------|-------------|----------|-------------|
| 1 | INTRA-NEA | 25.9 | 26.9 | -3.9% | > 0 |
| 2 | INTRA-CONT | 25.2 | 25.2 | -0.2% | > 0 |
| 3 | MIDDLE EAST/NEA | 17.0 | 16.9 | +0.5% | > 0 |
| 4 | INTRA-NAFTA | 12.0 | 11.6 | +4.1% | > 0 |
| 5 | SEA/NEA | 6.9 | 6.6 | +5.1% | ^ 1 |
| 6 | NAFTA/NEA | 6.7 | 6.5 | +2.5% | ^ 1 |
| 7 | NAFTA/SAM | 6.4 | 6.7 | -4.2% | v 2 |
| 8 | NEA/SEA | 6.1 | 5.6 | +8.9% | ^ 1 |
| 9 | INTRA-SEA | 5.6 | 5.9 | -6.1% | v 1 |
| 10 | CONT/MED | 4.8 | 4.8 | +0.7% | > 0 |
| 11 | MIDDLE EAST/ISC | 3.8 | 4.8 | -19.8% | > 0 |
| 12 | CONT/BALTIC SEA | 3.6 | 3.1 | +16.1% | > 0 |
| 13 | MIDDLE EAST/SEA | 3.4 | 2.9 | +15.2% | > 0 |
| 14 | NEA/ISC | 3.2 | 2.4 | +30.1% | ^ 9 |
| 15 | MED/CONT | 2.8 | 2.5 | +12.2% | ^ 7 |
| 16 | NAFTA/CONT | 2.7 | 2.6 | +1.7% | ^ 2 |
| 17 | NEA/NAFTA | 2.6 | 2.7 | -4.2% | v 2 |
| 18 | ISC/NEA | 2.5 | 1.4 | +74.5% | ^ 12 |
| 19 | BALTIC SEA/CONT | 2.5 | 2.6 | -7.2% | > 0 |
| 20 | SEA/ISC | 2.4 | 2.5 | -3.5% | ^ 1 |

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BY TON-MILE

Middle-East (mainly Middle-East Gulf) exports to North-East Asia help this trade route retains its supreme position in terms of ton-miles. While the top 6 trade routes maintain their respective positions, there are several major changes that has taken place. A few of the trade routes saw substantial double-digit growth, for eg. North-East Asian exports to South America marked a whopping 82.8% YoY growth; while Indian Sub-Continent exports to North-East Asia volume grew by 74%; favourably for ship-operators, the perfect backhaul trade from North-East Asia to Indian Sub-Continent grew substantially at over 30%. Carriers that service the Middle-East to European Continent trade route also enjoyed a volume growth of 25% YoY.

TABLE 2: TOP 20 TRADE ROUTES BY TON-MILE

| RANK | TRADE ROUTE | 2018 TON-MILE (IN BILLIONS) | 2017 TON-MILE | % CHANGE | RANK CHANGE |
|------|------------------|-----------------------------|---------------|----------|-------------|
| 1 | MIDDLE EAST/NEA | 100.2 | 99.4 | +0.8% | > 0 |
| 2 | NAFTA/NEA | 64.9 | 63.4 | +2.4% | > 0 |
| 3 | NAFTA/SAM | 33.2 | 34.7 | -4.2% | > 0 |
| 4 | NEA/NAFTA | 25.4 | 26.5 | -4.0% | > 0 |
| 5 | INTRA-NAFTA | 24.2 | 23.0 | +4.9% | > 0 |
| 6 | INTRA-NEA | 18.4 | 18.9 | -2.7% | > 0 |
| 7 | NEA/ISC | 15.5 | 11.9 | +30.8% | ^ 4 |
| 8 | SEA/NEA | 15.4 | 14.6 | +5.7% | v 1 |
| 9 | NAFTA/CONT | 13.5 | 13.2 | +2.1% | v 1 |
| 10 | NEA/SAM | 13.5 | 7.4 | +82.8% | ^ 16 |
| 11 | NEA/SEA | 13.3 | 12.1 | +10.3% | v 1 |
| 12 | MIDDLE EAST/SEA | 12.6 | 11.1 | +14.1% | ^ 1 |
| 13 | ISC/NEA | 11.8 | 6.8 | +74.0% | ^ 18 |
| 14 | ANZ/NEA | 11.3 | 10.1 | +11.7% | ^ 3 |
| 15 | NAFTA/ISC | 11.2 | 9.9 | +12.7% | ^ 3 |
| 16 | WAF/ISC | 11.0 | 12.4 | -10.8% | v 7 |
| 17 | CONT/MED | 10.7 | 11.0 | -3.0% | v 2 |
| 18 | MIDDLE EAST/CONT | 10.4 | 8.3 | +25.1% | ^ 5 |
| 19 | NAFTA/ANZ | 9.7 | 11.4 | -15.4% | v 7 |
| 20 | NEA/ANZ | 9.5 | 11.1 | -13.9% | v 6 |

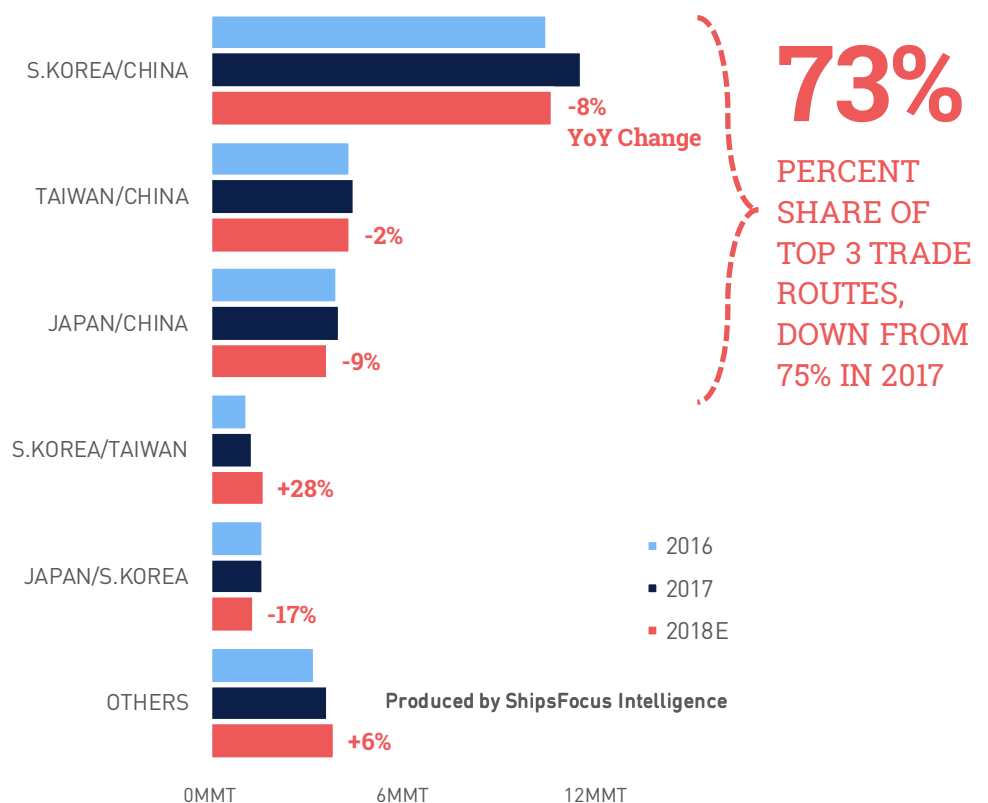
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TOP TRADE ROUTES ON SLOWDOWN

INTRA-NORTH EAST ASIA

China's slowdown is clearly felt in the liquid chemical raw materials from its closest supply countries in South Korea, Taiwan and Japan, all of which recorded negative growth in many years. Together, they constitute more than 70% of the Intra-North-east Asian trade. Carriers who ply this trade suffered from reduced overall volume. However, as supply of ships moderated during 2018, and this contributed to a general overall rising freight trend that started since 2017.

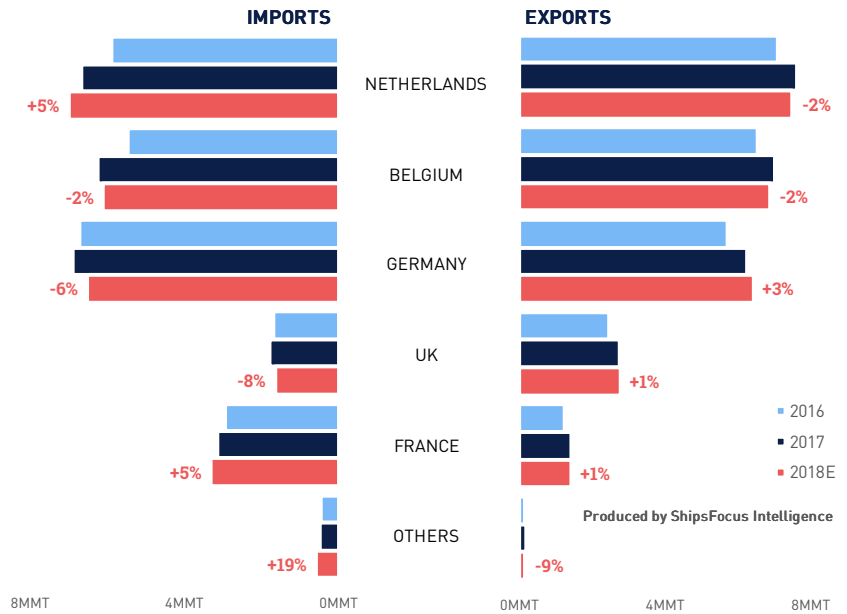
CHART 2: INTRA-NEA TRADE ROUTE - TOP 5 COUNTRY PAIRS



INTRA-EUROPEAN CONTINENT

Major volumes moved to and from Holland, Germany and Belgium, which made up bulk of this trade route.

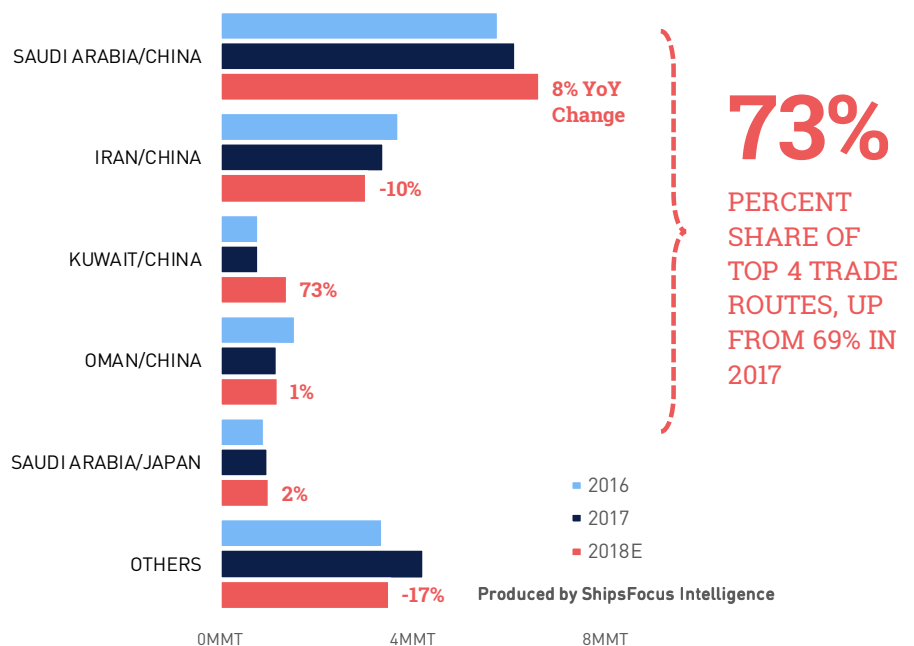
CHART 3: INTRA-CONT TRADE ROUTE - TOP 5 EXIM COUNTRIES



MIDDLE-EAST/NORTH-EAST ASIA

Clearly, China continues to dominate here, taking a lion's share of over 70% of the Middle-East to North-East Asia trade.

CHART 4: MIDDLE EAST/NEA TRADE ROUTE - TOP 5 COUNTRY PAIRS



BRIGHT SPOTS AMONG SMALLER TRADE ROUTES

NORTH-EAST ASIA/INDIA SUB-CONTINENT

This trade route grew substantially by 30% YoY to 3.17MMT in 2018. Heading mainly to India, the key cargo contributors are Sulphuric Acid, Paraxylene and Caustic Soda Solution from the respective countries.

CHART 5: NEA/ISC CHEMICAL CARGOES & COUNTRY PAIRS

2018 VOLUME @ 3.17MMT **+ 30%**

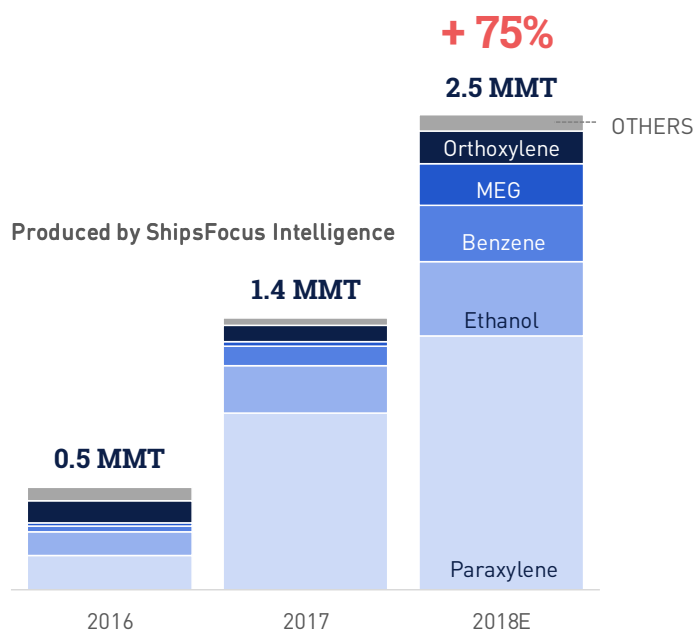
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INDIA SUB-CONTINENT/NORTH-EAST ASIA

India's huge surge in key chemicals production and export, especially for Paraxylene, has created favourable back-haul opportunities for carriers in this trade route. The trade gap between the front and back haul trade has since narrowed considerably.

CHART 6: ISC/NEA CHEMICAL CARGOES CONTRIBUTORS

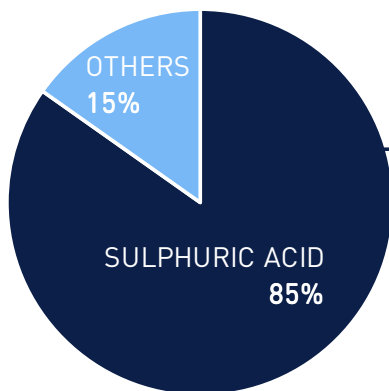


NORTH-EAST ASIA/SOUTH AMERICA

This trade route enjoyed a whopping 85% YoY growth in volume over 2018. This is mainly contributed by Sulphuric Acid from the three major export countries, i.e. Japan, South Korea and China to Chile, which make up the bulk of the increase.

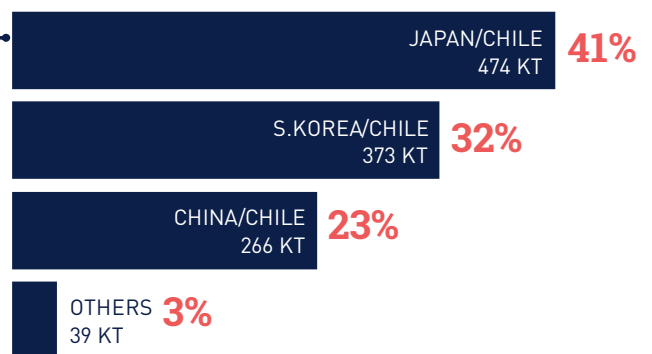
CHART 7: NEA/SAM CHEMICAL CARGO & COUNTRY PAIRS

2018 VOLUME @ 1.36MMT **+ 85%**



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TOP SULPHURIC ACID COUNTRY PAIRS:



WORLD'S TOP 10 CHEMICAL CARGOES

Clocking a growth of above 4% YoY in 2018, Methanol and Paraxylene have held on to the top 2 positions. A further expansion of 5% in total trade volume has allowed Caustic Soda Solution (CSS) to move up one rank and surpass Sulphuric Acid to take the third position. Reduction in trade demand for Styrene and MTBE, ETBE have resulted in some notable negative growths.

TABLE 3: TOP 10 CHEMICAL CARGO RANKINGS

| RANK | TRADE ROUTE | 2018 VOLUME (MMT) | 2017 VOLUME | % CHANGE | RANK CHANGE |
|------|------------------|-------------------|-------------|----------|-------------|
| 1 | METHANOL | 31.0 | 29.8 | +4.1% | > 0 |
| 2 | PARAXYLENE | 21.4 | 20.4 | +4.8% | > 0 |
| 3 | CSS | 17.8 | 16.9 | +5.5% | ^ 1 |
| 4 | SULPHURIC ACID | 17.3 | 17.6 | -1.9% | v 1 |
| 5 | MEG | 15.1 | 15.1 | +0.0% | > 0 |
| 6 | ETHANOL | 10.7 | 10.1 | +5.4% | ^ 3 |
| 7 | BENZENE | 9.3 | 9.8 | -4.9% | > 0 |
| 8 | STYRENE | 9.1 | 10.3 | -11.6% | v 2 |
| 9 | MTBE, ETBE, ETC. | 7.3 | 8.1 | -9.6% | v 1 |
| 10 | PHOSPHORIC ACID | 6.2 | 6.5 | -4.6% | > 0 |

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EXPLANATORY NOTES

DEFINITIONS OF KEY REGIONS:

Europe-Continent (CONT) includes: Belgium, France, Germany, Netherlands, Portugal, United Kingdom

Indian Sub-Continent (ISC) includes: Bangladesh, India, Pakistan, Sri Lanka

Middle-East (ME) includes: Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, U.A.E., Yemen

NAFTA includes: Canada, Mexico, USA

North-East Asia (NEA) includes: China, Hong Kong, Japan, Korea North, Korea South, Macau, Taiwan

South-America (SAM) includes: Argentina, Brazil, Chile, Colombia, Ecuador, Falkland Islands, French Guiana, Guyana, Peru, Suriname, Uruguay, Venezuela

South-East Asia (SEA) includes: Brunei, Cambodia, East Timor, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam

TON-MILE CALCULATION: The ton-mile for each trade route is calculated using each of its country-to country trade volumes multiply by the representative port-to-port distance. For example: Middle-East to North-East Asia uses Al-Jubail to Shanghai distance (in Nautical Miles) multiply by the aggregate volume (in Metric Tons) of all the country pairs in the trade route.

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