

# **Asia Petrochemical Industry Conference 2012**

**Country Report**

**From**

**Singapore**

Prepared by:

Singapore Chemical Industry Council Limited (SCIC)

# **Asia Petrochemical Industry Conference 2012 Kuala Lumpur, Malaysia**

## **Country Report - Singapore**

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## **Facts on Singapore**

### a. Land and Climate

Total Land Area:	710.2 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: (2011)	5.18 million
Population Density: (2011)	7,294per 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: \$129.12 billion (as of 2011)

Official Foreign Reserves: \$308.40 billion (as of 2011)

## Overview of Singapore's Economy in 2011

Year	GDP at 2005 Market Prices (S\$ M)	% Growth
2007	246,845.5	8.8
2008	251,374.0	1.7
2009	248,911.2	-1.0
2010	285,658.5	14.8
<b>2011</b>	<b>299,624.7</b>	<b>4.9*</b>

## Overview of Manufacturing Sector Performance in 2010

Year	Total Output (S\$ M)	% Growth
2007	253,381	6.5
2008	259,339	2.4
2009	213,669	- 17.6
2010	270,494.7	26.7
<b>2011</b>	<b>285,453.9*</b>	<b>5.5*</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 2011

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

The chemical industry's output in 2011 rose by 19.6% to S\$97.2 billion, up from S\$81.3 billion in 2010.

The chemical cluster still continued being a key contributor, re-took its position as the leading cluster within the manufacturing sector, contributing about 34 % to the overall manufacturing output in 2011

Year	Chemical Cluster Output (S\$ Bn)	% Growth
2007	83.1	11.2
2008	98.1	18.1
2009	58.5	- 40.4
2010	81.3	39.0
<b>2011</b>	<b>97.2*</b>	<b>19.6*</b>

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

### Chemical Industry Sectoral Performance in 2011

#### 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\$54.85 billion in 2011, compared to S\$42.32 billion in 2010.

#### Petrochemicals

The petrochemicals sector output rose from S\$30.04 billion in 2010 to S\$32.26 billion in 2011.

## Specialties

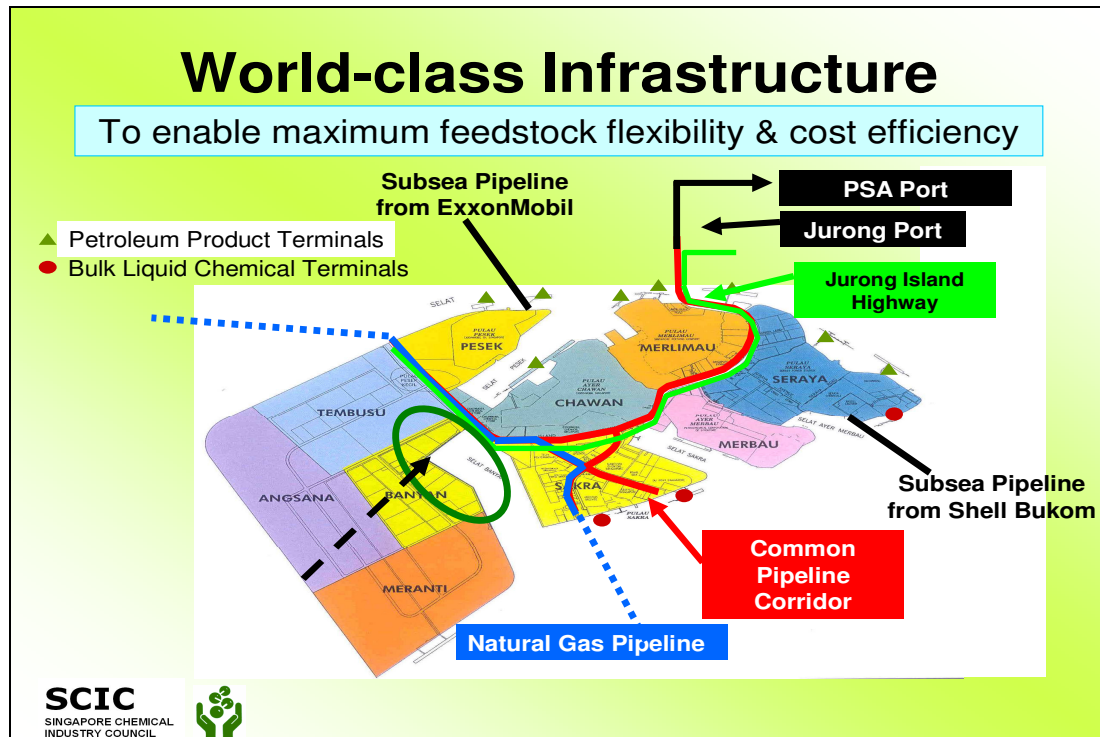
Specialties contribution rose from S\$6.91 billion in 2010 to S\$8.02 billion in 2011.

	2007	2008	2009	2010	<b>2011</b>
	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)	Value (S\$Bn)
<b>Petroleum Sector</b>	48.5	60.3	31.8	42.3	<b>54.8*</b>
<b>Petrochemical Sector</b>	26.9	29.1	19.3	30.0	<b>32.3*</b>
<b>Specialties Sector</b>	7.7	8.7	7.3	6.9	<b>8.0*</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 2011**

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

- **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.

- **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.

- **DSM Dyneema Technical Centre & APAC HQ**

On 6 Oct 2011, DSM Dyneema held a groundbreaking ceremony for its S\$8.9mil APAC Technical Centre in Singapore, which will house the region's first independent ballistic testing centre and with technology that will drive DSM Dyneema's innovation activities in Asia Pacific.

Dyneema is an Ultra High Molecular Weight Polyethylene (UHMW PE) fibre with various applications across multiple industries.

Scheduled to be fully operational in the fourth quarter of 2012, the Technical Centre is DSM Dyneema's third global ballistics testing facility

and its first such centre in Asia Pacific. It will also be home to the regional headquarters for DSM Dyneema Life Protection business.

- **Zeon Corporation**

On 1 September 2011, Japan's Zeon Corporation broke ground on Jurong Island for its new \$240million solution-polymerised styrene butadiene rubber (S-SBR) plant. This project is Zeon's first physical investment in Singapore.

Scheduled to start-up by July 2013, the plant occupies a total land area of 8 hectares. The project, which is divided into 2 phases and is expected to reach a total capacity of 68ktpa, will boost the current 270ktpa capacity of Zeon's three synthetic rubber plants in Japan.

- **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.

- **Lanxess**

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.

- **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.

Development works for Phase 1 of JRC, with a storage capacity of about 1.5 million cubic metres, had commenced at the end of 2006. 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

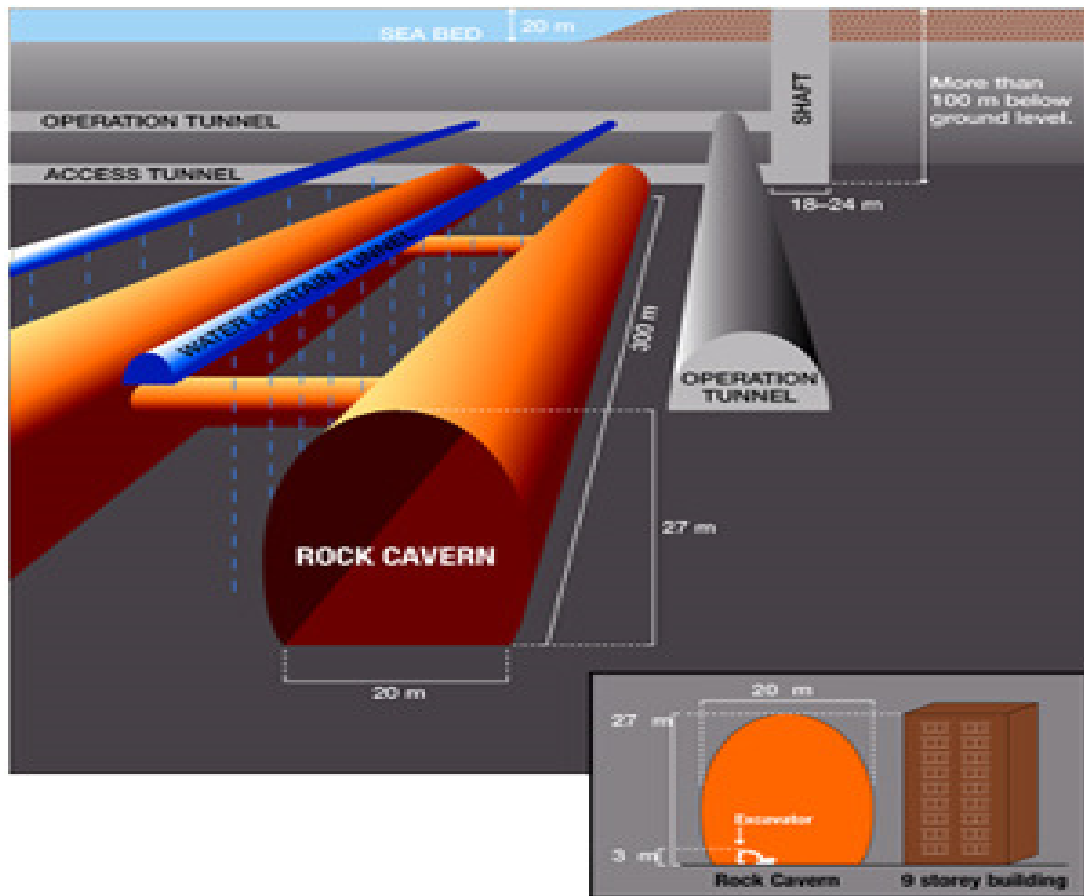


Proposed location for underground storage



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

**SCIC**  
SINGAPORE CHEMICAL  
INDUSTRY COUNCIL



*\*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	1,880,000
PROPYLENE	1,055,000
BUTADIENE	60,000
BENZENE	420,000
TOULENE	145,000
XYLENES	495,000

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ETHYLENE	207,458
PROPYLENE	108,501
BUTADIENE	239
BENZENE	225,825
TOLUENE	54,476
XYLENES	119,309

### Total Export of Main Products by Value

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ETHYLENE	226,774
PROPYLENE	144,067
BUTADIENE	59
BENZENE	108,435
TOLUENE	191,513
XYLENES	1,371,548

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ETHYLENE	124,713
PROPYLENE	55,550
BUTADIENE	0.005
BENZENE	157
TOLUENE	40
XYLENES	80



### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ETHYLENE	157,701
PROPYLENE	91,851
BUTADIENE	0.01
BENZENE	81
TOLUENE	133
XYLENES	715

## **Polyolefins Committee**

### **Production Capacities of Products**

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
POLYETHYLENE	1,270,000
POLYPROPYLENE	370,000

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
POLYETHYLENE	2,063,892
POLYPROPYLENE	795,374

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
POLYETHYLENE	2,858,859
POLYPROPYLENE	1,266,282

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
POLYETHYLENE	1,594
POLYPROPYLENE	439

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
POLYETHYLENE	1,592
POLYPROPYLENE	626

## **Styrenics Committee**

### **Production Capacities of Products**

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
STYRENE	360,000

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
STYRENE	22,284
POLYSTYRENE	23,907

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
STYRENE	1,012,458
POLYSTYRENE	594,270

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
STYRENE	12
POLYSTYRENE	9

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
STYRENE	589
POLYSTYRENE	270

## **Synthetic Fiber Raw Materials Committee**



### **Production Capacities of Products**

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
ETHYLENE GLYCOL	122,000
ETHYLENE OXIDE	45,000

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ETHYLENE GLYCOL	515,023
ETHYLENE OXIDE	1,401

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ETHYLENE GLYCOL	1,753,720
ETHYLENE OXIDE	8

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ETHYLENE GLYCOL	354,074
ETHYLENE OXIDE	311

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ETHYLENE GLYCOL	1,156,245
ETHYLENE OXIDE	0.11

## **Chemicals Committee**

### **Production Capacities of Products**

<b>Product</b>	<b>Total Production Capacity (tpa)</b>
ACETONE	180,000
ACETYLENE	14,500
PHENOL	300,000
BISPHENOL – A	230,000

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ACETONE	14,337
ACETYLENE	135
PHENOL	82,504
BISPHENOL – A	5,536

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

<b>PRODUCT</b>	<b>2011</b>
	<b>Value(\$K)</b>
ACETONE	158,839
ACETYLENE	1,233
PHENOL	185,775
BISPHENOL – A	155,379

### Total Import of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ACETONE	10,444
ACETYLENE	15
PHENOL	36,253
BISPHENOL – A	1,667

### Total Export of Main Products by Quantity

<b>PRODUCT</b>	<b>2011</b>
	<b>Qty (Tons)</b>
ACETONE	128,851
ACETYLENE	1,294
PHENOL	90,776
BISPHENOL – A	62,660

## **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.