

**'15  
ASIA  
PETROCHEMICAL INDUSTRY  
CONFERENCE**

**MAY 2015**

**South Korea**

**DELEGATION OF THAILAND**

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# **I. Report on the Thai Petrochemical Industry**

## **Thai Petrochemical Industry – Current State and Issues**

### **I-1. Business Environment**

Global economic growth in 2014 has recovered from 2013 and is expected to continue with an upward trend in the coming year; the IMF's Statistics Department estimated the growth of the world economy in 2014 at 3.3%. This number is similar as growth rate which archived in 2013. A major threat carries on GDP of China economy which continue declining to be at around 7%, this is lower than expectation of other countries. Moreover, the confrontation between US and Russia over Ukraine which continued from 2013 leads to economic sanction of Russia. In addition, the global crude oil price which starts declining in the 2<sup>nd</sup> half year leads to slowdown of various economic sector especially E&P sector. On the other hand, the US economy illustrated many recovery sign after FED slowdown QE3. This signal has global impacts in recovery of international trade and stimulus foreign direct investment. Thailand, on the other hand, the Thai economy slightly growth in the first half year but slowdown and sluggish in the second half from political turmoil. This impact is not only softening demand of private sector but also tepid foreign direct investment.

On the petrochemical side, Thailand petrochemical industry in 2014 continued to expand from 2013 during 1<sup>st</sup> half year and slowdown in the 2<sup>nd</sup> half year after the military coup, this situation resulted in soft demand of products in various sector such as real estate sector and automotive sector. The consumer slowdown their purchase especially high cost product such as real estate and saving more as they feel uncertainty from political issue. In addition, the effect of first-time car policy during 2012 to 2013 continue to affect demand of automobile in 2014. The demand in this segment declined from 2013 as consumer spends most of their budget during first-time car policy.

### **I-2. Present Situation and Future Prospect of the Thai Economy**

The Thai economy sluggish from political turmoil during 4Q2013-2Q2014. Even though the government tried to clarify many problems to recover Thai economy in the 2<sup>nd</sup> half year such as pay the remaining government debt to Thai farmer, the effect from military coup which slowdown Thai economy is outweighs effect of problem solving. As a result, The Office of

the National Economic and Social Development Board (NESDB) of Thailand announced GDP growth of 0.7% for Thailand in 2014, lower than GDP target at 3.5%.

Amidst the fragile global economic outlook given heightened risks and uncertainty from the Euro zone, Bank of Thailand projected the Thai economy in 2015 to grow at a rate of 3.8%. The government believed that Thai economy already passed the lowest point in 2014 and will recover in 2015. One of the support reason is the number of new factories apply for new production in Q1 increase when compared quarter by quarter. On the other hand, Thai export is expected to continue upward trend among new uncertainties such as slow down of China GDP growth to be at around 7%, the declining in Russian currency exchange and the downward trend of global crude oil price. Moreover, global price of several major Thailand agricultural products such as sugar and rubber significantly decrease from surplus supply. However, the export growth of automobiles, electronics and product from others industry such as food should be able to support Thailand export growth.

**Table-1 Thailand's GDP Growth 2003-2015**

<b>Year</b>	<b>GDP Growth (% Change)</b>
2003	7.0
2004	6.2
2005	4.5
2006	5.1
2007	4.8
2008	2.6
2009	-2.3
2010	7.8
2011	0.1
2012	6.4
2013	2.9
2014	0.7
2015	3.8

Source: NESDB, BOT

### **I-3. Present Situation and Future Prospect of the Thai Petrochemical Industry**

The petrochemical industry in Thailand continued to expand from the previous year but the growth was small from many factors especially military coup in May 2014 and decreasing in purchasing power of car buyers after ended of government stimulus campaign. As a result, the GDP growth in 2014 significantly dropped from previous year at 2.9% to 0.7%. Automotive and real estate segment were two major segments which mainly affect by these factors. The sales of car and real estate in Thailand continue to drop from the previous year. In addition, the consumer slowdown their spending which cause by uncertainty after the military coup. However, demand of petrochemical product used in packaging segment still relatively stagnated by strong demand in food industry.

The overall picture of petrochemical production and consumption are as follows:

- Ethylene production increased by 6% in 2014 as the all crackers already operate at high production rate at approximately 97% utilization rate to coup bullish domestic and export demand. The demand from the petrochemical end market also increased by 6% in 2014 in line with ethylene production especially LDPE plant of PTTPE that the average production increased by 37% supported by strong demand from LDPE export market. In addition, ethylene import in 2014 dropped from 85,000 tons to 46,000 tons while ethylene export jumped from 17,000 tons to 66,000 tons.
- The production of major polymers in 2014 increased by 2.5% from the previous year. The gain was the result of strong demand of both domestic and export market especially LDPE/EVA and PP resin. Domestic demand of LDPE/EVA and PP resin were increased by 20% and 4% respectively. The increasing in demand of LDPE/EVA was a result of upward trend in flexible packaging segment especially export market, meanwhile, domestic consumption of LDPE/EVA was slightly decreased. On the other hand, domestic demand of PP resin in 2014 relatively stagnated from the previous year from softens demand of automotive segment. However, the PP demand in this region still high which increase export market of PP by 7%

**Table-2 Production/ Consumption and Import/ Export Figures of Five Major Products 2011-2014**

(Unit: '000

T/Y)

Products	2011	2012	2013	2014
Ethylene				
Production	3,666	4,093	4,115	4,345
Import	110	115	85	46
Export	69	59	17	66
Consumption by derivative product <sup>(1)</sup>	3,707	4,148	4,187	4,324
Propylene				
Production	2,085	2,226	2,231	2,398
Import	10	5	17	5
Export	240	139	208	225
Consumption by derivative product <sup>(2)</sup>	1,855	2,204	2,200	2,178
PTA				
Production	2,726	2,469	2,167	2,084
Import	0	0	0	0
Export	1,516	1,242	996	892
Consumption by derivative product <sup>(3)</sup>	1,210	1,227	1,171	1,192
PE (including EVA)				
Production	3,126	3,453	3,455	3,511
Import	386	437	418	321
Export	2,121	2,450	2,379	2,486
Consumption <sup>(4)</sup>	1,392	1,441	1,550	1,538
PP				
Production	1,638	1,756	1,767	1,843
Import	230	242	229	212
Export	737	732	767	818
Consumption <sup>(4)</sup>	1,131	1,266	1,229	1,237

Note: Data shown as “ 0 “ means less than 0.5 ton.

(1) Consumption netbacked from PE, VCM, EG and SM production.

(2) Consumption netbacked from PP, Cumene and PO production.

(3) Consumption netbacked from polyester polymer (PET) production.

(4) Consumption figure is different from calculation (Production + Import – Export) due to inventory change.

**Table-3 Capacity of Major Petrochemicals 2014 (as of February 2015)**

(Unit: '000

T/Y)

**Ethylene**

Company	Capacity
IRPC	360
MOC	900
PTTGC <sup>(1)(2)</sup>	2,376
ROC	800
<b>Total</b>	<b>4,436</b>

Source: PTIT Industrial Survey, February 2015

Note: (1) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR.

(2) PTTPE transfers their business to PTTGC in July 2013

**Polyethylene**

Company	Capacity				
	LDPE/EVA	LLDPE	LLDPE/MDPE	HDPE	Total
IRPC				152	152
PTTGC <sup>(1) (2)</sup>	300	400		800	1,500
Siam Polyethylene		770			770
SSLC (Specialty Elastomers)		270			270
TPE	100		120	960	1,180
TPI Polene	158				158
<b>Total</b>	<b>558</b>	<b>1,440</b>	<b>120</b>	<b>1,912</b>	<b>4,030</b>

Source: PTIT Industrial Survey, February 2015

Note: (1) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR.

(2) BPE and PTTPE transfer their business to PTTGC in July 2013

**Vinyl Chloride Monomer**

Company	Capacity
TPC	500
VNT	400
<b>Total</b>	<b>900</b>

Source: PTIT Industrial Survey, February 2015



(Unit: '000 T/Y)

### Polyvinyl Chloride

Company	Capacity
TPC	530
TPC Paste Resin	36
VNT	280
<b>Total</b>	<b>846</b>

Source: PTIT Industrial Survey, February 2015

### Propylene

Company	Capacity
HMC	310
MOC	800
IRPC <sup>(1)</sup>	412
PTTGC <sup>(2) (3)</sup>	512
ROC	400
SPRC	130
<b>Total</b>	<b>2,564</b>

Source: PTIT Industrial Survey, February 2015

Note: (1) IRPC started up a new 100-KTA propylene plant in August 2012.

(2) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR

(3) PTTPE transfers their business to PTTGC in July 2013.

### Polypropylene

Company	Capacity
HMC	775
IRPC	475
TPP	720
<b>Total</b>	<b>1,970</b>

Source: PTIT Industrial Survey, February 2015

(Unit: '000 T/Y)

### Styrene Monomer

Company	Capacity
IRPC	200
SSMC	300
<b>Total</b>	<b>500</b>

Source: PTIT Industrial Survey, February 2015

### Polystyrene

Company	Capacity
Thai Styrenics	90
Siam Polystyrene	150
Thai ABS	130
<b>Total</b>	<b>370</b>

Source: PTIT Industrial Survey, February 2015

### Synthetic Rubber

Company	Capacity	
	SBR	BR
BST Elastomer	72	
Thai Synthetic Rubber		72
<b>Total</b>	<b>72</b>	<b>72</b>

Source: PTIT Industrial Survey, February 2015

## **II. Committee Meetings**

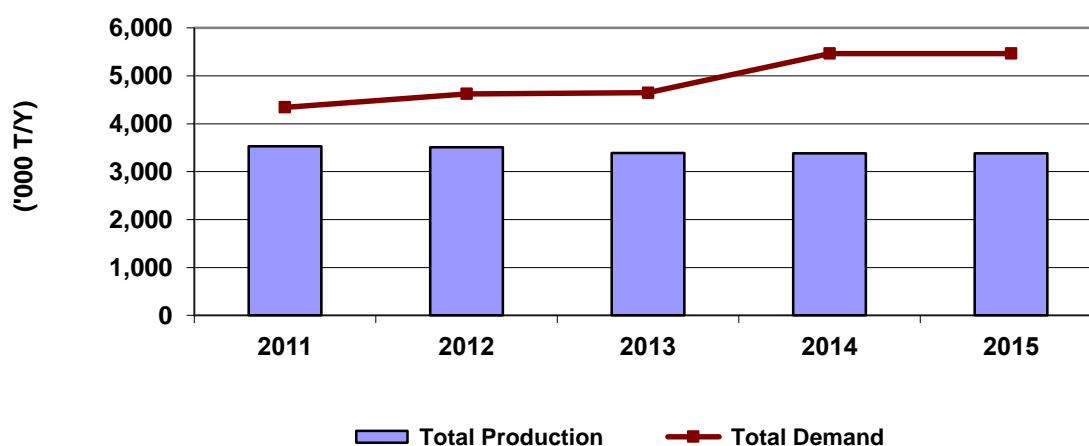
## **General Matters & Raw Materials Committee**

## II-1. General Matters & Raw Materials Committee

### Capacity, Production and Demand of Light Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
<b>Total Production</b>	<b>3,532</b>	<b>3,508</b>	<b>3,390</b>	<b>3,383</b>	<b>3,383</b>
Feedstock	4,268	4,539	4,534	5,391	5,390
Solvents	77	84	115	76	77
<b>Total Demand</b>	<b>4,345</b>	<b>4,623</b>	<b>4,649</b>	<b>5,467</b>	<b>5,467</b>



#### 1. Review of 2014

Thailand's light naphtha production in 2014 relatively stagnated from the previous year. Meanwhile, domestic demand for light naphtha increased by 17% follow strong demand of deliberative product especially ethylene and propylene.

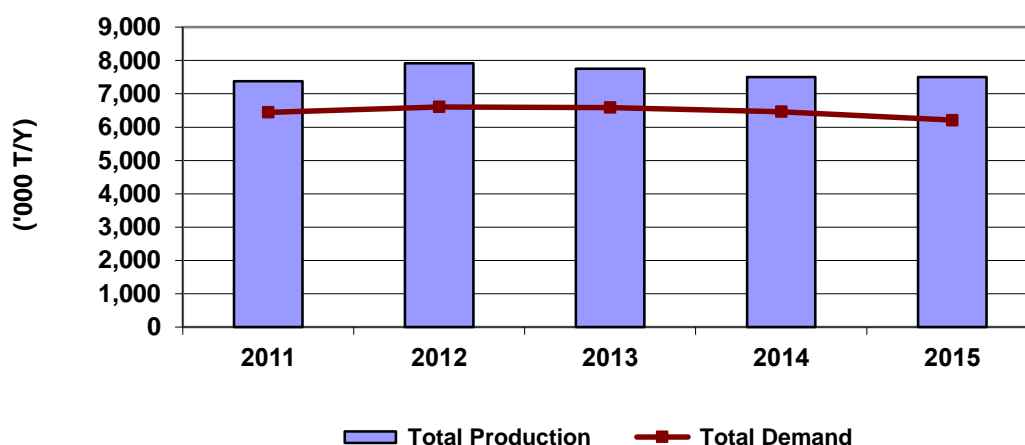
#### 2. Outlook for 2015

Domestic production and consumption for light naphtha in Thailand in 2015 is expected to be stagnate supported by strong demand of derivative products.

## Capacity, Production and Demand of Heavy Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
<b>Total Production</b>	<b>7,378</b>	<b>7,917</b>	<b>7,750</b>	<b>7,507</b>	<b>7,507</b>
Feedstock	6,443	6,609	6,589	6,462	6,208
<b>Total Demand</b>	<b>6,443</b>	<b>6,609</b>	<b>6,589</b>	<b>6,462</b>	<b>6,208</b>



### 1. Review of 2014

Domestic production and consumption for heavy naphtha slightly dropped follow soft demand of domestic end-user market demand for aromatic-based polymers.

### 2. Outlook for 2015

Thailand's production for heavy naphtha is projected to remain steady similarly as in 2014 while demand for heavy naphtha is expected continue decreasing.

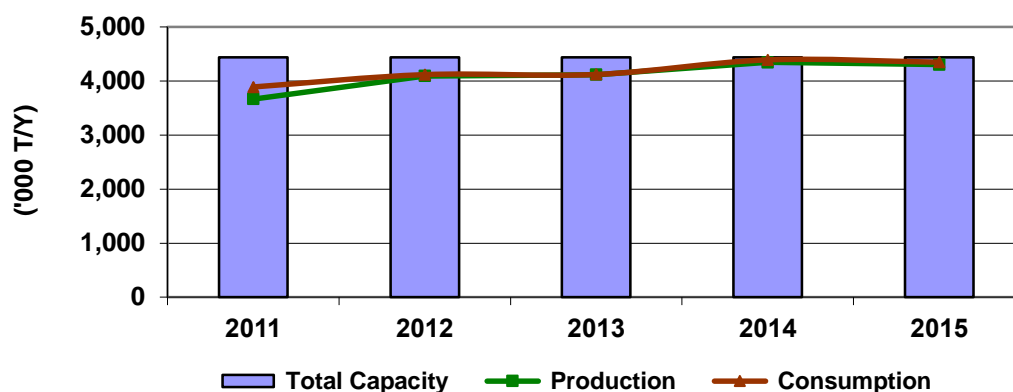
## Capacity, Production and Consumption of Olefins: Ethylene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	4,436	4,436	4,436	4,436	4,436
Production	3,666	4,093	4,115	4,345	4,303
Consumption by Derivative Prod.	3,889	4,118	4,121	4,392	4,349*
Export	69	59	17	66	
Import	110	115	85	46	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from PE, EDC/VCM, EG and SM production which is projected by assuming a 90% operating rate except EG which is projected by assuming a 97% operating rate.



### 1. Review of 2014

Ethylene production increased by 6% in 2014 supported by a bullish demand in derivative market both domestic market and export market. The demand from the petrochemical end market increased as the LDPE plant of PTTPE ran at full production capacity at 300,000 T/Y. In addition, ethylene import dramatically dropped by 46% while ethylene export surged up by 300%

### 2. Outlook for 2015

Assuming 97% operating rate, ethylene production in 2015 is expected to be 4,303,000-ton/year. Ethylene consumption is expected to slightly decrease following demand from downstream market especially export market which tends to decrease from high market competition especially PE resin.

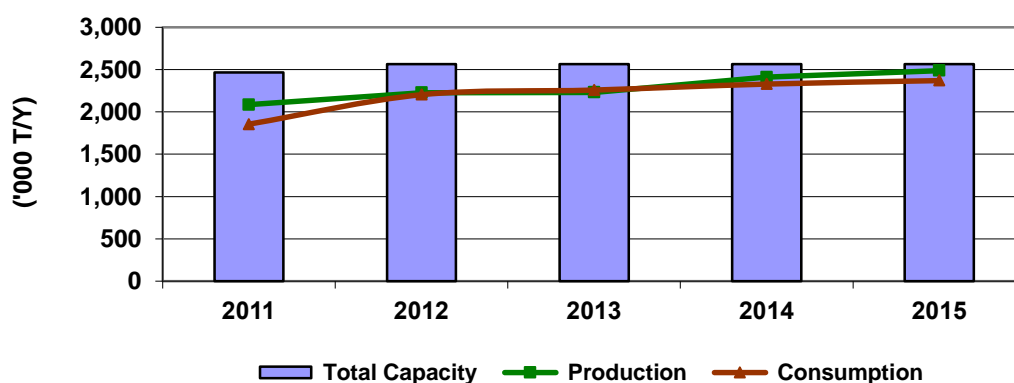
## Capacity, Production and Consumption of Olefins: Propylene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	2,464	2,564	2,564	2,564	2,564
Production	2,085	2,226	2,231	2,411	2,487
Consumption by Derivative Prod.	1,855	2,204	2,259	2,330	2,371*
Export	240	139	208	225	
Import	10	5	17	5	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from PP, Cumene and PO production which is projected by assuming a 90% operating rate.



### 1. Review of 2014

Propylene production increased from the previous year by 8% and consumption and 3% respectively supported by high demand of derivatives product especially PP.

### 2. Outlook for 2015

Assuming a 90% operating rate, propylene production in 2015 is expected to be 2,487,000 tons supporting by a bullish demand from both domestic and export market.



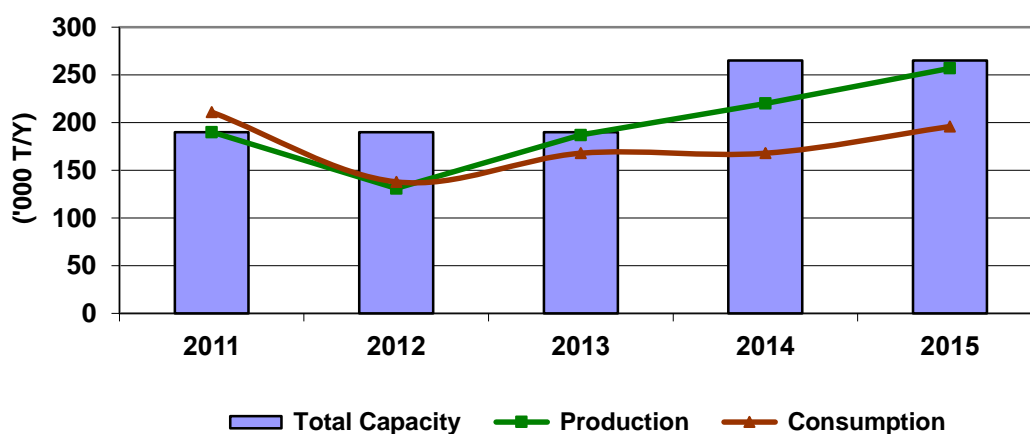
## Capacity, Production and Consumption of Olefins: Butadiene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	190	190	190	265	265
Production	190	131	187	220	257
Consumption by Derivative Prod.	211	138	168	168	196*
Export	29	47	71	51	
Import	38	26	30	18	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from SBL, SBR, BR and ABS/SAN (assumed 100% ABS) production, which is projected by assuming a 70%, 90%, 90% and 85% operating rate, respectively.



### 1. Review of 2014

Butadiene production surged by 18% from the year 2014 supported by new production of butadiene from PTTGC with nameplate capacity at 75,000 T/Y, meanwhile, butadiene consumption remain stagnated from strong demand of derivatives products which run at maximum production rate..

### 2. Outlook for 2015

Butadiene production is projected to significantly increase as new 75,000 tons/year butadiene plant of PTTGC which start production in 2014 should be able to operate at maximum production rate. Moreover, domestic consumption is projected to increase support by new demand from SBR plant of BST Elastomer which also start production in 2014 should run at maximum production rate.

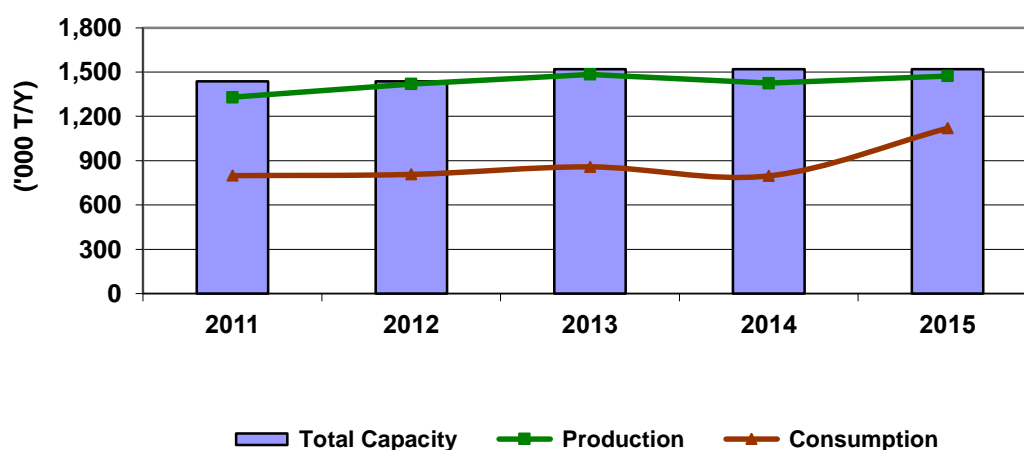
## Capacity, Production and Consumption of Aromatics: Benzene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	1,437	1,437	1,519	1,519	1,519
Production	1,329	1,419	1,484	1,425	1,473
Consumption by Derivative Prod.	800	808	859	798	1,120*
Export	610	650	766	672	
Import	0	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from SM, cumene and cyclohexane production, which is projected by assuming 97%, 90% and 90% operating rate, respectively.  
'0' means below 500T/Y



### 1. Review of 2014

Benzene production decreased by 4% in 2014 supported by soft demand in both domestic and export market. Domestic consumption dropped by 7% from the previous year on the back of low demand from domestic derivative petrochemical including Styrene monomer, Cyclohexane and Cumene.

### 2. Outlook for 2015

Benzene production and consumption in 2015 is expected to dramatically increase supported by bullish demand from Cumene production as new expansion plan of PTTPhenol with nameplate capacity at 332,000 T/Y will start production in Q3 2015.

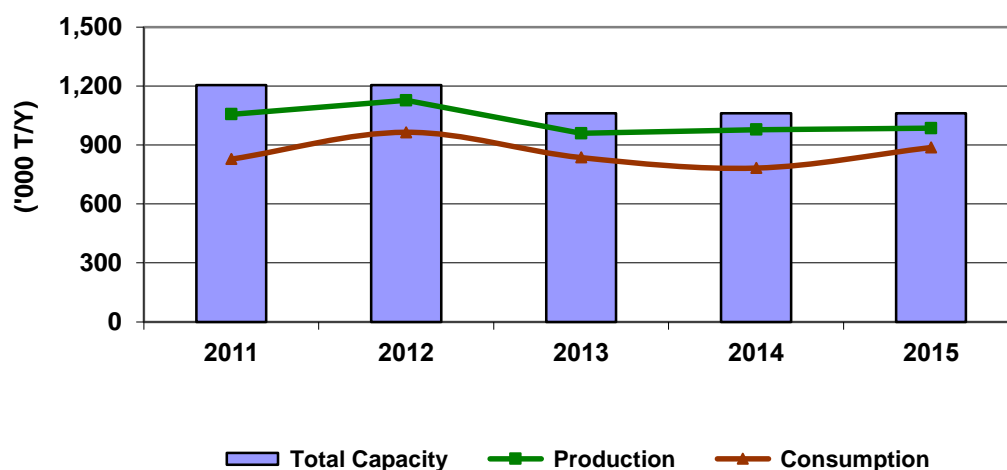
## Capacity, Production and Consumption of Aromatics: Toluene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	1,205	1,205	1,061	1,061	1,061
Production	1,056	1,127	959	978	985
Consumption by Derivative Prod*	828	964	836	783	887*
Export	228	162	135	196	
Import	0	0	12	0	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Including consumption netbacked from benzene/xylene production, solvents, etc, which is projected by assuming a 90% operating rate  
'0' means below 500T/Y



### 1. Review of 2014

Toluene production in 2014 slightly increased dropped around 2% meanwhile, consumption dropped by 6% supported by weak demand of domestic derivative products. Thailand's toluene production figures also included toluene volume which PTT Global Chemical (PTTGC) used in its Benzene and P-Xylene production process.

### 2. Outlook for 2015

Toluene production in 2015 is expected to remain steady while demand of domestic consumption especially p-xylene, benzene and mixed xylenes is expected to recover.

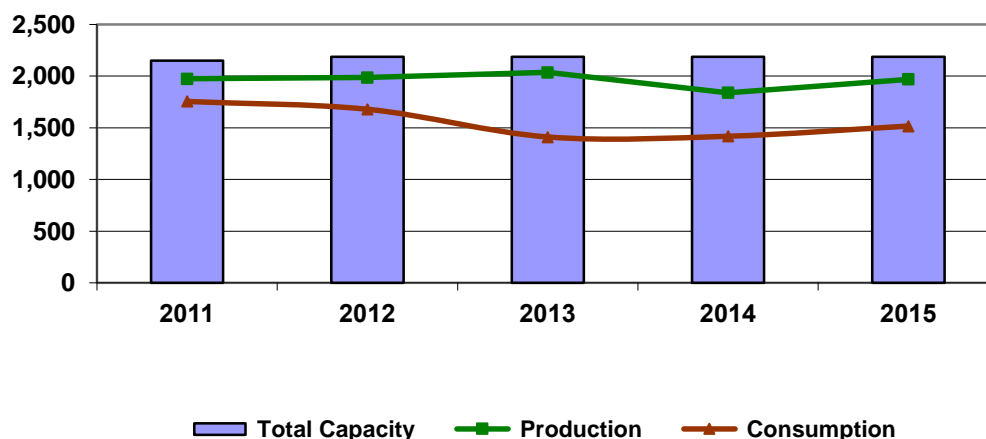
## Capacity, Production and Consumption of Aromatics: P-Xylene

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	2,149	2,187	2,187	2,187	2,187
Production	1,973	1,985	2,035	1,839	1,968
Consumption by Derivative Prod.	1,755	1,679	1,410	1,417	1,516*
Export	428	478	708	549	
Import	228	156	83	151	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from PTA production, which is projected by assuming a 80% operating rate.



### 1. Review of 2014

Thailand p-xylene production in 2014 dropped by 9% compared to the previous year. In the meantime, domestic p-xylene consumption slightly increased supported by strong demand of derivative PTA product.

### 2. Outlook for 2015

Thailand p-xylene production is expected to increase; meanwhile, domestic consumption is also forecasted to recover supported by strong growth in packaging industry.

## **Polyolefins Committee**

## II-2. Polyolefins Committee

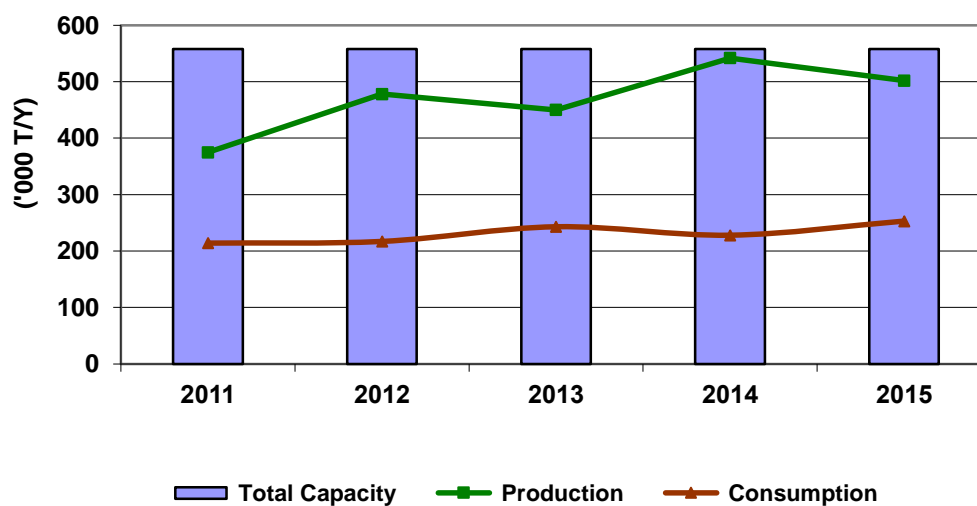
### Capacity, Production and Consumption of LDPE/EVA

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	558	558	558	558	558
Production	375	478	450	542	502
Consumption	214	217	243	228	253
Export	277	378	271	415	
Import	116	116	64	100	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures : assume 90% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



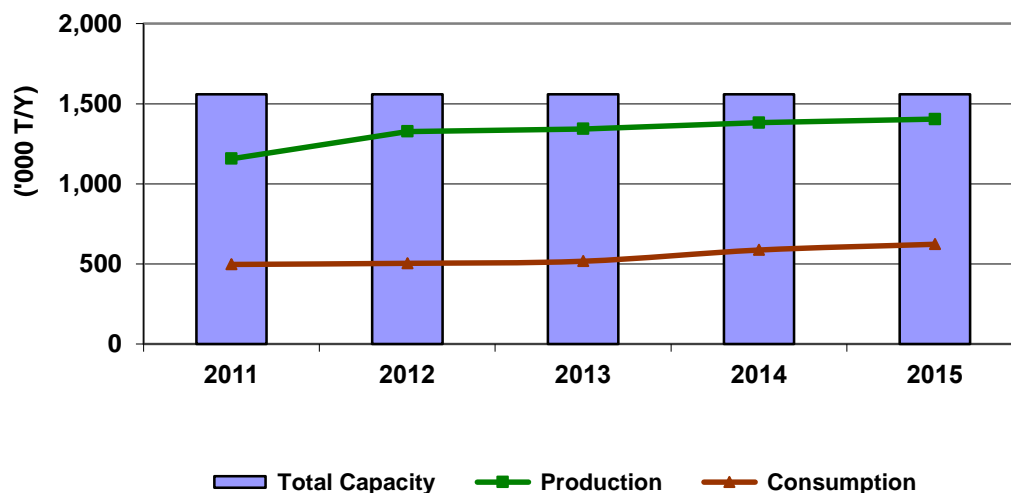
## Capacity, Production and Consumption of LLDPE

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	1,560	1,560	1,560	1,560	1,560
Production	1,157	1,327	1,343	1,382	1,404
Consumption	497	504	517	587	623*
Export	810	993	966	954	
Import	150	170	210	159	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures : assume 90% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



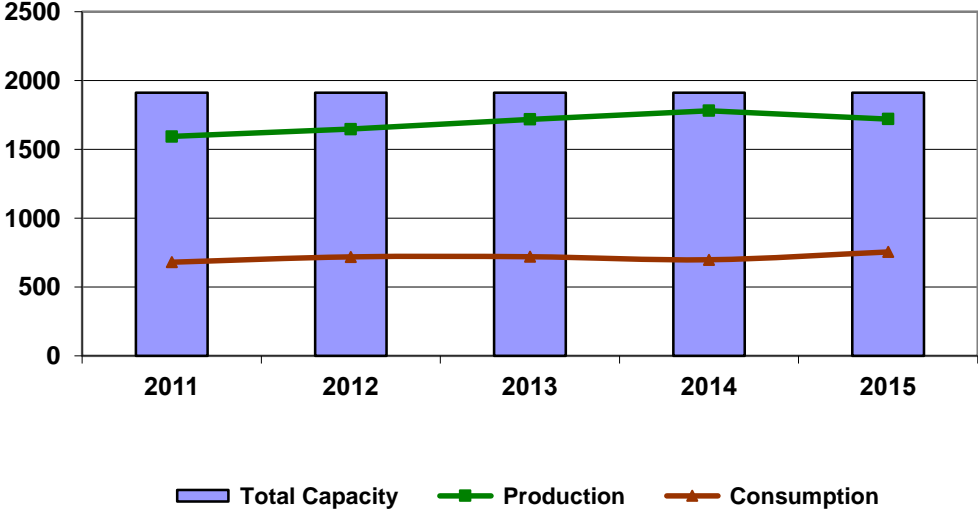
### Capacity, Production and Consumption of HDPE

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	1,912	1,912	1,912	1,912	1,912
Production	1,594	1,648	1,718	1,781	1,721
Consumption	681	720	721	699	756*
Export	1,034	1,079	1,142	1,206	
Import	120	151	145	124	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures : assume 90% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.





## 1. Review of 2014

In 2014, domestic production for LDPE/EVA surged up around 20% supported by the new PTTPE plant (300,000-ton/year) operated at maximum production capacity while production of LLDPE and HDPE slightly increased about 3% and 4% respectively. Domestic consumption of LDPE increased LLDPE increased by 6% and 14% respectively in 2014 while HDPE consumption dropped by 3%. Export volume of LDPE jumped by 53% while export volume of LLDPE and HDPE slightly dropped from high market competition in the region.

## 2. Outlook for 2015

Thailand PE production is expected to remain stagnated or slightly decrease especially LDPE from uncertainties of global economic which may affect demand of LDPE in this region. The overall domestic demand of PE resin tends to increase supported by growth in packaging segment. .

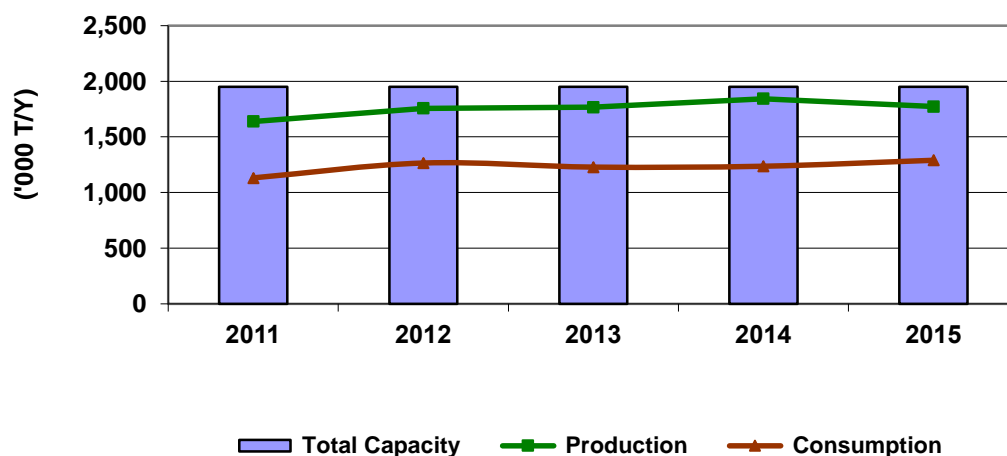
## Capacity, Production and Consumption of PP

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	1,950	1,950	1,950	1,950	1,950
Production	1,638	1,756	1,767	1,843	1,773
Consumption	1,131	1,266	1,229	1,237	1,291*
Export	737	732	767	818	
Import	230	242	229	212	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures: assume 90% operating rate. Some consumption figure is different from calculation (Production + Import – Export) due to inventory change.



### 1. Review of 2014

Domestic polypropylene (PP) production in 2014 increased by 4% from the previous year. PP domestic consumption slightly increased from strong demand in downstream packaging segment. In addition, export market of PP increased by 6% compared with 2013.

### 2. Outlook for 2015

PP production is projected to decrease from 2014 from weak demand of automotive segment. On the other hand, the internal end-user market demands tend to increase supported by recovered in packaging segment. In addition, external end-user demand is likely to be stable or decrease as PP market competition increase from new PP production in Singapore.

## **Styrenics Committee**

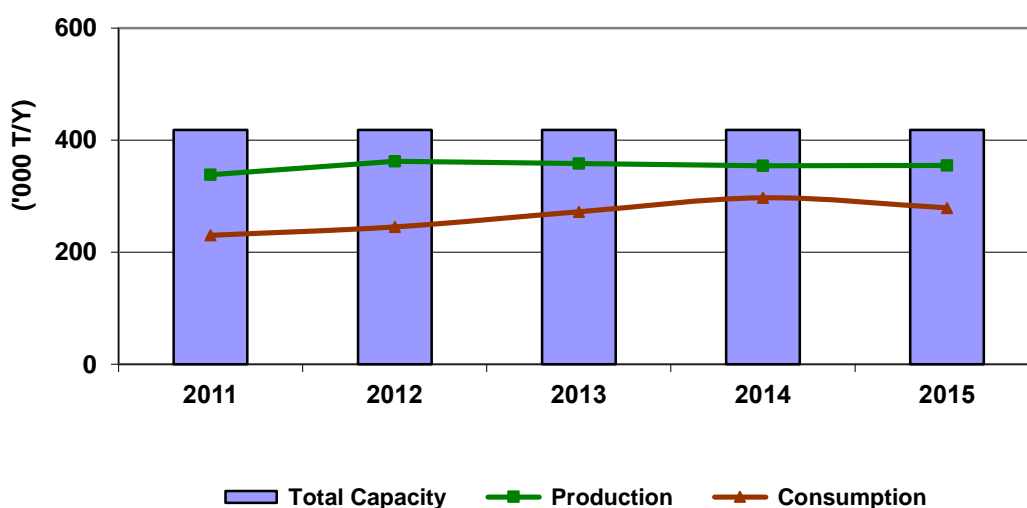
## Capacity, Production and Consumption of PS/EPS

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	418	418	418	418	418
Production	338	360	358	354	355
Consumption	230	245	272	297	279*
Export	151	163	132	98	
Import	44	48	46	41	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures: assume 85% operating rate



### 1. Review of 2014

Domestic production of PS/EPS in 2014 slightly dropped while domestic consumption of these resin increased around 10% following a surging in demand from end-user markets. However, export market dramatically decreased from weak demand in regional market.

### 2. Outlook for 2015

PS/EPS production is expected to remain stable while domestic consumption is projected to decrease from weak demand in electrical and packaging industries.

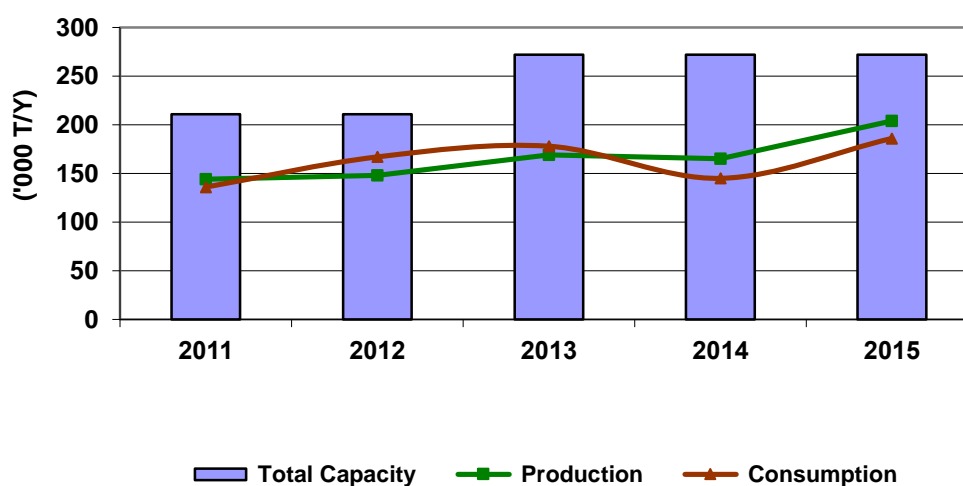
## Capacity, Production and Consumption of ABS/SAN

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	211	211	272	272	272
Production	144	148	169	165	204
Consumption	136	167	178	145	186*
Export	117	103	116	146	
Import	109	122	124	126	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures: assume 75% operating rate



### 1. Review of 2014

Domestic production and consumption of ABS/SAN dropped by 2% and 18% respectively in 2013 following weak demand of domestic automobile industries which are the largest ABS/SAN market. Meanwhile, export market significantly increased by 25% from strong demand in automotive segment in this region.

### 2. Outlook for 2015

Domestic production and consumption of ABS/SAN is expected to increase on the back of recovery in Thai economic. Export market is expected to continue increase to support expansion of domestic production.

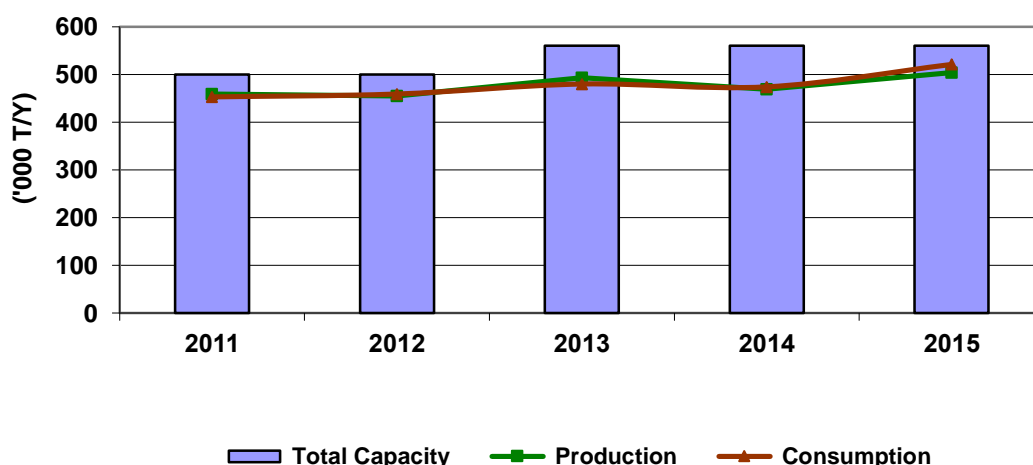
## Capacity, Production and Consumption of SM

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	500	500	560	560	560
Production	459	455	493	469	504
Consumption by Derivative Prod.	453	459	480	474	521*
Export	22	27	39	21	
Import	67	55	77	47	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from PS+EPS, ABS/SAN, SBL and SBR (assumed ABS 100%) production, which is projected by assuming a 85%, 85%, 90%, 90% operating rate respectively.  
'0' means below 500 T/Y



### 1. Review of 2014

SM production slightly decreased from last year. However, consumption slightly dropped from soft demand of the key derivatives products, especially PS/EPS which are widely used to produce packaging product and food containers.

### 2. Outlook for 2015

Assuming a 90% operating rate, SM production is expected to increase following the expansion of the 60,000-ton/year SM plant of IRPC. Consumption is forecasted to rise on the back of growing trend in domestic and export of automotive markets.

## **PVC Committee**

## II-4. PVC Committee

### Capacity, Production and Consumption of PVC

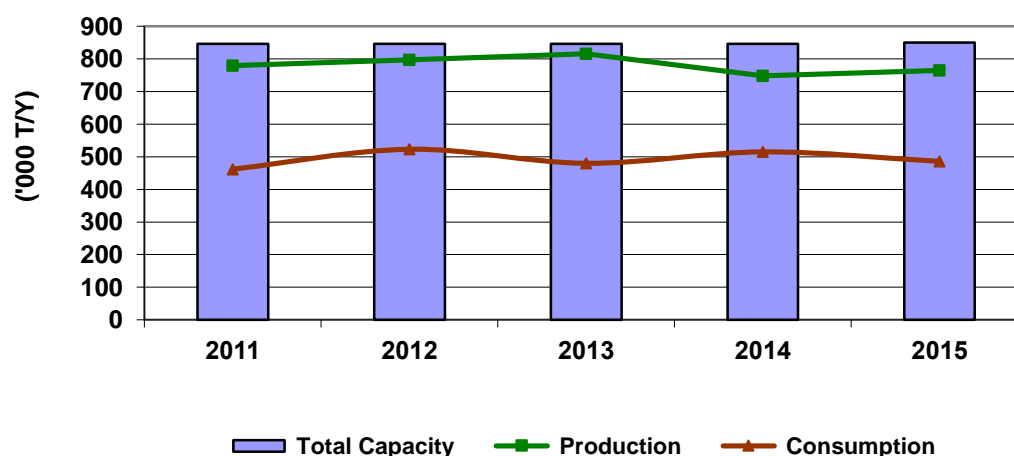
Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	846**	846	846	846	850
Production	779	797	816	748	765
Consumption	462	523	480	515	486*
Export	387	367	422	334	
Import	70	94	86	101	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Projected production figures: assume 90% operating rate

\*\* Apex petrochemicals closed out its 100-KTA polyvinyl chloride plant in 2011.



#### 1. Review of 2014

Thailand's PVC production in 2014 dropped 8% from 2013 from soft demand of exported market. However, Thailand's PVC consumption recovered around 7% from 2013 as a result of strong demand of real estate sector.

#### 2. Outlook for 2015

Thailand's domestic PVC production in 2015 is forecasted to slightly increase from expansion capacity of TPC (4,000 T/Y) and low feedstock price, meanwhile, consumption is projected to slightly decrease.



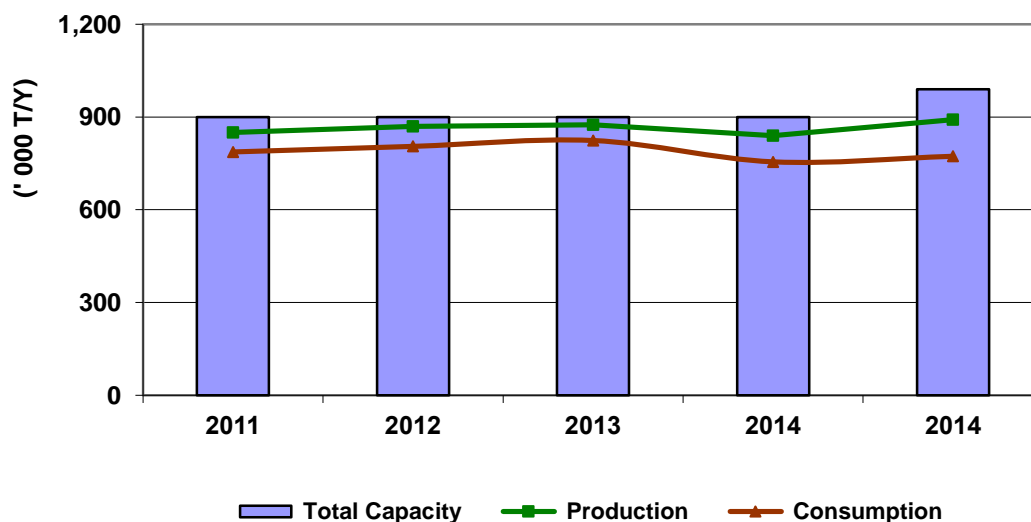
## Capacity, Production and Consumption of VCM

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	900	900	900	900	990
Production	850	870	875	840	891
Consumption by Derivative Prod.	787	805	824	755	773*
Export	58	78	111	72	
Import	7	0	0	1	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption by derivative netbacked from PVC production, which is projected by assuming a 90% operating rate.



### 1. Review of 2014

Thailand's VCM production in 2014 slightly dropped by 4% pressured by low demand from downstream PVC market and export market.

### 2. Outlook for 2015

Supply for VCM in Thailand in 2015 is expected to increase as TPC expand production capacity with nameplate capacity of 90,000 T/Y. In addition, domestic demand is forecasted to increase supported by strong demand of derivative market.

## **Synthetic Rubber Committee**

## II-5. Synthetic Rubber Committee

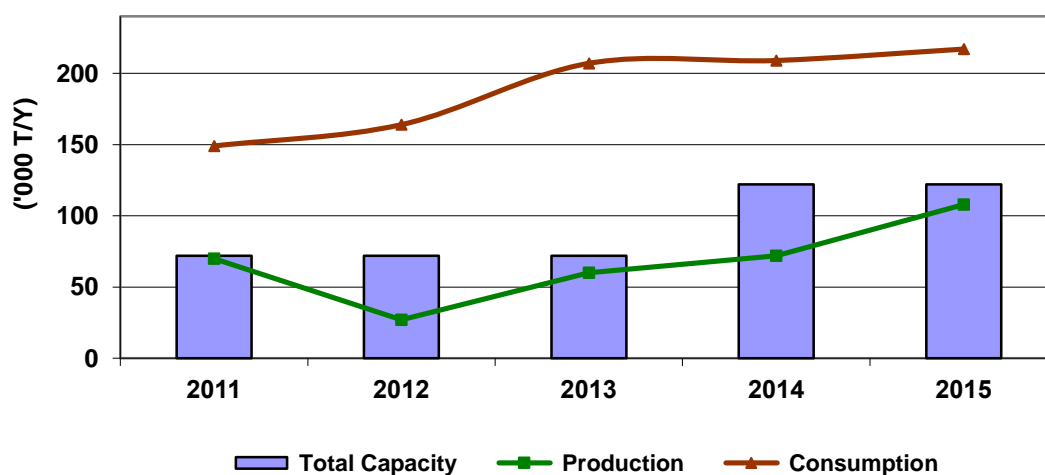
### Capacity, Production and Consumption of SBR

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	72	72	72	120	120
Production	70	27	60	72	108
Consumption	149	164	207	209	217*
Export	39	26	39	61	
Import	118	163	174	145	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Some consumption figure is different from calculation (Production + Import – Export) due to inventory change.



#### 1. Review of 2014

Thailand's SBR production capacity in 2014 increased 50,000 T/Y as JSR BST Elastomer (JBE) with nameplate capacity of 50,000 T/Y start commissioning in 2014. Domestic consumption remain stagnant as Thailand automotive industry slowdown in line with economic situation

#### 2. Outlook for 2015

In 2015, domestic production of SBR is expected to increase as the new production capacity of S-SBR from JSR BST Elastomer (JBE) with nameplate capacity of 50,000 T/Y start production. Domestic consumption is also expected to increase from economic recovery.

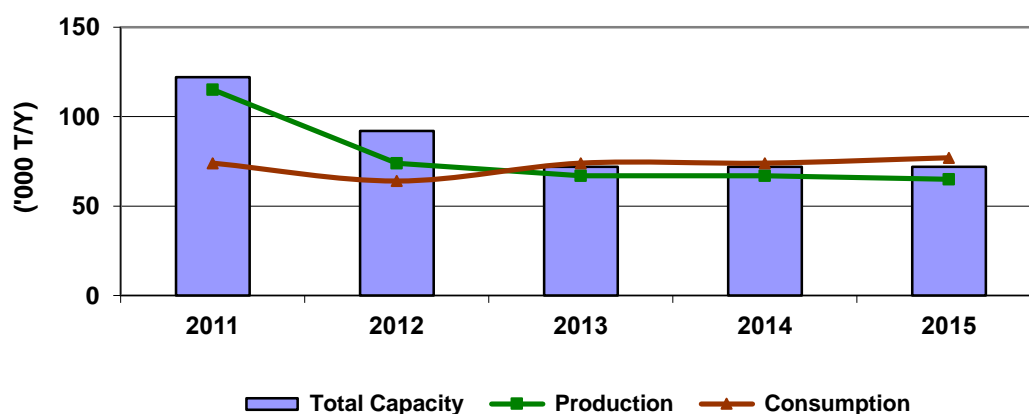
## Capacity, Production and Consumption of BR

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2012
Total Capacity	122	92	72	72	72
Production	115	74	67	67	65
Consumption	74	64	74	74	77*
Export	81	59	42	44	
Import	40	49	49	20	

Source: PTIT Industrial Survey, The Customs Department

Note: Projected production figures: assume 90% operating rate



### 1. Review of 2014

The production and domestic consumption of BR in 2014 remain stagnant compared with the previous year as a result soft demand from exported market.

### 2. Outlook for 2015

Domestic BR consumption is expected to slightly increase with the strong demand from automotive industry especially export market following Thailand's next target for the automotive industry which is to produce 3 million vehicles per year for supplying the Asia- Pacific and global markets. Domestic supply is only from Thai Synthetic Rubber.

# **Synthetic Fiber Raw Materials Committee**

## II-6. Synthetic Fiber Raw Materials Committee

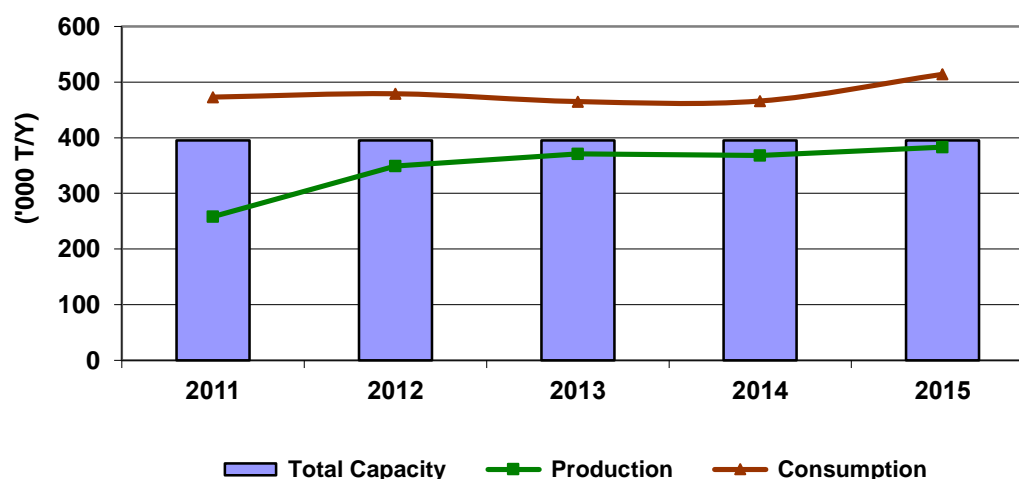
### Capacity, Production and Consumption of Ethylene Glycol

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	395	395	395	395	395
Production	258	349	371	368	383
Consumption by Derivative Prod.	473	479	465	466	514*
Export	27	76	34	48	
Import	258	155	157	169	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from polyester polymer production, which is projected by assuming a 88% operating rate.



#### 1. Review of 2014

The production and domestic consumption in 2014 remain stagnate compared with the previous year. Domestic demand of PET in downstream market still weak supported by downward trend of tourism especially tourist from Russia. On the other hand, demand from export market increased by 11%.from strong demand in regional market..

#### 2. Outlook for 2015

In 2015, MEG production and consumption is forecasted to recover supported by higher demand of downstream segment in this region. Moreover, domestic consumption is also expected to grow from expansion plan of PET plant.

## Capacity, Production and Consumption of Acrylonitrile

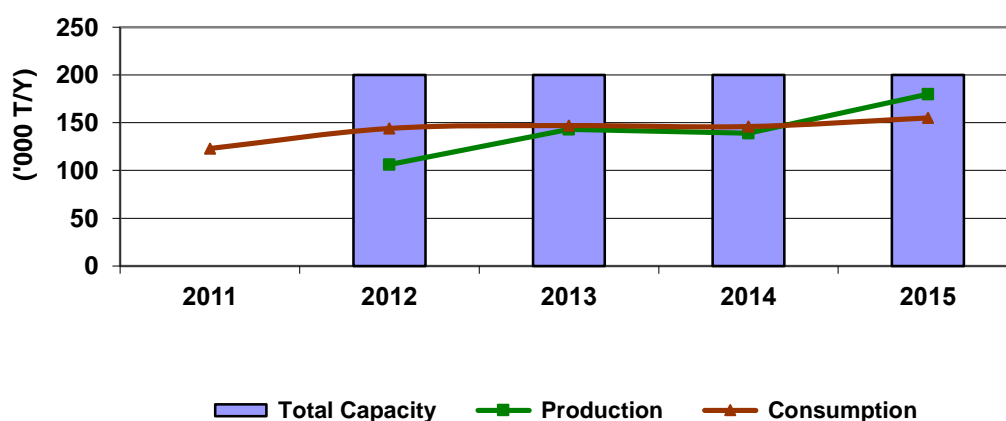
Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity		200	200	200	200
Production		106	143	139	180
Consumption by Derivative Prod.	123	144	147	146	155*
Export	0	30	46	55	
Import	137	70	68	62	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from ABS/ SAN and acrylic fibre production with an assumed operating rate of 87%.

'0' means below 500T/Y



### 1. Review of 2014

Thailand's ACN production in 2014 slightly dropped by 3%. Domestic consumption remain stagnated from low demand of ABS/SAN which mainly used in automotive segment. On the other hand, export market increased by 19% supported by strong demand of derivatives in this region

### 2. Outlook for 2015

Production and domestic consumption of ACN are expected to increase as purchasing power in electrical and electronic, automobile industries are projected to recover. ACN is used as feedstock to produce ABS/SAN resins which is widely used in various parts and components of electrical and electronic, automobile parts products.

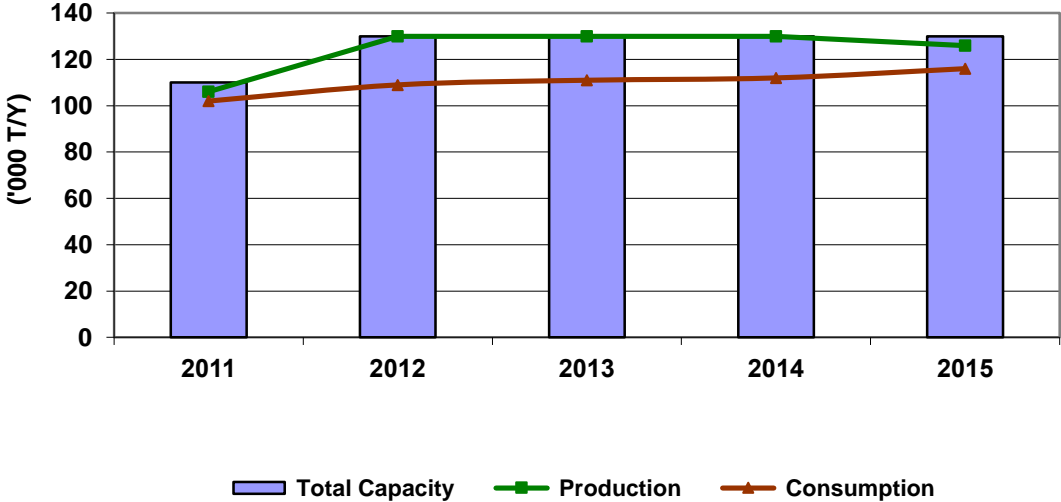
Capacity, Production and Consumption of Caprolactam

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	110	130	130	130	130
Production	106	130	130	130	126
Consumption by Derivative Prod.	102	104	111	112	116*
Export	18	33	28	27	
Import	14	8	9	9	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption is netbacked from Nylon 6 production, which is projected by assuming a 75% operating rate



1. Review of 2014

Domestic production and consumption of caprolactam in 2014 remain stagnant at maximum production capacity at 130,000 ton/year supported by strong demand of Nylon 6 production in domestic market and export market.

2. Outlook for 2015

Caprolactam production and consumption is projected to relatively stagnate in line with the demand from downstream derivative Nylon 6 with is the key market for carpolactam. The outlook for demand of caprolactam for Nylon 6 production in 2015 is forecast to be slightly increased around 4%.



## Capacity, Production and Consumption of Terephthalic Acid

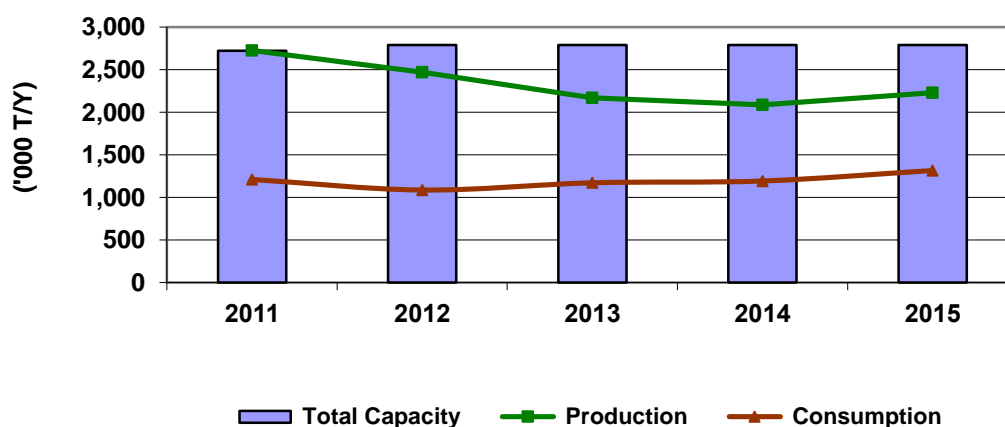
Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	2,720	2,787	2,787	2,787	2,787
Production	2,726	2,469	2,167	2,084	2,230
Consumption by Derivative Prod.	1,210	1,086	1,171	1,192	1,315*
Export	1,516	1,381	996	892	
Import	0	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from polyester polymer production, which is projected by assuming a 88% operating rate.

'0' means below 500T/Y



### 1. Review of 2014

Thailand's PTA production dropped by 4% from previous year from weak demand of regional markets especially China which GDP growth decline to be at around 7%. On the other hand, domestic PTA consumption continue slightly increased from 2013 supported by high growth in downstream polyester including derivative PET and polyester products.

### 2. Outlook for 2015

In 2015, domestic PTA production and consumption are expected to increase supported by projection of economic recovery in domestic market especially packaging sectors as Thai PET resin has expansion plan around 76,000 T/Y in 2015.

## **Chemicals Committee**

## II-7. Chemicals Committee

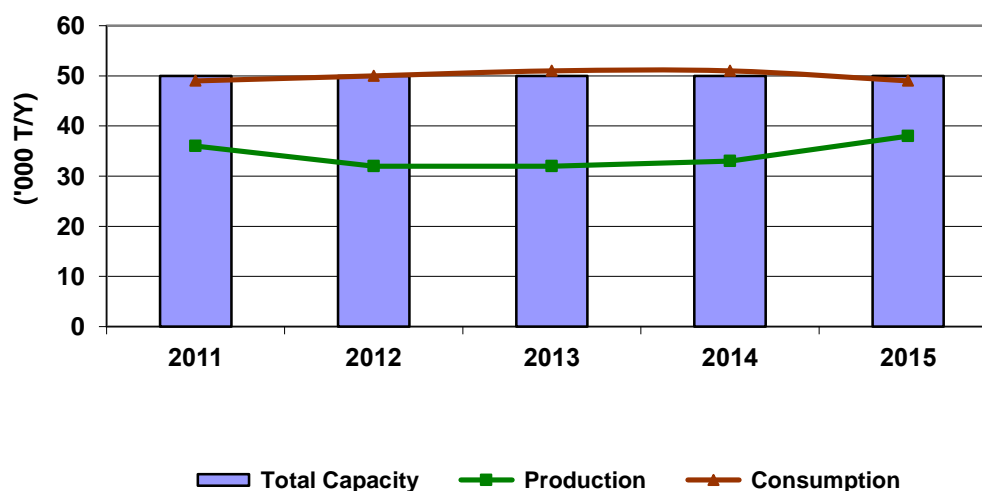
### Capacity, Production and Consumption of Phthalic Anhydride (PA)

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	50	50	50	50	50
Production	36	32	32	33	38
Consumption by Derivative Prod.	49	50	51	51	53*
Export	1	2	6	9	
Import	12	17	18	24	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption by derivative netbacked from plasticizer, UPR and alkyd resins production, which is projected by assuming 50%, 60%, 65% operating rate, respectively.



#### 1. Review of 2014

Domestic PA production and consumption in 2014 relatively stagnated, supporting by strong exported market especially construction industries in ASEAN.

#### 2. Outlook for 2015

Assuming 50%, 60%, 65% operating rate for plasticizer, UPR and alkyd resins respectively, Thailand PA production is expected to increase follow strong demand of export market. In addition, domestic consumption is expected to increase supported by recovery in Thai economy and strong demand of construction industry.

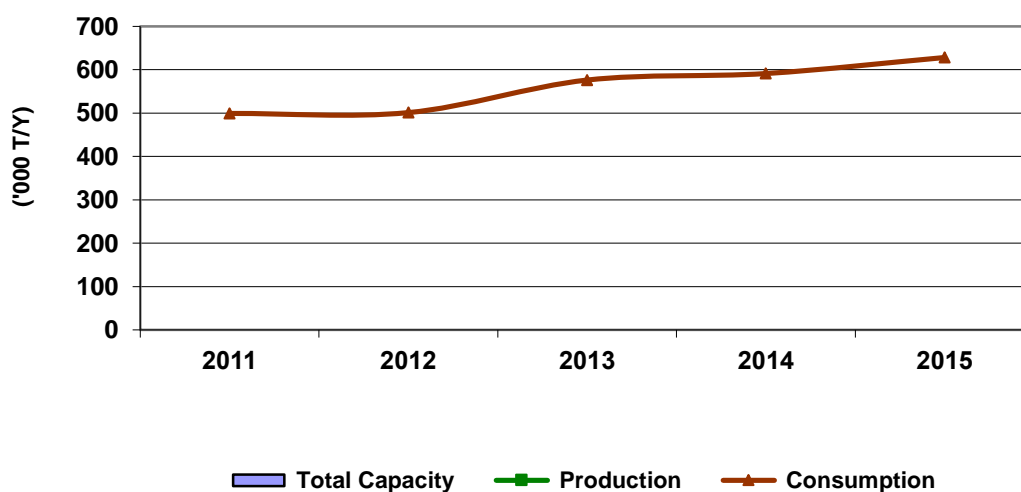
## Capacity, Production and Consumption of Methanol

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity					
Production					
Consumption by Derivative Prod.	499	501	576	591	628*
Export	0	85	0	0	
Import	515	554	596	2,557	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from MTBE, MMA, POM and formaldehyde production, which is projected by assuming 90% operating rate.



### 1. Review of 2014

Domestic consumption of methanol increased from 576,000 tons in 2013 to 591,000 tons in 2014 following an increase in demand from derivative products especially demand from biodiesel production.

Thailand has no methanol production facility. All methanol usage is imported.

### 2. Outlook for 2015

Methanol consumption in Thailand is expected to relatively increase assuming a 90% operating rate for MMA, POM, formaldehyde, MTBE including expansion plan of biodiesel production plant in Thailand.

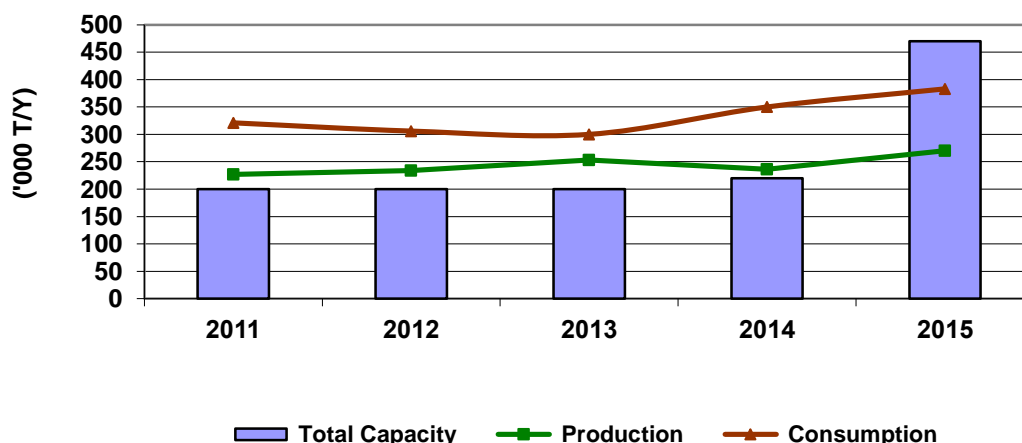
## Capacity, Production and Consumption of Phenol

Unit: '000 T/Y

	Historical				Estimated
	2011	2012	2013	2014	2015
Total Capacity	200	200	200	220	470
Production	227	234	253	236	270
Consumption by Derivative Prod.	321	306	300	350	383*
Export	106	113	103	53	
Import	200	185	149	166	

Source: PTIT Industrial Survey, The Customs Department

Note: \*Consumption netbacked from bisphenol A and phenolic resin production, which is projected by assuming a 97% operating rate.



### 1. Review of 2014

Domestic phenol production decreased around 6% compared with the previous year while domestic consumption increased around 16%.

### 3. Outlook for 2015

Phenol production in Thailand is expected to continue increase as an expansion plan of 250,000-ton/year phenol of PTT Phenol Co., Ltd will start production in Q3 2015. Consequently, the consumption is forecasted to increase from demand of derivatives products.