Global Soda Ash Overview

Global supply/demand overview and how India fits into the global picture

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AIGMF, India, May 26th, 2018
### Soda Ash Capacity Dynamics are Constantly Shifting

#### 2000

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Caps MMT/Share</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solvay</td>
<td>6.79 / 15.5%</td>
<td></td>
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<tr>
<td>2</td>
<td>FMC</td>
<td>3.50 / 8.0%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General Chemical</td>
<td>2.55 / 5.8%</td>
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<tr>
<td>4</td>
<td>Sterlitamak</td>
<td>2.30 / 5.2%</td>
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<tr>
<td>5</td>
<td>OCI Enterprises</td>
<td>2.09 / 4.8%</td>
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<td>6</td>
<td>Brunner Mond</td>
<td>1.48 / 3.4%</td>
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<tr>
<td>7</td>
<td>IMC Global</td>
<td>1.36 / 3.1%</td>
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<tr>
<td>8</td>
<td>Ciech</td>
<td>1.10 / 2.5%</td>
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<tr>
<td>9</td>
<td>Lianyungang Soda</td>
<td>0.90 / 2.1%</td>
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<tr>
<td>10</td>
<td>Shandong Haihua</td>
<td>0.90 / 2.1%</td>
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</tr>
<tr>
<td>Top10</td>
<td></td>
<td>23.0 / 52.4%</td>
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</tbody>
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#### 2017

<table>
<thead>
<tr>
<th>Rank</th>
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<tbody>
<tr>
<td>1</td>
<td>Solvay</td>
<td>7.32 / 10.7%</td>
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<tr>
<td>2</td>
<td>Tata</td>
<td>3.73 / 5.5%</td>
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<tr>
<td>3</td>
<td>Tronox (FMC)</td>
<td>3.68 / 5.4%</td>
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<td>4</td>
<td>Ciner Group</td>
<td>3.06 / 4.5%</td>
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<td>5</td>
<td>Shandong Haihua</td>
<td>2.85 / 4.2%</td>
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<tr>
<td>6</td>
<td>NIRMA</td>
<td>2.70 / 4.0%</td>
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<td>7</td>
<td>Ciech</td>
<td>2.41 / 3.5%</td>
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<td>8</td>
<td>Sanyou Chemical</td>
<td>2.30 / 3.4%</td>
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<tr>
<td>9</td>
<td>Hubei Yuhua</td>
<td>2.10 / 3.1%</td>
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<tr>
<td>10</td>
<td>Sisecam</td>
<td>1.93 / 2.8%</td>
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<td>32.1 / 47.0%</td>
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#### 2018

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<td>Solvay</td>
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<td>Ciner</td>
<td>4.60 / 6.5%</td>
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<tr>
<td>3</td>
<td>Tata</td>
<td>3.73 / 5.2%</td>
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<tr>
<td>4</td>
<td>Genesis Alkali</td>
<td>3.68 / 5.2%</td>
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<td>Shandong Haihua</td>
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<td>7</td>
<td>Ciech</td>
<td>2.43 / 3.4%</td>
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<td>Sanyou Chemical</td>
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<td>33.6 / 47.0%</td>
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**Calculated on a shareholder basis**
World Capacity Change

US has biggest commercial reserves of natural soda ash. The newest commercial natural production is in Turkey.

Hou process is mostly in China, co-produces NH₄Cl (a low grade fertilizer).
Soda Ash Demand

- Flat glass dominated demand
- Each region though has its own demand profiles
- China is the biggest flat glass producer in the world
- In India detergents is the main demand sector

The biggest end use is flat glass, is driven by Construction

2nd biggest end use is Container glass. Niche for Alcoholic Beverages
Shifting Market Dynamics

• Markets seeing increased volatility
• Soda ash supply/demand dynamics shifting
• China is seeing new environmentally focus impacting on supply and on some demand sectors
• Volatility in energy/raw materials
• A new supply source, Turkey, entering the market
• Flat glass still drives world demand, also some traditional & new demand sectors supported by environmental concerns
Soda Ash Trade
Top Exporters, Turkey becoming a Major Player

- Natural soda ash producer, the US, is dominant exporter
- China historically 2\textsuperscript{nd} largest exporter
- Turkey becoming a major player
- Beypazari (expansion) and Kazan (new plant)
- 3 MMT new capacity on stream in 2017/18
- New natural capacity has low production costs
- Now the 2\textsuperscript{nd} largest exporter in the world
Regional Market Dynamics
How Turkey Competes

- **Eti Soda – Beypazari**: 1MT/Y Trona based, Expansion: 0.5MT/Y, March 2017
- **Kazan Soda – Kazan**: 2.5MT/Y, Aug 17 / 1Hf 2018, Trona based
- **Sisecam – Mersin**: 1.3MT/Y, Solvay based

By the end of 2018, Turkey will have a total capacity of 5.35 MMT.

But the domestic market is just a little over 1.0 MMT.
Europe Challenges

**EU-15 Soda Ash Imports**

- **Note:** Spanish imports hidden in 2011-2012

**Central Europe Capacity vs Demand**

Source: IHS Markit © 2018 IHS Markit
US Historical Context

• US capacity far exceeds demand
• Domestic demand fell after the financial crisis
• **Domestic demand** is below pre-recession levels
• **Container glass**, largest end use, is declining
• 11 **float-glass** plants shut between 2007-2014, demand has recovered but local glass plants struggling to keep up
• No major **soda ash capacity** expansions scheduled

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**US Supply Demand Dynamics**

- **Domestic Demand**
- **Exports**
- **Capacity**

Source: IHS Markit © 2018 IHS Markit
US dominance in NAM is absolute but its influence in other markets is threatened.
Indian Subcontinent Historical Context

- Demand is growing
  - Dominated by detergents
  - Flat glass, housing, solar glass
  - Container glass…capped by alcohol laws…
- Domestic suppliers dominate
- The big question is about supply, domestic vs import
  - Indian supply concentrated in Gujarat
  - India has a very exposed geography
India has very diverse sources of supply.
Southeast Asian Historical Context

• A number of new soda ash end use prospects in Southeast Asia
  > New sodium bicarbonate plants in Thailand and Singapore
  > New float glass plants in Malaysia
  > New container glass plants in Thailand
  > Lithium capacity is growing in Australia
• All this opens new opportunities for soda ash producers

Note: Exports to Asia includes exports to India Subcontinent

Turkish exports to Asia = 214,000 MT

Source: IHS Markit
South America is an Attractive Market for Exporters

**Imports to Brazil, Argentina, Chile, Market Share**

Source: IHS Markit © 2018 IHS Markit

**Soda Ash Imports, Brazil, Chile, Argentina**

Source: IHS Markit © 2018 IHS Markit
2000 – 2018 has seen significant shifts in profile of key soda ash market players

Growth in China has influenced global volatility

New trona based capacity in Turkey will challenge existing suppliers

Strong prospects for demand in developing markets including India, South America, S.E.Asia
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