Global Styrene Market
Key Factors Influencing the Future Landscape

Platts Global Aromatics Conference - Seoul
September 27, 2013

Driving Success. Together.
The following presentation includes “forward-looking statements,” within the meaning of the US or other countries securities laws, based on Styrolution’s current expectations and projections about future events, including:

- the cyclical nature of our businesses and their sensitivity to changes in supply and demand
- raw material availability and costs, as well as supply arrangements, including arrangements with principal feedstock suppliers
- the highly competitive nature of our principal industries
- current or future environmental requirements, including those related to greenhouse gas and other air emissions, and the related costs of maintaining compliance and addressing liabilities
- currency fluctuations and economic downturns in the countries in which we operate
- our ability to implement our business and cost reduction strategies

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Statements regarding company outlook pertain only to Styrolution, its own business activities as a styrenics pure play, the styrenics markets and respective styrenics industry value chains it serves, and may be different from its shareholder companies' outlook.
Agenda

- Styrolution at a glance
- Global supply & demand picture
- Key factors that will influence the future styrene landscape
- Further rationalization or investment?
Styrolution at a glance: facts & figures

- Sales 2012: €6.0 billion
- EBITDA before special items 2012: €335 million
- Employees: approximately 3,200
- Headquarters: Global/EMEA: Frankfurt, Germany; Americas: Aurora, IL, USA; Asia: Singapore
- Production sites: 17 in 10 countries
Styrolution in brief: where we stand today

- Only company among the key players dedicated entirely to styrenics

- Global leader in styrenics:
  - No. 1 position in styrene monomer (SM)
  - No. 1 position in polystyrene (PS)
  - No. 1 position in specialties
  - No. 3 position in acrylonitrile butadiene styrene (ABS)

- Independent company with entrepreneurial and dynamic organization

- Remain number 1 in the market worldwide

- More than 80 years industry experience
Key financials: sales 2012

**BY PRODUCT GROUP**

- Polystyrene: 41%
- Styrene Monomer: 24%
- Specialties: 21%
- ABS Standard: 14%
- Total: €6,0 bn

**BY REGION**

- Americas: 35%
- EMEA: 43%
- Asia-Pacific: 22%
- Total: €6,0 bn
Global reach and proximity to customer markets

INDUSTRY BENCHMARK WORLD-SCALE FACILITIES: well-maintained and among the most cost efficient worldwide

10/7/2013
Low-cost technology manufacturing platforms

Best-in-class manufacturing plants

- Channahon
- Bayport
- Antwerp
- Cologne
- Trelleborg
- Ulsan

About 75 percent of all Styrolution output from manufacturing facilities ideally positioned in the 1st and 2nd quartile of the cost curve

- World-scale polystyrene manufacturing facility
- Largest single production line styrene plant in the world
- The largest integrated styrenics plant in the world
- Leading site for special applications and specialties
- Site with unparalleled geographical reach in Nordic region
- Leading global low-cost site

Styrolution at a glance
Long and diverse history of shaping the future of styrenics

First styrene synthesis
(Hermann Franz Mark) in Ludwigshafen

Production extension in Ludwigshafen; PS, ASA, ABS, SAN

International expansion into Belgium (1971), South Korea (1985) and Mexico (1997)

Acquisition of DSM’s ABS business (1999); PS business in Daheji, India

PS plant shutdown in Tarragona, Spain

Acquisition of Repsol’s ABS/SAN and Lanxess SAN business

PS plant shutdown in Ludwigshafen; Divestment of unprofitable assets in Korea (SM) and Brazil (PS); Debottlenecking in several plants

1929
1930-1967
1971-2004
2006
2009-2010

Development of styrenics businesses of heritage companies: Huls, BP, Amoco, Monsanto, Polysar, Mobil


BASF acquires Mobil Chemical Styrenics (1992)

BP acquires Amoco Oil and Huls Styrenics (1998)

BASF sells PS plant in Joliet to INEOS

NOVA and BP form European JV called NOVA Innoven
e

INEOS acquires BP’s styrenics assets including 50% of NOVA Innoven

JV expanded into North America and renamed INEOS NOVA

1938-1988
1988-1998
2005
2007
2008
2009

Bayer commence production of Novodur® ABS (1956)

Bayer acquires Monsanto ABS business (1995), Premier Enterprise/Thailand (ABS, 1996/97) and 51% of ABS Ltd. (India, 1997)

INEOS acquires majority under JV with Lanxess and creates INEOS ABS

INEOS ABS acquires 83.33% of the Indian ABS business

INEOS acquires 100% of INEOS ABS

1956-1997
2004
2007
2008
2009

10/7/2013

Styrolution
Driving Success. Together.

Signing of Letter-of-Interest BASF and INEOS to create 50/50 joint venture

INEOS acquires NOVA’s 50% share of INEOS NOVA.
Renames the company to INEOS Styrenics

Carve-out of BASF’s styrenics activities to legally independent entities

Establishment of planned joint venture Styrolution

INEOS Styrenics

INEOS ABS

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GLOBAL SUPPLY & DEMAND
Styrene global supply & demand

Key demand assumptions

• Following a near-flat global demand growth rate in 2012, we assume only a moderate recovery in the near-term outlook

• 5-yr growth rate of 2.8%

• Asia growth limited by weaker economic conditions in its export markets

• European recovery continues to struggle amid its currency and debt crisis, and failure to develop a unified stimulus plan
**Styrene global supply & demand**

*Growth rates are conservative relative to GDP*

<table>
<thead>
<tr>
<th>% Demand Growth</th>
<th>Styrolution Assumption</th>
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<tbody>
<tr>
<td></td>
<td>'13-'12</td>
</tr>
<tr>
<td>NEA</td>
<td>2.8</td>
</tr>
<tr>
<td>China</td>
<td>4.0</td>
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<tr>
<td>North America</td>
<td>-0.3</td>
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<tr>
<td>Europe</td>
<td>-2.5</td>
</tr>
<tr>
<td>World</td>
<td>2.3</td>
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</tbody>
</table>
Styrene global supply & demand
Northeast Asia (China) drives demand growth

Global 8-yr growth rate forecasted at 2.8% p.a.; China growth at 4.6% p.a.

Source: Styrolution
Styrene global supply & demand
EPS & ABS will drive future demand growth

Global 8-yr growth rate forecasted at 2.8% p.a.
Styrene global supply & demand

Demand growth outpaces new capacity

Global styrene – new capacity vs. demand growth

Source: Styrolution
Operating rates will continue to improve, surpassing 90% by 2016 in our supply and demand scenario of 2.8% p.a. growth.
North East Asia supply & demand

Can rates exceed 90%?

Source: Styrolution
Western Europe supply & demand

Strong impact of POSM rates

10/7/2013

Source: Styrolution
North America supply and demand

Incremental exporter to the world

North America styrene supply and demand

Source: Styrolution
KEY FACTORS THAT WILL INFLUENCE THE FUTURE STYRENE LANDSCAPE
Beyond 2015, there is less certainty in the timing, magnitude of new capacity additions. The projects captured here are a compilation of announced projects in the marketplace but with limited definition of specific timing.
Styrene global capacity changes

Smaller, fragmented plants at risk of under-running

Key drivers for under-utilization
- Non-integrated
- Feedstock constraints
- Geo-political

SM Capacity by Reactor (2013)
kT per year

Source: Styrolution
Natural gas advantage

U.S. shale developments leads to energy advantage

Crude oil and natural gas prices

Crude oil to natural gas price ratio

As a result of recent technological developments and improvement in supply, natural gas has gained a significant cost advantage over crude oil-based fuel as an energy commodity.

Source: Styrolution
United States ethane emerges
*Becomes a globally competitive cracker feedstock*

Ethylene cash costs by region

Source: IHS Chemical
United States ethylene expansion

Significant cracker expansions are planned

Ethylene cracker expansion plans announced
‘000’s kTA

<table>
<thead>
<tr>
<th>Region</th>
<th>Operator</th>
<th>Location</th>
<th>Capacity</th>
<th>Startup</th>
</tr>
</thead>
<tbody>
<tr>
<td>USGC</td>
<td>Dow Chemicals</td>
<td>Hahnville, LA</td>
<td>0.40</td>
<td>2012</td>
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<tr>
<td></td>
<td>Westlake</td>
<td>Lake Charles, LA</td>
<td>0.23</td>
<td>2013</td>
</tr>
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<td></td>
<td>Williams</td>
<td>Geismar, LA</td>
<td>0.27</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td>Ineos</td>
<td>Chocolate Bayou,</td>
<td>0.15</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td>Dow Chemicals</td>
<td>Plaquemine, LA</td>
<td>1.20</td>
<td>2014</td>
</tr>
<tr>
<td></td>
<td>Dow Chemicals</td>
<td>Freeport, TX</td>
<td>0.50</td>
<td>2014</td>
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<tr>
<td></td>
<td>Lyondell/Basell</td>
<td>Channelview, TX</td>
<td>0.23</td>
<td>2014</td>
</tr>
<tr>
<td></td>
<td>Lyondell/Basell</td>
<td>La Porte, TX</td>
<td>0.39</td>
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<tr>
<td></td>
<td>BASF-Total</td>
<td>Port Arthur, TX</td>
<td>0.12</td>
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<td></td>
<td>Formosa USA</td>
<td>Port Comfort, TX</td>
<td>0.80</td>
<td>2016</td>
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<tr>
<td></td>
<td>ExxonMobil</td>
<td>Baytown, TX</td>
<td>1.50</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>Occidental/Mexichem</td>
<td>Ingleside, TX</td>
<td>0.60</td>
<td>2016</td>
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<tr>
<td></td>
<td>ConocoPhillips</td>
<td>Baytown, TX</td>
<td>1.50</td>
<td>2018</td>
</tr>
<tr>
<td></td>
<td>Sasol</td>
<td>Lake Charles, LA</td>
<td>1.00</td>
<td>2018</td>
</tr>
<tr>
<td>Northeast US</td>
<td>Aither</td>
<td>Pending, WV</td>
<td>0.27</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>Shell Chemical</td>
<td>Monaca, PA</td>
<td>1.50</td>
<td>2018</td>
</tr>
<tr>
<td>Others</td>
<td>Westlake (1)</td>
<td>Calvert City, KY</td>
<td>0.18</td>
<td>2014</td>
</tr>
<tr>
<td></td>
<td>Nova Chemicals</td>
<td>Sarnia, Ontario</td>
<td>1.20</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>Nova Chemicals</td>
<td>Joffre, Alberta</td>
<td>1.45</td>
<td>2017</td>
</tr>
<tr>
<td></td>
<td>Braskem/Idesa</td>
<td>Coatzacoalcos, Veracruz</td>
<td>1.05</td>
<td>2016</td>
</tr>
</tbody>
</table>

The most significant wave of new capacity is expected to come online by 2017-18
United States ethylene expansion
Recent high operating rates has led to strong margins

As ethylene expansion outpaces new derivative builds, operating rates may decrease
Benzene factors

*North America will remain a net importer*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact to benzene supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline demand</td>
<td></td>
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<tr>
<td>Renewable fuels legislation</td>
<td></td>
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<tr>
<td>Light ethylene cracking</td>
<td></td>
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<tr>
<td>MSAT2 regulations</td>
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</tbody>
</table>

Benzene supply presents a challenge for U.S. producers, as this region remains in a net short position.
Styrene cost competitiveness
Cost advantage emerges for U.S. producers

Distinct advantages on energy and ethylene costs position U.S. SM producers to be very competitive in the global export market.

Chart represents SM cost components based on regional acquisition prices for 2011 – 2012.
North America supply and demand
Incremental exporter to the world

North America styrene supply and demand

Source: Styrolution
Styrene global supply & demand

Trade flows are based on projected operating rates by region

Source: Styrolution
FURTHER RATIONALIZATION OR INVESTMENT?
Conclusion and Summary

- Global and North American operating rates increase to >90% by 2016
  - China’s styrene demand growth key to market development
  - U.S. producers have access to advantaged feedstock and energy

- Pressure will remain in Europe and Asia for further consolidation and rationalization
  - Disadvantaged feedstocks
  - High energy costs

- Styrene becomes an interesting molecule for the first time in a decade