

# **Asia Petrochemical Industry Conference 2013**

**Country Report**

**From**

**Singapore**

Prepared by:

Singapore Chemical Industry Council Limited (SCIC)

# **Asia Petrochemical Industry Conference 2012**

## **Chinese Taipei, Taiwan**

### **Country Report - Singapore**

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## **Facts on Singapore**

### a. Land and Climate

Total Land Area:	715.8 sq km. Comprising one main island and a number of islets scattered off its north-east and south.
Climate:	Singapore is an equatorial country with relatively uniform temperature, high humidity and abundant rainfall.
Average Daily Temperature:	25.1 – 31 degree Celsius
Time:	GMT +8 Hours

### b. People

Total Population: (2012)	5.31 million
Population Density: (2012)	7,422 per sq km
Population by Race:	Chinese (75%) Malays (13.7%) Indians (8.7%) Others (2.6%)
Official Languages:	English (Language of Administration) Chinese (Mandarin) Malay (National Language) Tamil

### c. Government

Singapore is a republic with a parliamentary system of government based on the Westminster model.

The organs of state comprise:

#### **The Executive: Head of State and Cabinet**

Head of State: President Tony Tan Keng Yam, - elected in 2011  
(The President is elected for a fixed term of 6 years)

Cabinet: Led by the Prime Minister, Mr Lee Hsien Loong  
(since 12 Aug 2004)

#### **Parliament**

Parliament is elected by general election every five years. The first sitting of Parliament was held on 8 Dec 1965. The first general election for Parliament was held on 13 Apr 1968.

#### **The Judiciary: The Supreme Court and the Subordinate Courts**

The Judiciary is one of the three constitutional pillars of government along with the Legislature and the Executive. As an Organ of State, the Judiciary's function is to independently administer justice. The Judiciary is safeguarded by the Constitution.

### d. Economic Indicators

Currency: Singapore Dollar (SGD) which is divided into 100 cents

Money Supply: \$140.71 billion (as of 2012)

Official Foreign Reserves: \$316.74 billion (as of 2012)

## Overview of Singapore's Economy in 2012

Year	GDP at 2005 Market Prices (S\$ M)	% Growth
2008	251,374.0	1.7
2009	248,911.2	-1.0
2010	285,658.5	14.8
2011	299,624.7	4.9
<b>2012</b>	<b>305,201.5*</b>	<b>1.9*</b>

## Overview of Manufacturing Sector Performance in 2012

Year	Total Output (S\$ M)	% Growth
2008	259,339	2.4
2009	213,669	- 17.6
2010	270,494.7	26.7
2011	285,453.9	5.5
<b>2012</b>	<b>300,702.8*</b>	<b>5.3*</b>

*\* Figures are provisional at the time of printing. All statistics indicated above have been extracted from the Statistics Singapore website*

## Overview of Chemical Cluster Performance in 2012

The Singapore chemical cluster comprises the Petroleum, Petrochemicals and Specialties sub-sectors.

The chemical industry's output in 2012 rose by 5% to S\$102.06 billion, up from S\$97.2 billion in 2011.

The chemical cluster still continued being a key contributor, maintaining its position as the leading cluster within the manufacturing sector, contributing about 34 % to the overall manufacturing output in 2012.

Year	Chemical Cluster Output (S\$ Bn)	% Growth
2008	98.1	18.1
2009	58.5	- 40.4
2010	81.3	39.0
2011	97.2	19.6
<b>2012</b>	<b>102.06*</b>	<b>5*</b>

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### Chemical Industry Sectoral Performance in 2012

#### Petroleum

Petroleum output continued to be the strongest contributor to the overall manufacturing output of the chemical cluster. This sector contributed an output of S\$57.4 billion in 2012, compared to S\$54.85 billion in 2011.

#### Petrochemicals

The petrochemicals sector output rose from S\$32.26 billion in 2011 to S\$32.96 billion in 2012.

## Specialties

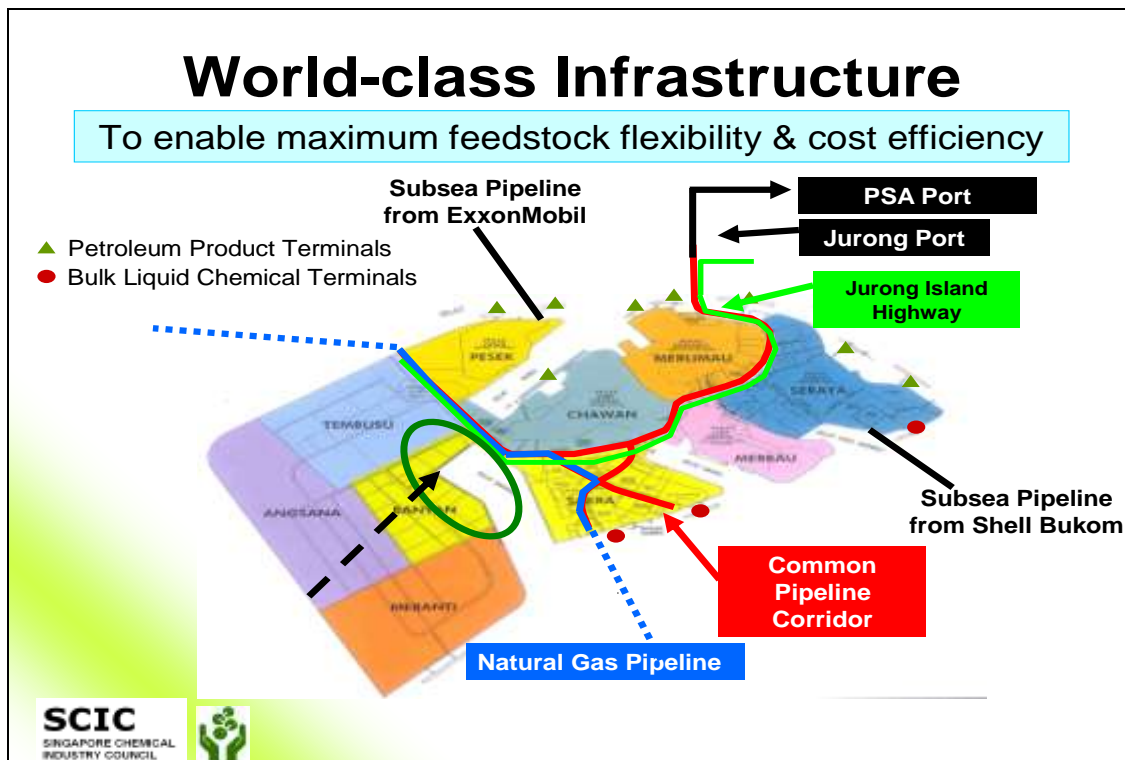
Specialties contribution rose from S\$8.02 billion in 2011 to S\$9.78 billion in 2012.

	2008	2009	2010	2011	<b>2012</b>
	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)
<b>Petroleum Sector</b>	60.3	31.8	42.3	54.8	<b>57.40*</b>
<b>Petrochemical Sector</b>	29.1	19.3	30.0	32.3	<b>32.96*</b>
<b>Specialties Sector</b>	8.7	7.3	6.9	8.0	<b>9.78*</b>

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## Location of Petrochemical Plants in Singapore – Jurong Island

Jurong Island is located on the western coast of Singapore. It is home to leading petrochemical companies as well as third party service providers of utilities, tankages and terminalling facilities, warehouses , maintenance and repair centres.



Singapore firmly believes in the permanence of the outsourcing trend. Today, companies on Jurong Island are able to outsource non-core manufacturing operations like utilities, waste treatment, logistics and storage and terminalling. This translates to lowering of fixed capital investments by 10-15%, hence generating a better return on capital employed.

Jurong Island will be developed into a chemical transshipment centre for the region. 80 hectares of land has been designated for the logistics hub (Banyan Logistics Node) for the movement of bulk chemicals. Companies can also export bulk solids using Singapore's main port (PSA) which is less than 10 kilometres away.



Companies can also work with the Institute of Chemical Engineering & Sciences (ICES), located in Jurong Island itself, in areas ranging from basic chemical R&D (eg. catalysis) to process optimisation.

The Island is getting ready for the future with the Jurong Island Version 2.0 (Jlv2.0) initiative. As Singapore gears itself for the increasing global competition, Jlv2.0 is set to transform Singapore's petrochemicals hub with future-ready solutions. This initiative adopts a "whole-of-government" effort to enhance Jurong Island's competitiveness as well as sustainability by strengthening robustness of the current system, achieving a higher level of resource optimisation, and developing industrial optionality.

## **Key Developments in 2012**

The following are some developments that will further strengthen the growth of the Singapore chemical industry over the next few years:

- **Sumitomo Chemicals**

On 6th Feb 2012, Sumitomo Chemical held a groundbreaking ceremony and a celebration reception for the new solution styrene-butadiene rubber (S-SBR) manufacturing plant. The S-SBR plant is a high value-add and know-how intensive specialties chemical product that is manufactured using its proprietary process technology. With the S-SBR plant, Singapore is now one of the largest manufacturing sites for synthetic rubber globally.

- **Evonik**

Evonik, one of the world's leading specialty chemicals companies, announced the establishment of a 500-million-euro methionine production complex, the company's largest chemical investment to date. The facility will have an annual capacity of 150,000 metric tonnes and will start-up in the second half of 2014.

- **Lanxess**

On 11 September 2012, LANXESS broke ground for its new neodymium-based performance butadiene rubber (NdPBR) plant in Singapore.

Lanxess, the world's largest synthetic rubber producer, announced the establishment of a neodymium-polybutadiene rubber plant on Jurong Island. This will be the world's largest facility for neodymium-polybutadiene rubber. At 200 million euros, this is the company's second largest investment in its history. The plant will be operational by early 2015.

- **Singapore Oxygen Air Liquide**

Singapore Oxygen Air Liquide, the world's largest industrial gas player, completed a S\$500 million expansion on Jurong Island. The expansion included the largest hydrogen product plant in Southeast Asia, an air separation unit that increases the company's production capacity by 50 per cent, as well as an extension of its hydrogen pipeline network.

- **Clariant**

Swiss specialty chemical giant, Clariant, opened its new Business Unit Textile Chemicals global headquarters and regional headquarters for South East Asia & Pacific. Clariant also relocated its global textile application technology laboratory to Singapore, focused on developing new solutions based on sustainable chemistries. With more than 60 per cent of global textile production in the Asia Pacific region, the senior Textile Chemicals management team will be located in Singapore to strengthen customer relationships and oversee the company's strategic priorities.

- **Jurong Aromatics Corporation (JAC)**

Jurong Aromatics Corporation (JAC) is a joint venture between eight shareholders broke ground to develop a world-scale aromatics complex in Singapore. The US\$2.4 billion facility on Jurong Island, which is expected to commence operation in 2014, will consist of a fully-integrated condensate splitter and an aromatics plant.

- **Sinopec**

Sinopec is China's largest producer and supplier of refined oil products and major petrochemicals products. Its subsidiary, Sinopec Lubricants, announced the decision to build its first lubricant plant outside of China in Singapore. The S\$108.3 million facility will be Sinopec's first wholly-owned overseas manufacturing plant and is part of the company's efforts to establish its brand presence in Southeast Asia.

- **Jurong Island Rock Cavern (JRC) Project**

Jurong Rock Cavern (JRC) is an innovative initiative driven by JTC to increase underground oil storage capacity on Jurong Island. JRC will comprise an oil storage complex to be built at subterranean depths beneath the seabed of Banyan Basin. Upon completion, the underground caverns will have a potential storage capacity of close to 3 million cubic metres catering specifically to liquid hydrocarbons like crude oil, condensates and diesel oil.

Phase 1 of the JRC consists of 8km of tunnels and 5 caverns housing a total of 9 storage galleries. The caverns were built using a technique that drills and blasts sedimentary rock. For greater stability, the inner walls were lined with rock bolts. Two of its access shafts and start-up tunnels have been completed in 2009 and the project is now moving on to the construction of the tunnels, caverns and associated facilities.

JRC is a milestone project for JTC and marks the next phase in the evolution of Singapore's petroleum and chemicals industry.

## Jurong Rock Cavern

Competitive Storage Solution

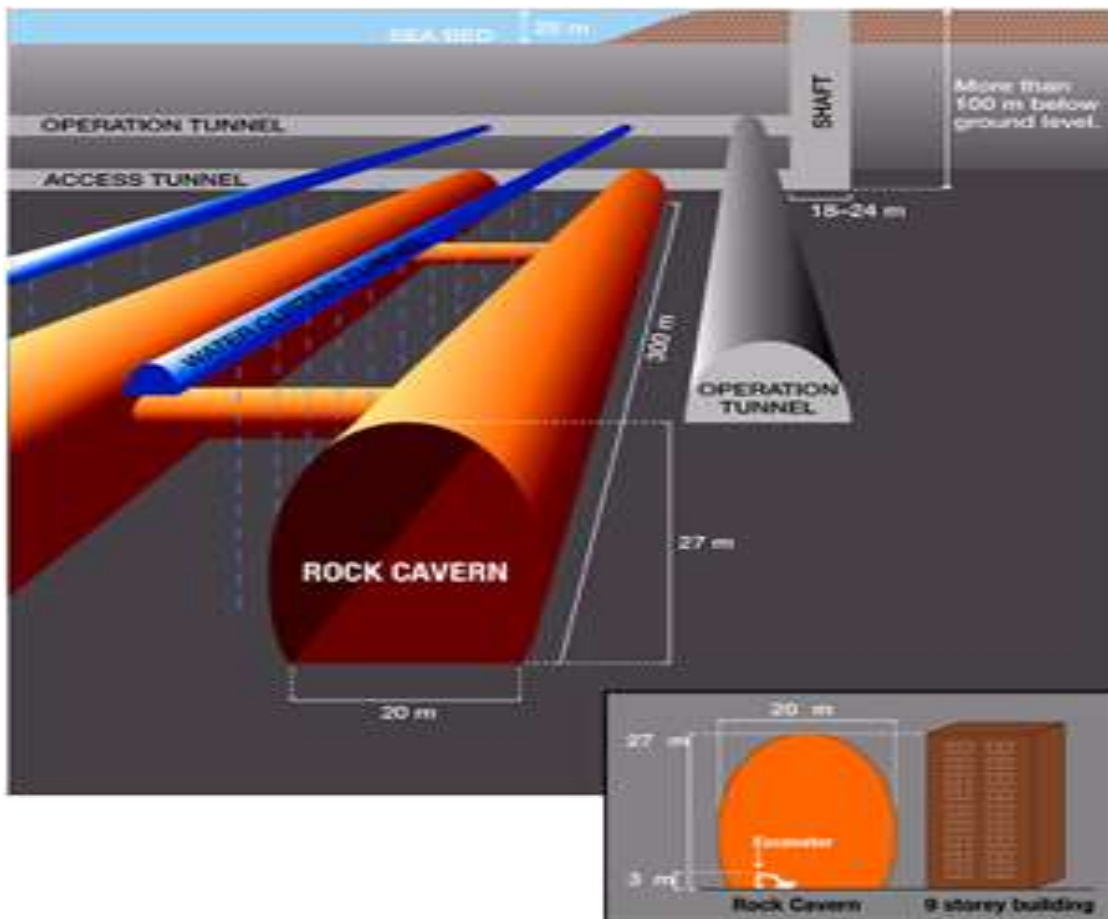


Proposed location for underground storage



- Ready built storage
- Greater security
- Increase opportunity for trade

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*\*Image courtesy of JTC Corporation*

## **General Matters and Raw Materials Committee**

### Production Capacities of Products

<b>Product</b>	<b>Total Production Capacity (tpa)*</b>
ETHYLENE	2,800,000
PROPYLENE	1,770,000
BUTADIENE	455,000
BENZENE	1,183,000
TOULENE	242,000
XYLENES	535,000

### **Total Import of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ETHYLENE	24,835
PROPYLENE	12,829
BUTADIENE	17
BENZENE	282,793
TOLUENE	31,074
XYLENES	118,071

### Total Export of Main Products by Value

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ETHYLENE	113,327
PROPYLENE	111,465
BUTADIENE	7,699
BENZENE	103,194
TOLUENE	242,836
XYLENES	1,370,892

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ETHYLENE	16,847
PROPYLENE	7,822
BUTADIENE	0.001
BENZENE	185
TOLUENE	21
XYLENES	66

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ETHYLENE	73,601
PROPYLENE	74,987
BUTADIENE	7
BENZENE	71
TOLUENE	159
XYLENES	825



## **Polyolefins Committee**

### Production Capacities of Products

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
POLYETHYLENE	860,000
POLYPROPYLENE	1,005,000

### **Total Import of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
POLYETHYLENE	1,715,112
POLYPROPYLENE	920,556

### **Total Export of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
POLYETHYLENE	2,558,945
POLYPROPYLENE	1,475,043

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
POLYETHYLENE	1,034
POLYPROPYLENE	533

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
POLYETHYLENE	1,466
POLYPROPYLENE	806

## **Styrenics Committee**

### Production Capacities of Products

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
STYRENE	1,370,000

### **Total Import of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
STYRENE	4,544
POLYSTYRENE	28,303

### **Total Export of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
STYRENE	1,246,461
POLYSTYRENE	220,694

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
STYRENE	2
POLYSTYRENE	9

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
STYRENE	704
POLYSTYRENE	104

## **Synthetic Fiber Raw Materials Committee**

### Production Capacities of Products

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
ETHYLENE GLYCOL	902,000
ETHYLENE OXIDE	65,000

### **Total Import of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ETHYLENE GLYCOL	467,740
ETHYLENE OXIDE	1,496

### **Total Export of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ETHYLENE GLYCOL	1,484,296
ETHYLENE OXIDE	0



### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ETHYLENE GLYCOL	341,066
ETHYLENE OXIDE	308

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ETHYLENE GLYCOL	1,115,627
ETHYLENE OXIDE	0

## **Chemicals Committee**

### Production Capacities of Products

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
ACETONE	180,000
ACETYLENE	693,500
PHENOL	300,000
BISPHENOL – A	230,000

### **Total Import of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ACETONE	10,866
ACETYLENE	1,332
PHENOL	16,946
BISPHENOL – A	7,129

### **Total Export of Main Products by Value**

<b>PRODUCT</b>	<b>2012</b>
	<b>Value(\$K)</b>
ACETONE	172,159
ACETYLENE	1,220
PHENOL	158,452
BISPHENOL – A	105,241

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ACETONE	8,810
ACETYLENE	227
PHENOL	9,404
BISPHENOL – A	3,009

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2012</b>
	<b>Qty (Tons)</b>
ACETONE	142,689
ACETYLENE	1,045
PHENOL	86,541
BISPHENOL – A	51,965

## **About the Singapore Chemical Industry Council Limited**

The Singapore Chemical Industry Council, or SCIC, is the official body representing companies from the chemical industry in Singapore. Its membership composition comprises key MNCs, SMEs, Logistics & Service Providers as well as Traders.

SCIC was officially formed under the umbrella of the former Singapore Manufacturers Association on 8th May 1979 by a group of 17 manufacturers. It was incorporated as an independent entity on 28 June 2007.

SCIC is also the national administrator of the Responsible Care initiative, endorsed by the International Council of Chemical Associations, to promote the spirit, principles and practices of Responsible Care to the Singapore Chemical Industry.

Through advocating Responsible Care, the chemical industry in Singapore can make a valuable contribution to the sustainable development and improvement of lives and the environment.