



Alum Market – Q4 2018

September 2018

What does impact the alum cost?

- Raw Material Cost: Aluminum & Sulfuric Acid
- General manufacturing costs
- Freights costs

2018 Hydrate Market



- In 2016, 2 out of 3 US Based Suppliers went out of business due to crash of the Alumina market (Alcoa & Glencore)
- Only one supplier left in the US (Noranda). Rio Tinto in Canada gained Market Share
- Due to increases in the Alumina Australia Index, Rio Tinto, Glencore & Southern Ionics all increased prices by +\$40/T for 2018 but continue to rise

2018 Hydrate Market



- US is now exposed to global supply demand
- Vessel imports from Brazil and Jamaica have recently quoted +\$150-\$200/T over last year's price
- Largest Alumina producer Norsk Hydro's Brazilian Alunorte alumina refinery curtailed production indefinitely by 50% due to environmental issues and Hydro declared Force Majeure on March 2, 2018

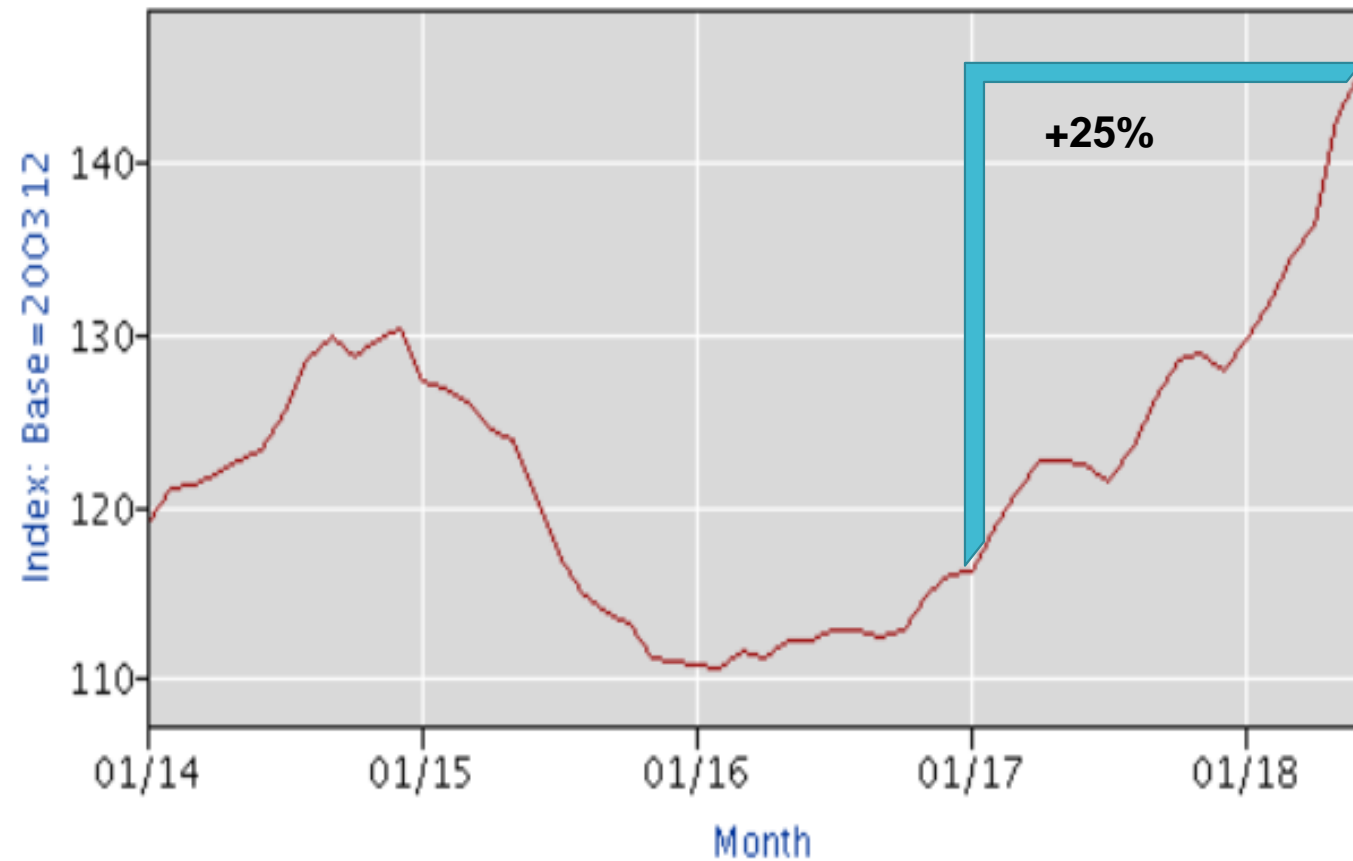
2018 Hydrate Market



- In April 2018, the US government levied sanctions against RUSAL, another global supplier of Hydrate and Ingot into the US causing pricing to spike to an all time high
- 10% tariffs have been issued on imported metal aluminum.

PPI Data

Bureau of Labor Statistics



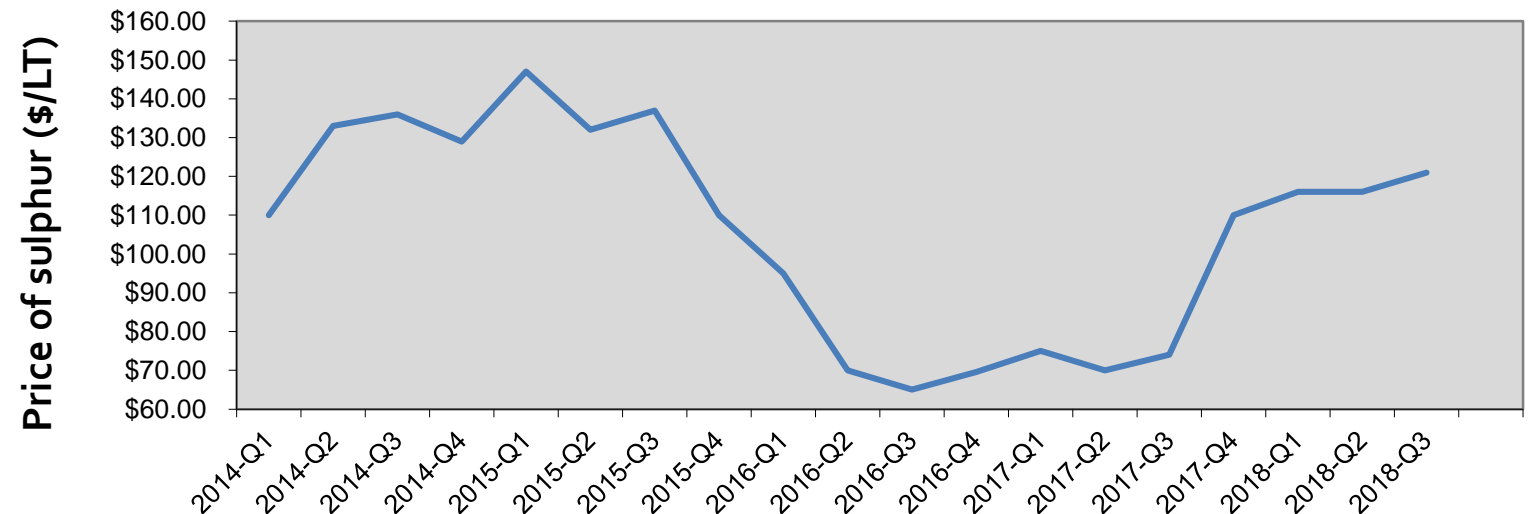
Alumina & Aluminum Production & Processing

Sulfuric Acid Impact



- Tight supply of Acid in the marketplace
 - Vale's permanent supply shutdown
 - Timing/Restart of other producer's turnarounds
 - Supply of Imports
- Acid prices don't necessarily follow the Tampa Sulfur Index
- Acid costs are much higher than any sulfur adjustments would cover due to supply, freight charges, etc.
- Tampa Sulfur Index shows pricing trend > prices increased over the last year:

Tampa Index Chart



Sulfuric Acid Impact



	Morocco	Brazil	Chile	US Gulf	Tampa S. Acid Equiv.
Jan-17	\$ 22.50	\$ 45.00	\$ 37.50	\$ 40.00	\$ 22.35
Current	\$ 85.00	\$ 105.00	\$ 105.00	\$ 110.00	\$ 38.89

Change	\$ 62.50	\$ 60.00	\$ 67.50	\$ 70.00	\$ 16.53
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- Most domestic business follows the Tampa Sulphur Acid Equivalent.
- Only option to add supply to North America is to compete with other off-shore markets (represented by US Gulf)
- Current spot business based upon:

\$110 at port + terminal fees + inland freight + margin



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OPERATIONAL CHALLENGES

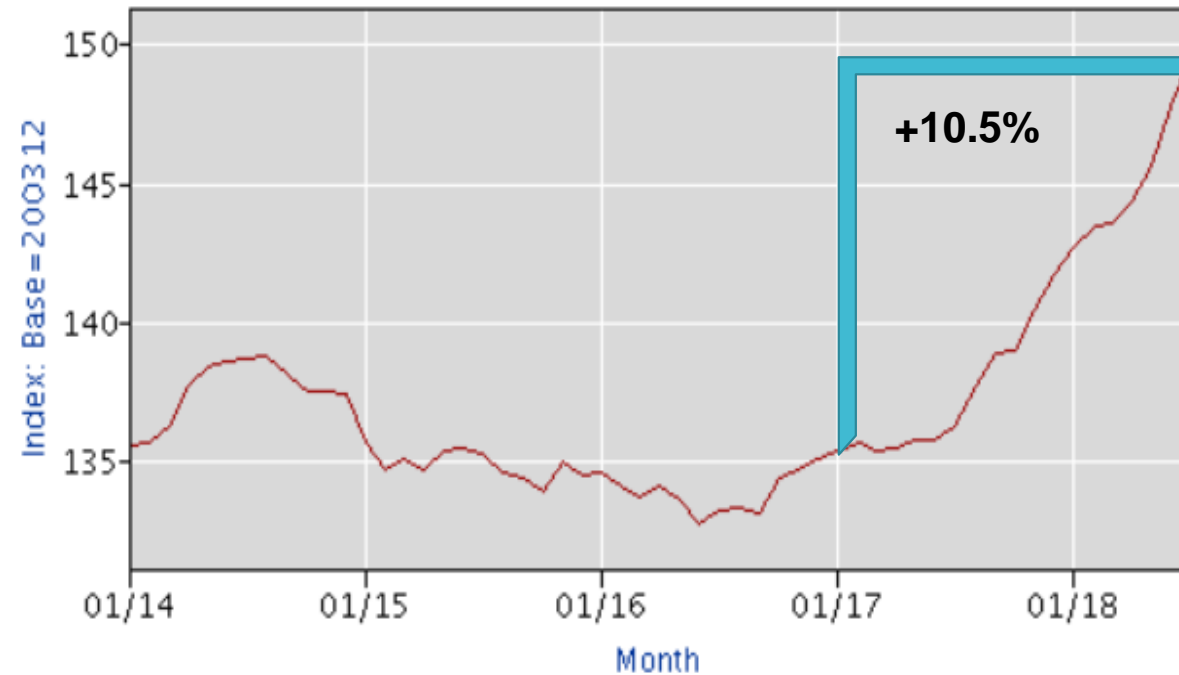
Trucking Issues



- A. NA driver shortage leading to significant freights increase
- B. US Dot implemented eLogs which has forced certain capacity out of the market. Hours of service are strictly enforced & harder to meet customer delivery window
- C. Chemtrade needs to improve planning & communication. Work to optimize deliveries

Chemtrade needs to be a shipper of choice via ease of doing business, equitable partnership with carriers, safety focus, service over price, etc.

PPI Data Bureau of Labor Statistics



General Freight Trucking



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HOW CAN YOU HELP US?



- COMMUNICATION IS KEY
- ORDER EARLY IN THE WEEK, AVOID UNPLANNED DELIVERIES
- BE FLEXIBLE
- DO NOT HOLD UP THE DRIVER UP, OFFLOAD AS QUICKLY AS POSSIBLE
- INCREASE ONSITE STORAGE
- AVOID MOVING OR CANCELLING ORDERS

**EDUCATE EACH OTHER TO UNDERSTANDS CAPABILITIES, LIMITATIONS
& COST STRUCTURES**



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QUESTIONS