

**'14  
ASIA  
PETROCHEMICAL INDUSTRY  
CONFERENCE**

**MAY 2014**

**Thailand**

**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 2013 has recovered from 2012 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 2013 at 3.0% lower than the 3.2% rate achieved in 2012. A major threat carries on from Euro zone debt crisis in which the problems in Greece remaining far from settled including GDP of China economy at around 8% is lower than expectation of other countries. On the other hand, the US economy shows recovery sign as FED start to reduce QE3. This signal has global impacts in recovery of international trade and stimulus foreign direct investment. Thailand, on the other hand, the Thai economy recover and growth from Government economic stimulus campaigns in the first half year but slowdown and sluggish in the second half from political issue which leads to various protestation. This impact is not only softening demand of private sector but also tepid foreign direct investment.

On the petrochemical side, Thailand petrochemical industry in 2013 continued to expand during Q1 to Q3 as a result of the country's post-flood restoration since the previous year which leads to high demand for petrochemical as the raw materials for products. However, in Q4, the Thai economy was stuck and slows down from political issue, resulted in soft demand of products in various sector such as real estate sector. In addition, first-time car policy which starts in 2012 and ended in Q1 2013 significantly affects demand of automobile in Q4. The demand in this segment dramatically decreases in Q4 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 issue since Q4 of 2013 even though the government boost economic from several stimulus campaigns e.g. the higher minimum wage policy for low income workers, government officials and the reduction of corporate income taxes. The effect from Thai political issue which slowdown Thai economy is outweighs effect of government economic stimulus campaigns. As a result, The Office of

the National Economic and Social Development Board (NESDB) of Thailand announced GDP growth of 2.9% for Thailand in 2013, lower than GDP target at 5.2%.

Amidst the fragile global economic outlook given heightened risks and uncertainty from the Euro zone, NESDB projected the Thai economy in 2014 to grow at a rate of 3.5%, moving within a range of 3.0%-4.0% as a result of conflict from politic issue that reduces private consumption including foreign investment which slowdown growth of Thai Economy. On the other hand, Thai export is expected to rebound driving by a more stable global economy led by US and China, while several key Thai export categories e.g. automobiles, electronics and some agricultural products especially rubber and tapioca should be supported by rising global prices. However, the growth is expected to be associated with various uncertainties, as the overall global economic conditions particularly EU dept crisis remain worrisome, meanwhile, the confrontation between US and Russia over Ukraine currently is a major threat to global economy.

**Table-1 Thailand's GDP Growth 2002-2013**

<b>Year</b>	<b>GDP Growth (% Change)</b>
2002	5.3
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	3-4

Source: NESDB

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

The petrochemical industry in Thailand continued to expand from the previous year in the first half year, but the upward trend shift to downward trend in the second half year from many factors and uncertainties especially ended of government stimulus campaigns and politic issue. As a result, the GDP growth in 2013 significantly dropped from previous year at 6.4% to 2.9%. Automotive and real estate segment are two major segments which affect by these factors especially in Q4 as investment from private sector slowdown and most of consumer purchasing power already spend during the period of government economic stimulus campaigns. On the other hand, demand of petrochemical product used in packaging segment still has high growth supported by strong demand in food industry.

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

- Ethylene production slightly increased in 2013 as the all crackers already operate at high production rate at approximately 92% utilization rate to coup bullish domestic demand. The demand from the petrochemical end market also slightly increase 1.6% in 2013 in line with ethylene production especially HDPE plant of SCG chemical and PTTGC which the average production increased by 4% supported by strong demand from export market. In addition, ethylene import and export in 2013 decreased from 115,000 tons and 59,000 tons to 85,000 tons and 17,000 tons respectively.
- The production of major polymers in 2013 increased 1.3% from the previous year. The gain was the result of strong demand of both domestic and export market especially PE resin. Domestic demand was boost from demand of LDPE/EVA and LLDPE which jumped by 15% as a result of upward trend inflexible packaging segment, meanwhile, domestic consumption of HDPE was stable from the year before but the export market expand by 6% as a result of strong demand in this region. On the other hand, domestic demand of PP resin in 2013 slightly decreased by 3% from softens demand of automotive segment as a result of ended of first-time car stimulus package. However, the PP demand in this region still high which increase export market of PP by 5%

**Table-2 Production/ Consumption and Import/ Export Figures of Five Major Products 2010-2013**

(Unit: '000 T/Y)

Products	2010	2011	2012	2013
Ethylene				
Production	2,884	3,666	4,093	4,115
Import	99	110	115	85
Export	8	69	59	17
Consumption by derivative product <sup>(1)</sup>	2,975	3,707	4,148	4,187
Propylene				
Production	1,651	2,085	2,226	2,231
Import	13	10	5	17
Export	154	240	139	208
Consumption by derivative product <sup>(2)</sup>	1,548	1,855	2,204	2,200
PTA				
Production	2,732	2,726	2,469	2,167
Import	0	0	0	0
Export	1,446	1,516	1,242	996
Consumption by derivative product <sup>(3)</sup>	1,288	1,210	1,227	1,171
PE (including EVA)				
Production	2,259	3,126	3,453	3,511
Import	405	386	437	418
Export	1,398	2,121	2,450	2,379
Consumption <sup>(4)</sup>	1,273	1,392	1,441	1,550
PP				
Production	1,367	1,638	1,756	1,767
Import	269	230	242	229
Export	500	737	732	767
Consumption <sup>(4)</sup>	1,136	1,131	1,266	1,229

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 2013 (as of February 2014)**

(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 2014

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 2014

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 2014



(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 2014

### 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 2014

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 2014

(Unit: '000 T/Y)

### Styrene Monomer

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

Source: PTIT Industrial Survey, February 2014

### Polystyrene

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

Source: PTIT Industrial Survey, February 2014.

### 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 2014

## **II. Committee Meetings**

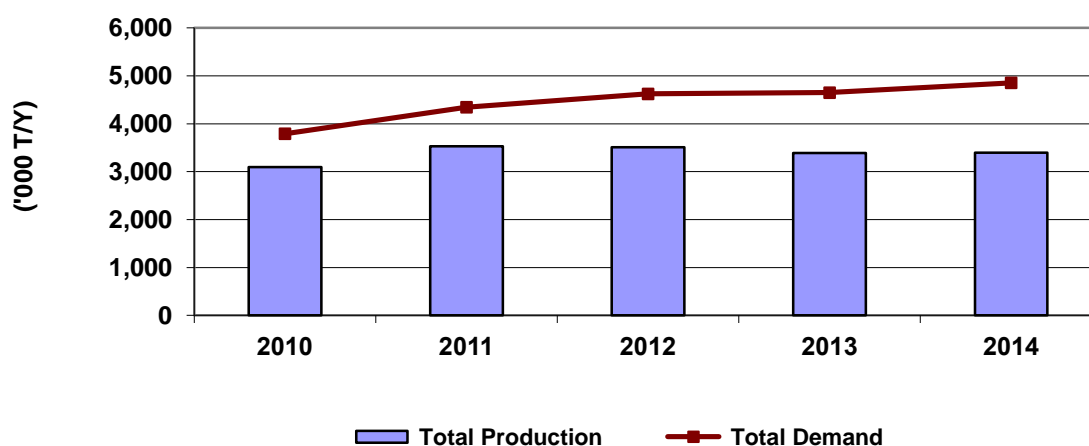
## **General Matters & Raw Materials Committee**

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

### Capacity, Production and Demand of Light Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
<b>Total Production</b>	<b>3,097</b>	<b>3,532</b>	<b>3,508</b>	<b>3,390</b>	<b>3,396</b>
Feedstock	3,722	4,268	4,539	4,534	4,740
Solvents	71	77	84	115	115
<b>Total Demand</b>	<b>3,792</b>	<b>4,345</b>	<b>4,623</b>	<b>4,649</b>	<b>4,855</b>



#### 1. Review of 2013

Thailand's light naphtha production in 2013 slightly dropped from the previous year as domestic refineries produced more gasoline as demand of gasoline was boost up by First-time car policy. Meanwhile, domestic demand for light naphtha slightly increased follow strong demand of deliberative product especially ethylene.

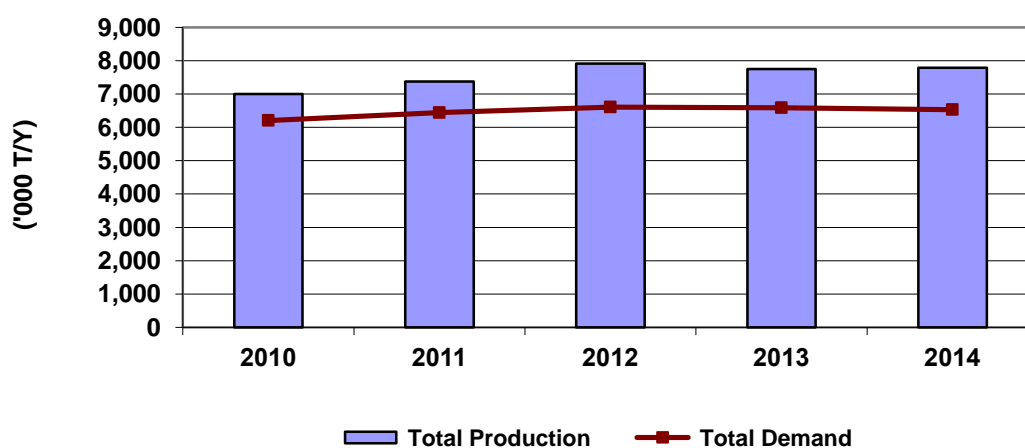
#### 2. Outlook for 2014

Domestic production for light naphtha in Thailand in 2014 is expected to be slightly increased while domestic consumption is projected to increase around 4% from strong demand of derivative petrochemical product.

## Capacity, Production and Demand of Heavy Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
<b>Total Production</b>	<b>7,001</b>	<b>7,378</b>	<b>7,917</b>	<b>7,750</b>	<b>7,792</b>
Feedstock	6,208	6,443	6,609	6,589	6,533
<b>Total Demand</b>	<b>6,208</b>	<b>6,443</b>	<b>6,609</b>	<b>6,589</b>	<b>6,533</b>



### 1. Review of 2013

Domestic production and consumption for heavy naphtha relatively stagnated follow domestic end-user market demand for aromatic-based polymers.

### 2. Outlook for 2014

Thailand's production and demand for heavy naphtha in 2014 are expected to remain steady similarly as in 2013.

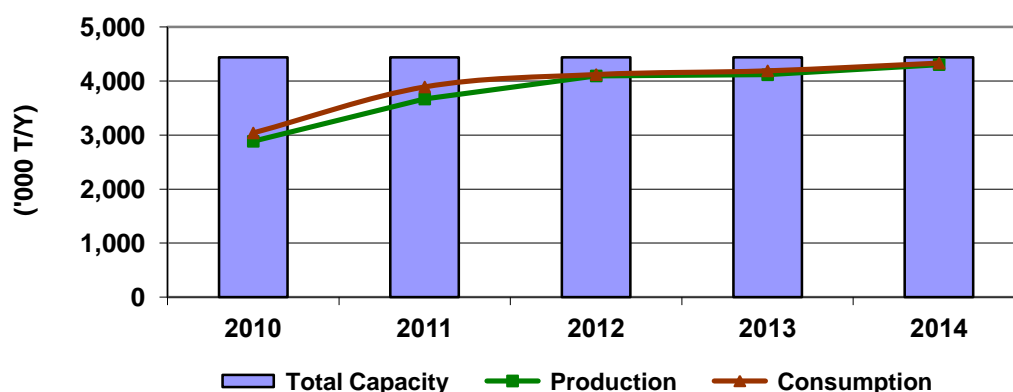
## Capacity, Production and Consumption of Olefins: Ethylene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	4,436	4,436	4,436	4,436	4,436
Production	2,884	3,666	4,093	4,115	4,303
Consumption by Derivative Prod.	3,038	3,889	4,118	4,187	4,330*
Export	8	69	59	17	
Import	99	110	115	85	

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 2013

Ethylene production slightly increased in 2013 supported by a bullish demand in derivative market especially PE. The demand from the petrochemical end market increase 2% in 2013 as the LDPE plant of TPIPL and HDPE plant of PTTGC and SCG run at full production capacity. In addition, ethylene import slightly decreased from 115,000 tons in 2012 to be at 85,000 in 2013.

### 2. Outlook for 2014

Assuming 90% operating rate, ethylene production in 2014 is expected to be 4,303,000-ton/year. Ethylene consumption is expected to increase following recovery of demand from downstream market especially LDPE plant of PTTPE which unplanned shut down in Q3 2013 will start and can run at full production capacity.

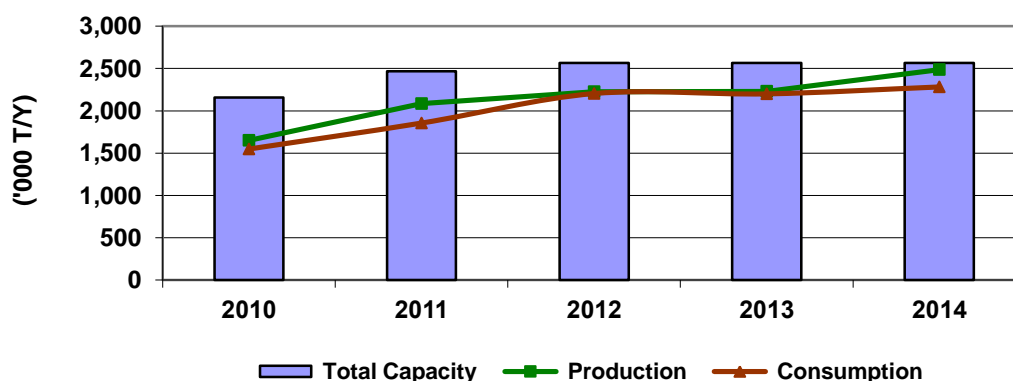
## Capacity, Production and Consumption of Olefins: Propylene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	2,156	2,464	2,564	2,564	2,564
Production	1,651	2,085	2,226	2,231	2,487
Consumption by Derivative Prod.	1,548	1,855	2,204	2,200	2,282*
Export	154	240	139	208	
Import	13	10	5	17	

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 2013

Propylene production and consumption remained stagnant from the previous year as the new 100,000 ton/year (propylene) plant IRPC Metathesis and 300,000-ton/year (PO/PG/Polyol) plant of Dow Chemical which brought on stream in 2012 already run at normal rate similar as in 2012.

### 2. Outlook for 2014

Assuming a 90% operating rate, propylene production in 2014 is expected to be 2,487,000 tons supporting by a bullish demand from both domestic and export market.



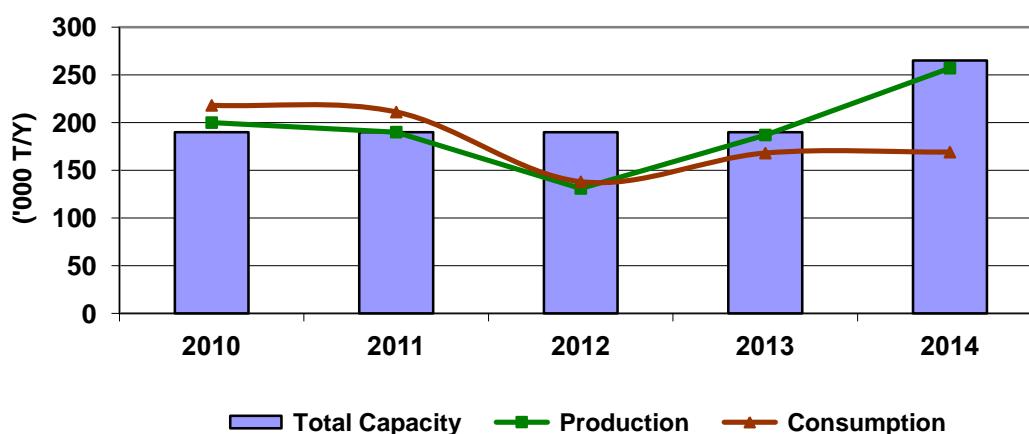
## Capacity, Production and Consumption of Olefins: Butadiene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	190	190	190	190	265
Production	200	190	131	187	257
Consumption by Derivative Prod.	218	211	138	168	169*
Export	26	29	47	71	
Import	27	38	26	30	

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 2013

Butadiene production surged by 43% from the year 2012, meanwhile, butadiene consumption also significantly increased by 22% from the previous year. These were due to the demand from SBR production recovered back to fully operation capacity after the explosion of BR plant of BST in Q2 2012. Consequently, export market of Butadiene jumped by 51% as from strong demand in this region.

### 2. Outlook for 2014

Butadiene production is projected to significantly increase as new 75,000 tons/year butadiene plant of PTTGC will start production in 2014. However, domestic consumption is projected to remain stagnant from bullish demand of derivative product.

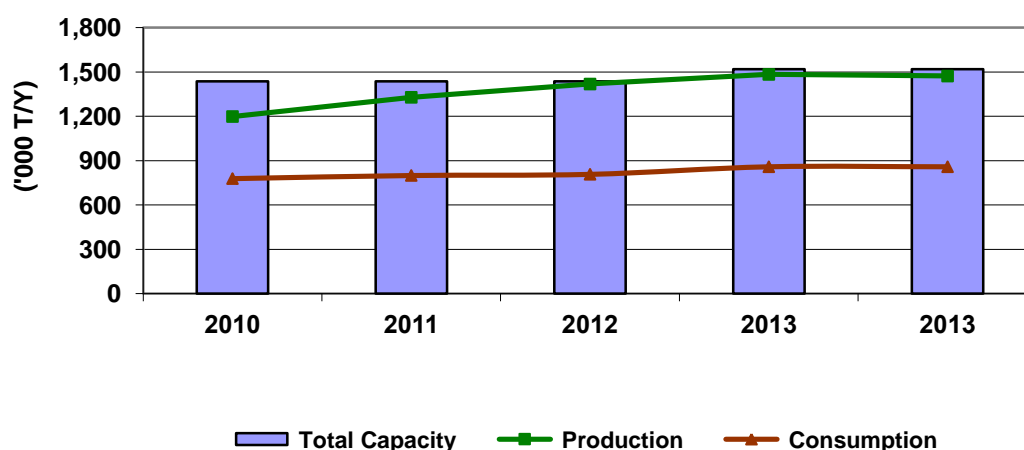
## Capacity, Production and Consumption of Aromatics: Benzene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	1,437	1,437	1,437	1,519	1,519
Production	1,199	1,329	1,419	1,484	1,473
Consumption by Derivative Prod.	779	800	808	859	859*
Export	505	610	650	766	
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 2013

Benzene production increased 5% in 2013 as producers increased their operating rates supported by demand in both domestic market and export market. Domestic consumption increased 6% from the previous year on the back of demand from domestic derivative petrochemical especially SM and Cumene following a bullish demand from domestic automotive and packaging sectors.

### 2. Outlook for 2014

Benzene production and consumption in 2014 is expected to remain stagnant supported by bullish demand from automobile, electronic and electrical, and packaging industries both domestic and export markets – which should spur growth in derivative petrochemical PS/EPS, ABS/SAN and engineering plastics which in turn boost up demand for feedstock benzene.

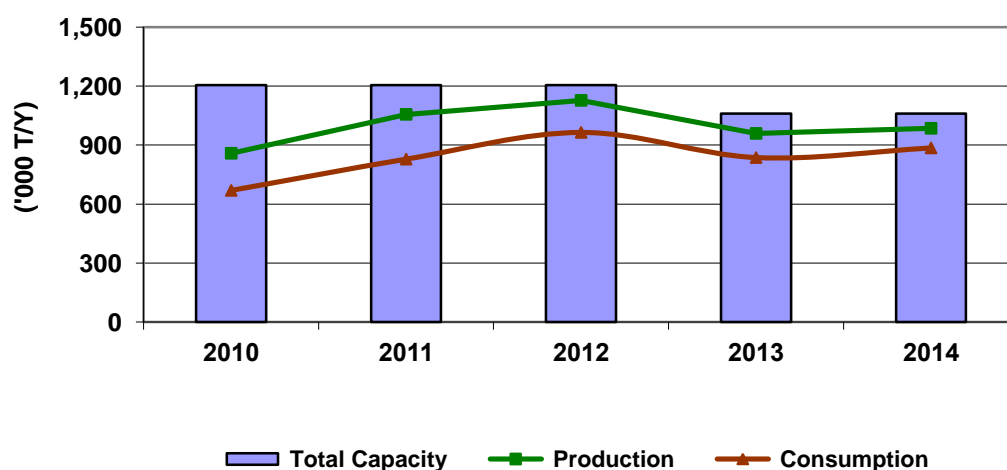
## Capacity, Production and Consumption of Aromatics: Toluene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	1,205	1,205	1,205	1,061	1,061
Production	858	1,056	1,127	959	985
Consumption by Derivative Prod*	669	828	964	836	885*
Export	188	228	162	135	
Import	0	0	0	12	

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 2013

Toluene production in 2013 dropped around 15% as Thai Paraxylene (TPX) modified production line of toluene to produce p-xylene by using toluene feedstock, meanwhile, consumption relatively stagnated. 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 2014

Toluene production in 2014 is expected to recover around 3% from rising in demand of downstream product including p-xylene, benzene and mixed xylenes.

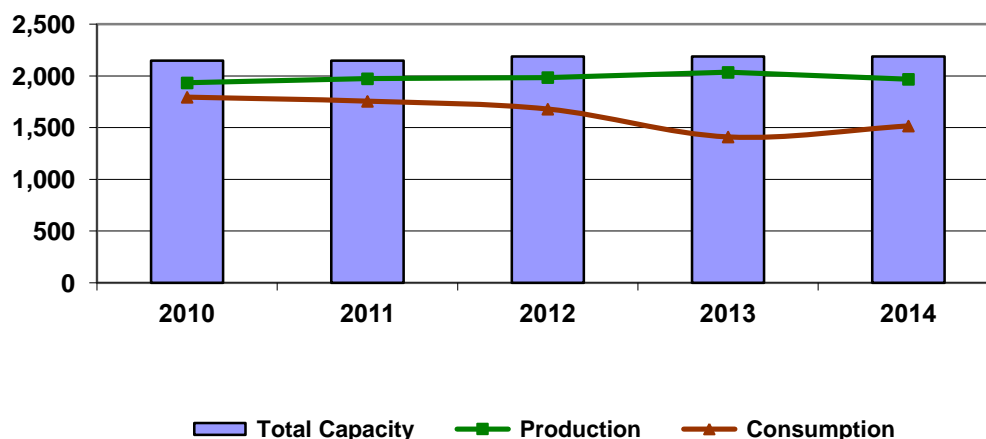
## Capacity, Production and Consumption of Aromatics: P-Xylene

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	2,149	2,149	2,187	2,187	2,187
Production	1,933	1,973	1,985	2,035	1,968
Consumption by Derivative Prod.	1,794	1,755	1,679	1,410	1,516*
Export	381	428	478	708	
Import	242	228	156	83	

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 2013

Thailand p-xylene production slightly increased compared to the previous year from new capacity of p-xylene from Thai Paraxylene (TPX) after debottlenecking in 2012. In the meantime, domestic p-xylene consumption was down 16% in 2013 as a result of soft demand of downstream derivative PTA product.

### 2. Outlook for 2014

Thailand p-xylene production is expected to decrease to balance with domestic demand; meanwhile, consumption is forecasted to recover supported by strong growth in packaging industry.

## **Polyolefins Committee**

## II-2. Polyolefins Committee

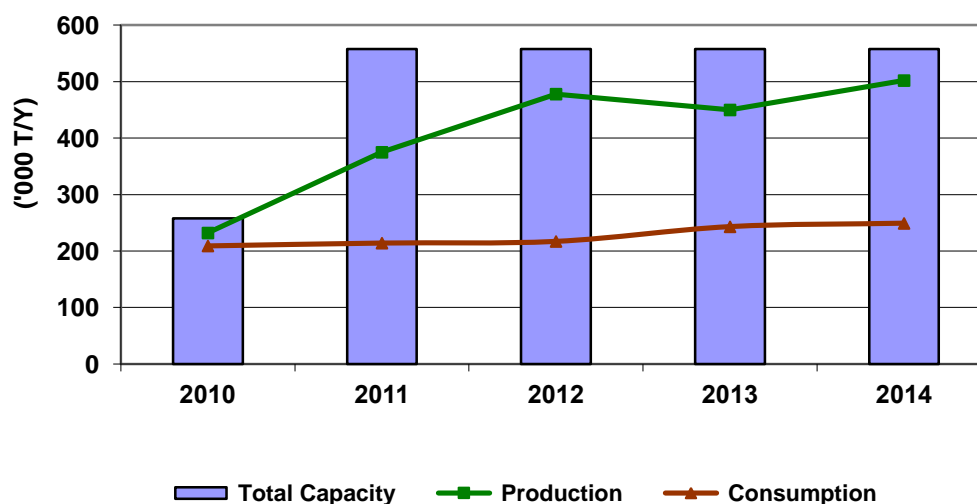
### Capacity, Production and Consumption of LDPE/EVA

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	258	558	558	558	558
Production	232	375	478	450	502
Consumption	209	214	217	243	249*
Export	143	277	378	271	
Import	120	116	116	64	

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.



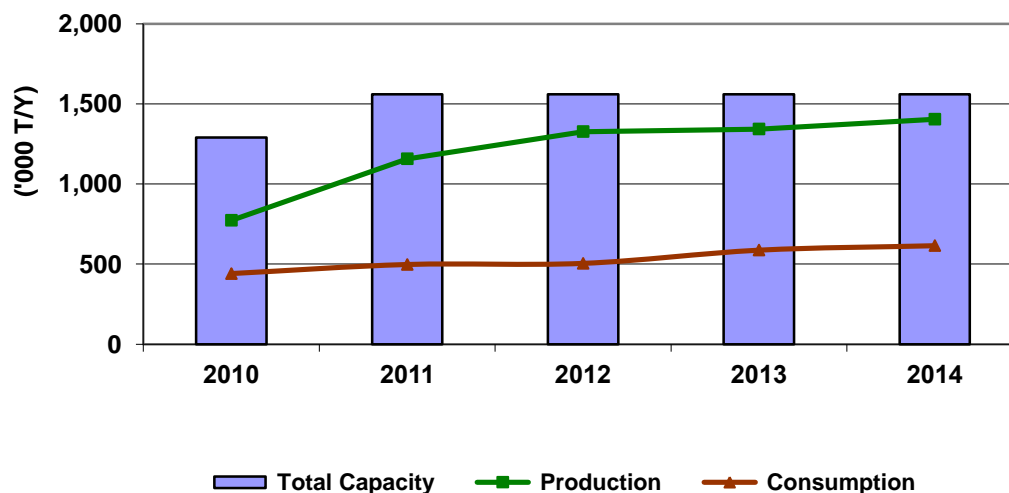
## Capacity, Production and Consumption of LLDPE

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	1,290	1,560	1,560	1,560	1,560
Production	773	1,157	1,327	1,343	1,404
Consumption	440	497	504	587	615*
Export	487	810	993	966	
Import	154	150	170	210	

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.



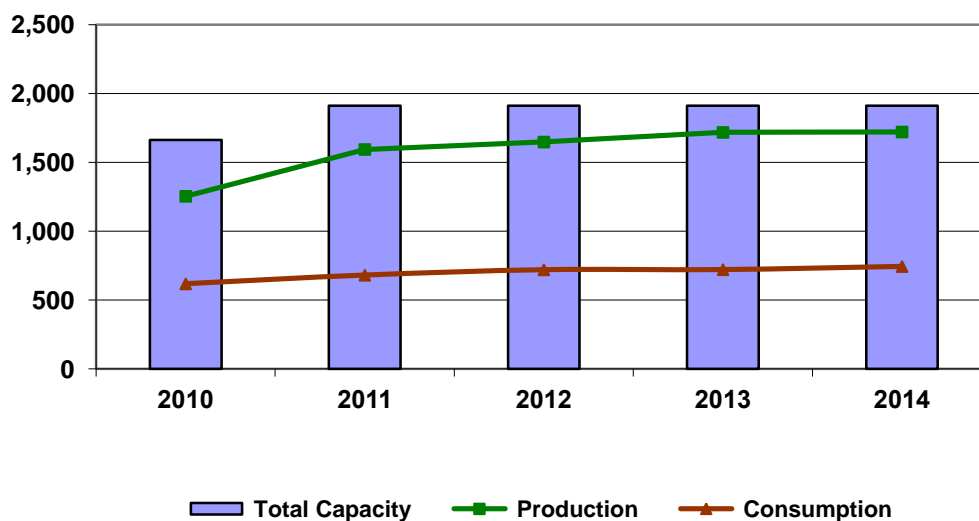
## Capacity, Production and Consumption of HDPE

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	1,662	1,912	1,912	1,912	1,912
Production	1,254	1,594	1,648	1,718	1,721
Consumption	618	681	720	721	744*
Export	767	1,034	1,079	1,142	
Import	131	120	151	145	

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 2013

In 2013, domestic production for LDPE/EVA dropped from 2012 around 6% from unplanned shut down of PTTPE plant (300,000-ton/year) in Q3 while production of LLDPE and HDPE slightly increased about 1% and 4% respectively. Domestic consumption of LDPE and LLDPE increase 12% and 16% respectively in 2013 while HDPE consumption remained stagnant. Export volume of LDPE decreased from high demand in domestic market while export volume of LLDPE dropped from high market competition with LLDPE from Exxon in Singapore.

## 2. Outlook for 2014

Thailand PE production is expected to continue to expand especially LDPE and HDPE while LLDPE has to compete with imported LLDPE from Singapore. The overall domestic demand of PE resin tends to increase supported by growth in packaging segment. .

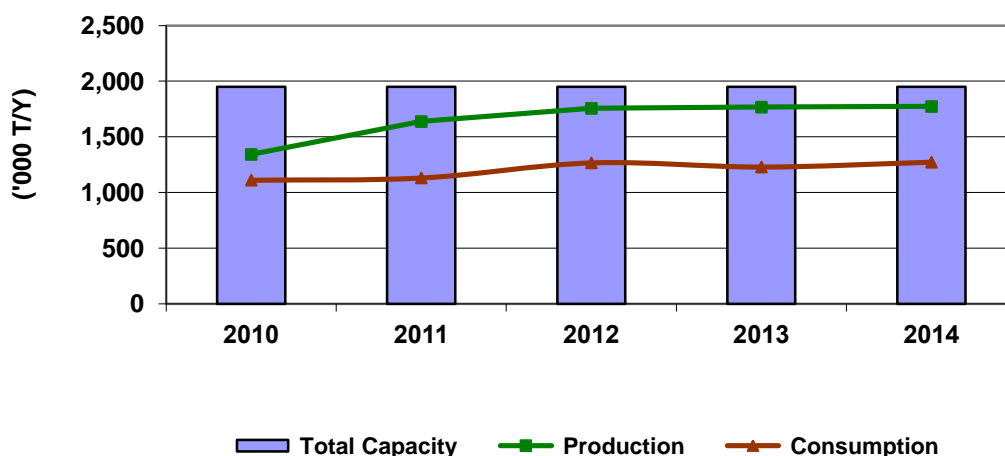
## Capacity, Production and Consumption of PP

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	1,950	1,950	1,950	1,950	1,950
Production	1,342	1,638	1,756	1,767	1,773
Consumption	1,111	1,131	1,266	1,229	1,272*
Export	500	737	732	767	
Import	269	230	242	229	

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 2013

Domestic polypropylene (PP) production in 2013 remained stagnant from the previous year. PP domestic consumption slightly decreased from declining of demand in downstream packaging segment. In addition, import and export of PP remained stable as 2012.

### 2. Outlook for 2014

PP production is projected to remain stagnant or slightly increase from 2013. Moreover, 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**

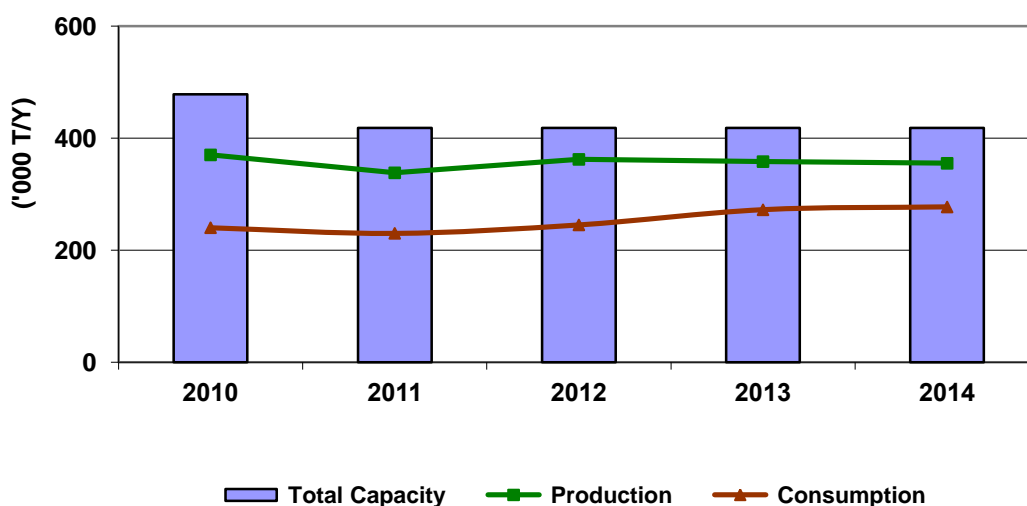
## Capacity, Production and Consumption of PS/EPS

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	478	418	418	418	418
Production	370	338	360	358	355
Consumption	240	230	245	272	277*
Export	176	151	163	132	
Import	47	44	48	46	

Source: PTIT Industrial Survey, The Customs Department

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



### 1. Review of 2013

Domestic production of PS/EPS in 2013 remained stagnant while domestic consumption of these resin increased around 11% following a surging in demand from end-user markets. Rebounding from last year's flood crisis, manufacturer's packaging and electrical and electronic restarted production to meet domestic and international demand as Thailand is one of leading production hub.

### 2. Outlook for 2014

PS/EPS production and consumption is expected to remain stable supporting from end-user markets especially electronic and electrical and packaging industries.

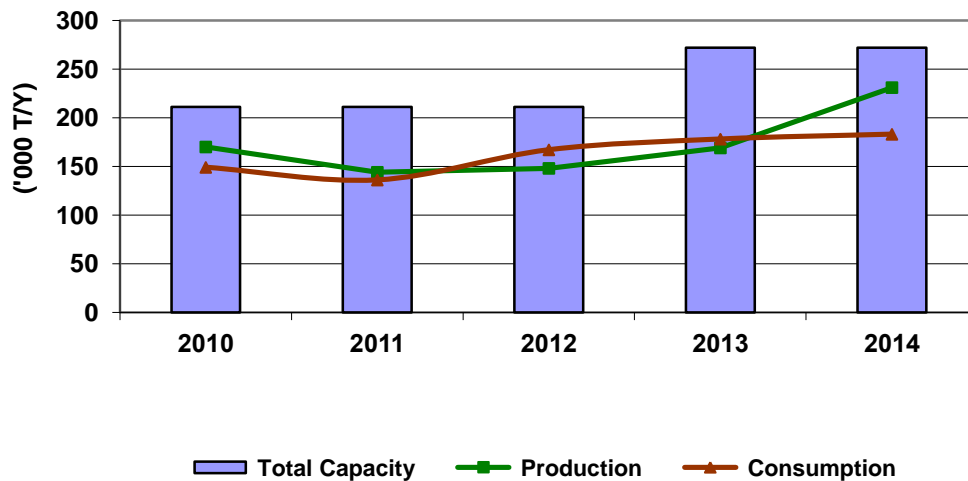
## Capacity, Production and Consumption of ABS/SAN

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	211	211	211	272	272
Production	170	144	148	169	231
Consumption	149	136	167	178	183*
Export	136	117	103	116	
Import	114	109	122	124	

Source: PTIT Industrial Survey, The Customs Department

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



### 1. Review of 2013

Domestic production and consumption of ABS/SAN rose by 14% and 6% respectively in 2013 following the expansion of domestic automobile industries which are the largest ABS/SAN market. In addition, first car policy was a key factor which drives domestic demand of ABS/SAN.

### 2. Outlook for 2014

Domestic production of ABS/SAN is expected to dramatically increase supporting by new expansion capacity of Thai ABS in 2013. On the other hand, demand of ABS/SAN is expected to stagnant or slightly increase as there is no support policy from the government to enhance domestic demand but export market is expected to increase to support expansion of domestic production.

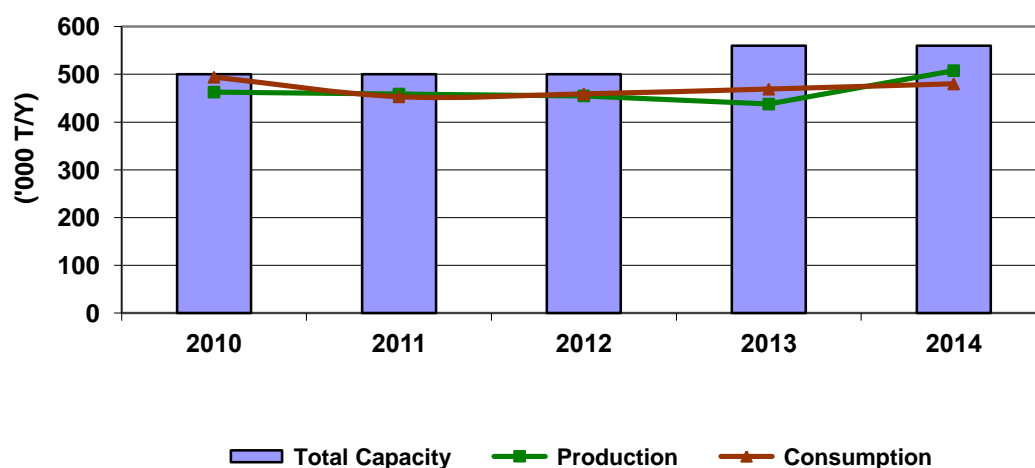
## Capacity, Production and Consumption of SM

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	500	500	500	560	560
Production	463	459	455	438	508
Consumption by Derivative Prod.	494	453	459	469	480*
Export	0	22	27	39	
Import	86	67	55	77	

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 2013

SM production slightly decreased from last year. However, consumption was supported by an increase in consumption from the key derivatives products, especially ABS/SAN which are widely used to produce various electrical and electronics components, automotive parts and food containers.

### 2. Outlook for 2014

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

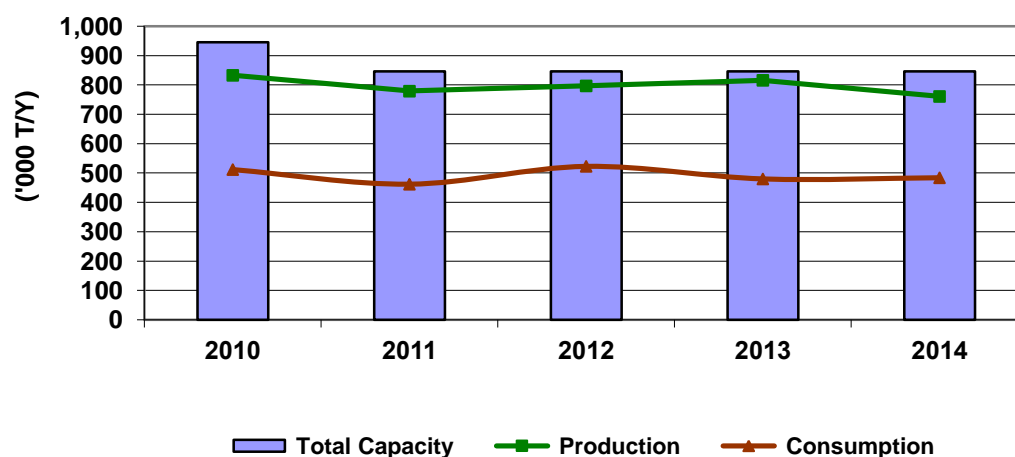
Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	945	846**	846	846	846
Production	833	779	797	816	761
Consumption	512	462	523	480	484*
Export	382	387	367	422	
Import	61	70	94	86	

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 2013

Thailand's PVC production in 2013 slightly increased from 2012. However, Thailand's PVC consumption dropped around 8% from 2012 as a result of real estate sector showed sign of oversupply including purchasing power of consumer decrease from first car policy. For export market, the market increased around 15%.

#### 2. Outlook for 2014

Thailand's domestic PVC production in 2014 is forecasted to be decreased, meanwhile, consumption is projected to remain stagnant or slightly dropped as a result of political issue which affect Thailand economic.



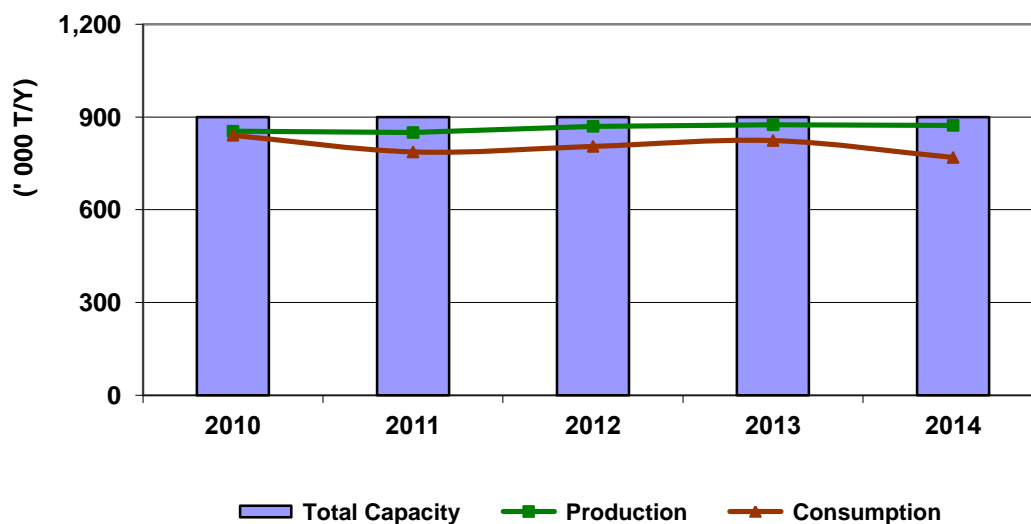
## Capacity, Production and Consumption of VCM

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	900	900	900	900	900
Production	854	850	870	875	873
Consumption by Derivative Prod.	841	787	805	824	769*
Export	66	58	78	111	
Import	42	7	0	0	

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 2013

Thailand's VCM production in 2013 remained stagnant from 2012 while Thailand's VCM consumption slightly increased around 2% from 2012 supported by an increasing in export market.

### 2. Outlook for 2014

Supply for VCM in Thailand in 2014 is expected to remained stagnant or slightly decrease support by lower demand in export market. In addition, domestic demand is forecasted to decrease pressured by low demand from downstream PVC market.

## **Synthetic Rubber Committee**

## II-5. Synthetic Rubber Committee

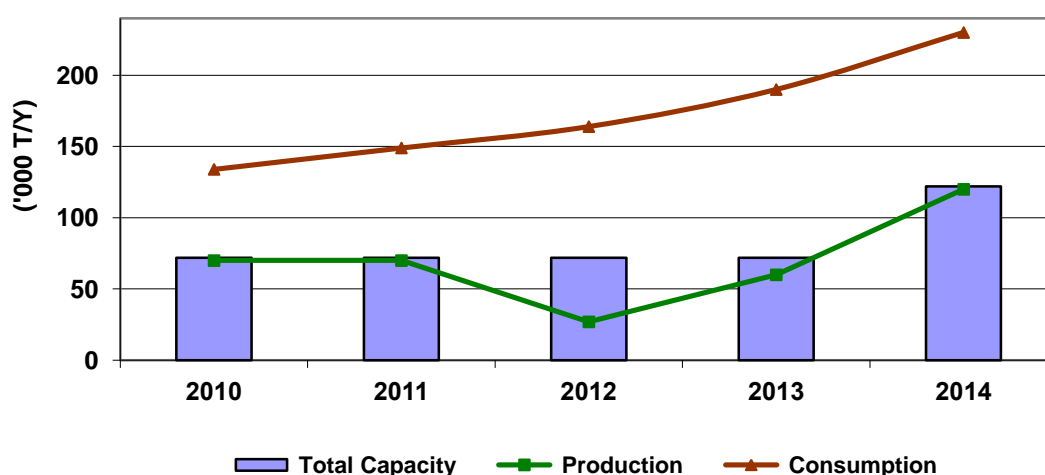
### Capacity, Production and Consumption of SBR

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	72	72	72	72	122
Production	70	70	27	60	120
Consumption	134	149	164	190	230*
Export	36	39	26	39	
Import	100	118	163	174	

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 2013

Thailand's SBR production was back to normal after BST Elastomers resume operation in the beginning of 2013. Consumption, increase was attributed to the growth of Thailand automotive industry as a result of First-Car incentive policy from government economic stimulus program during 2012-2013.

#### 2. Outlook for 2014

In 2014, domestic production of SBR is expected to increase as there is a new production capacity of S-SBR from JSR BST Elastomer (JBE) with nameplate capacity of 50,000 T/Y. JBE has commenced commercial operation from Feb, 2014 to serve the growth in demand of fuel efficient tire for both domestic and export market.

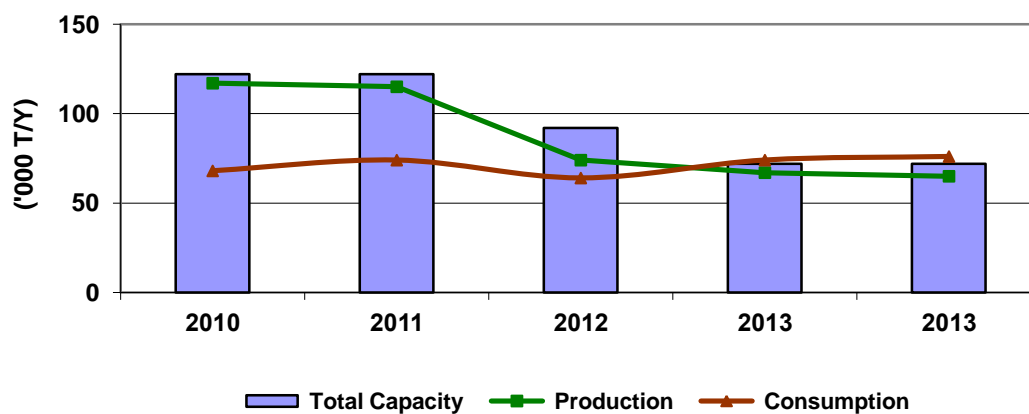
## Capacity, Production and Consumption of BR

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	122	122	92	72	72
Production	117	115	74	67	65
Consumption	68	74	64	74	76*
Export	84	81	59	42	
Import	35	40	49	49	

Source: PTIT Industrial Survey, The Customs Department

Note: Projected production figures: assume 90% operating rate



### 1. Review of 2013

The production of BR in 2013 decreased around 9% compared with the previous year as a result of BR exported decreased. On the other hand, domestic consumption of BR surge 15% as a result of bullish demand from automotive segment.

### 2. Outlook for 2014

Domestic BR consumption is expected to slightly increase in line with the expansion of local automotive industry 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

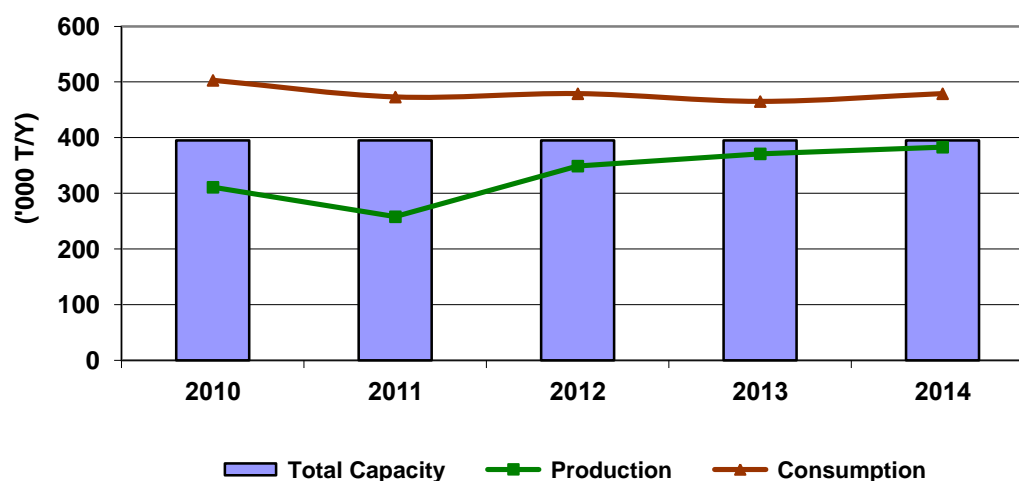
### Capacity, Production and Consumption of Ethylene Glycol

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	395	395	395	395	395
Production	311	258	349	371	383
Consumption by Derivative Prod.	503	473	479	465	479*
Export	8	27	76	34	
Import	225	258	155	157	

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 2013

The production in 2013 rose by 6% compared to the previous year while domestic demand of PET in downstream market slightly decreased as packaging and textile factories suffered government policy which rising labor cost including political problem which leads to tourists problem in Q4 2013. In addition, demand from export market dramatically decreased by 55%.from low demand in global market.

#### 2. Outlook for 2014

In 2014, 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 high demand in packaging segment.

## Capacity, Production and Consumption of Acrylonitrile

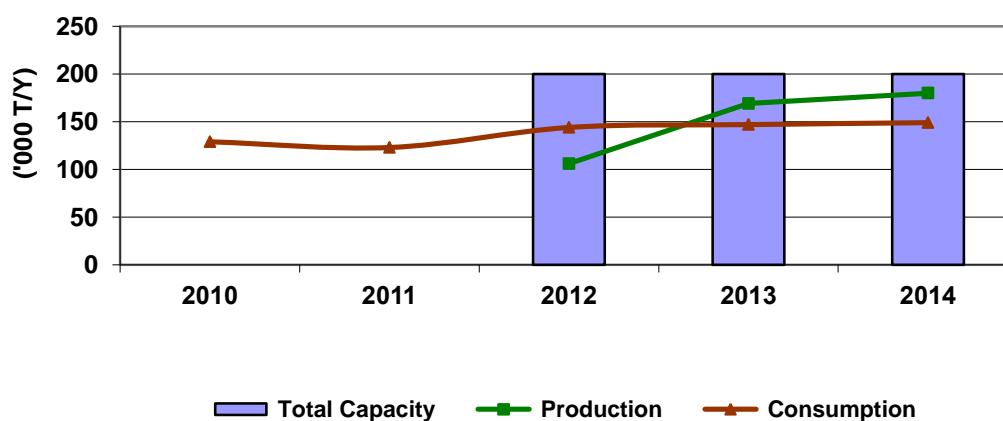
Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity			200	200	200
Production			106	169	180
Consumption by Derivative Prod.	129	123	144	147	149*
Export	0	0	30	46	
Import	141	137	70	68	

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 2013

Thailand's ACN production surged up to supply both domestic market and export market. Domestic consumption slightly increased to meet demand from downstream derivative ABS/SAN especially from automotive segment.

### 2. Outlook for 2014

Consumption of ACN are expected to slightly increase attributing to a growing trend in electrical and electronic, automobile industries. 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.

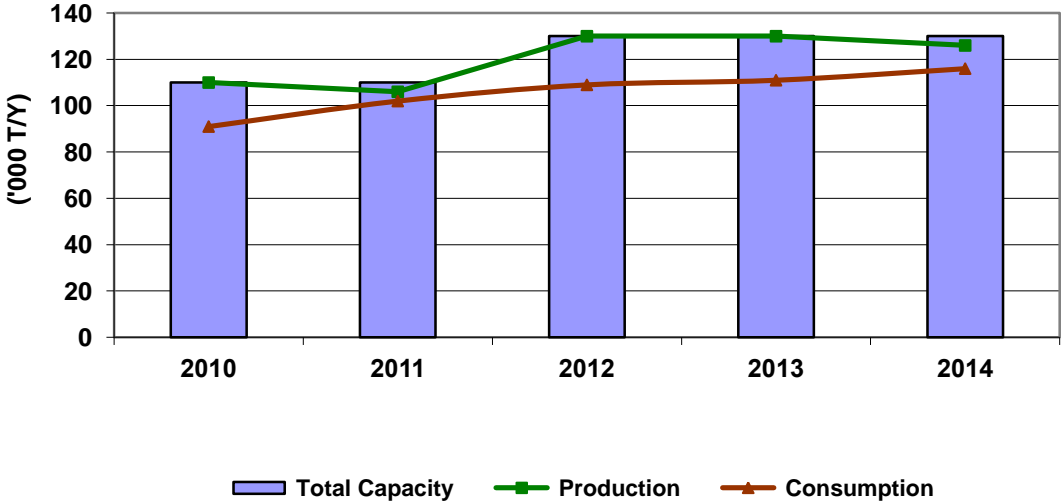
Capacity, Production and Consumption of Caprolactam

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	110	110	130	130	130
Production	110	106	130	130	126
Consumption by Derivative Prod.	91	102	104	111	116*
Export	22	18	33	28	
Import	2	14	8	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 2013

Domestic production and consumption of caprolactam in 2013 remain stagnant at maximum production capacity at 130,000 ton/year after UBE Chemical Thailand started commercial operations its 20,000-ton/year caprolactam and 50,000-ton/year Nylon 6 in 2012.

2. Outlook for 2014

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 2014 is forecast to be slightly increased around 4%.



## Capacity, Production and Consumption of Terephthalic Acid

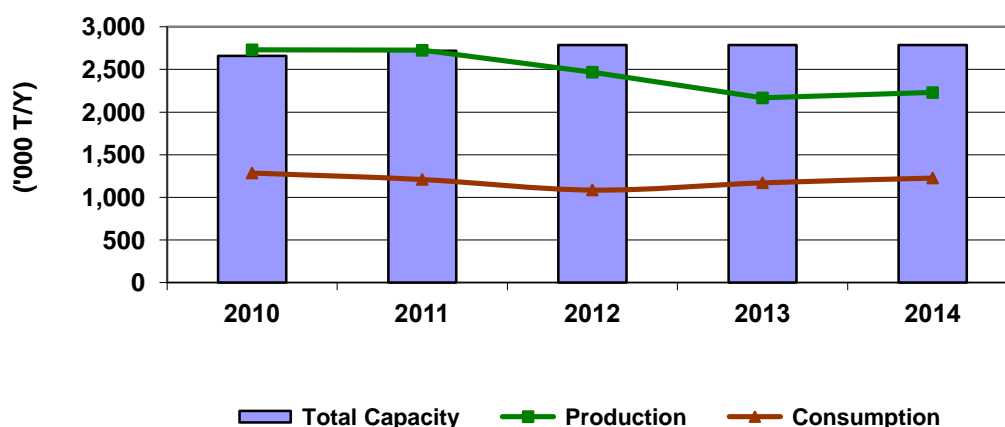
Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	2,660	2,720	2,787	2,787	2,787
Production	2,732	2,726	2,469	2,167	2,230
Consumption by Derivative Prod.	1,286	1,210	1,086	1,171	1,227*
Export	1,446	1,516	1,381	996	
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 2013

Thailand's PTA production dramatically dropped by 12% from previous year as local producers reduced their operating rates to go with softer demand from regional markets resulting from global economic slowdown and oversupply of PTA in Asia. On the other hand, domestic PTA consumption recover back from flooded crisis and also supported by high growth in downstream polyester including derivative PET and polyester products.

### 2. Outlook for 2014

In 2014, domestic PTA production and consumption are expected to increase following recovery in demand from regional markets and demand of domestic packaging and textile sectors are expected to improve.

## **Chemicals Committee**

## II-7. Chemicals Committee

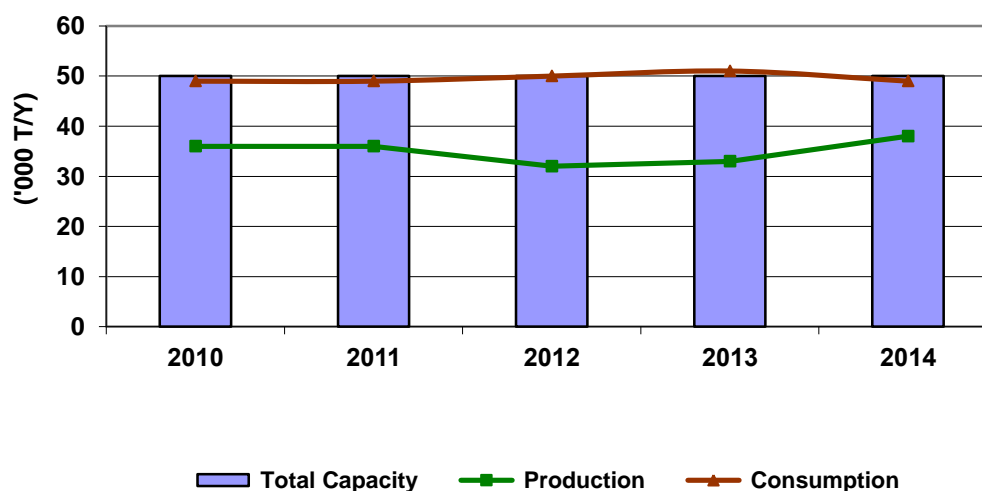
### Capacity, Production and Consumption of Phthalic Anhydride (PA)

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	50	50	50	50	50
Production	36	36	32	33	38
Consumption by Derivative Prod.	49	49	50	51	49*
Export	6	1	2	6	
Import	12	12	17	18	

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 2013

Domestic PA production and consumption in 2013 relatively stagnated, supporting by strong exported market especially construction industries in ASEAN.

#### 2. Outlook for 2014

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 which domestic consumption is expected to slightly decrease supported by soft demand of construction industry.

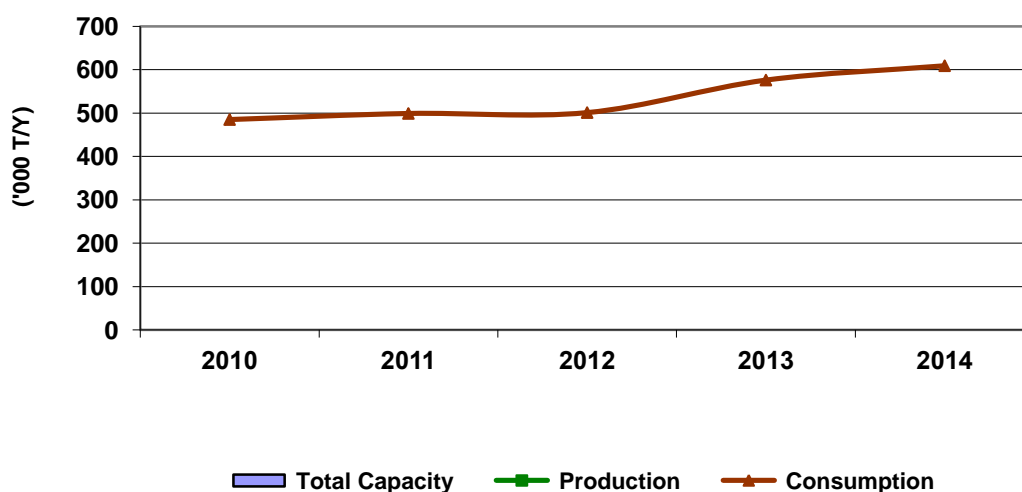
## Capacity, Production and Consumption of Methanol

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity					
Production					
Consumption by Derivative Prod.	485	499	501	576	609*
Export	3	0	85	0	
Import	556	515	554	596	

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 2013

Domestic consumption of methanol increased from 501,000 tons in 2012 to 576,000 tons in 2013 following an increase in demand from derivative POM which Thai Polyacetal expand POM production in Q2 2013.

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

### 2. Outlook for 2014

Methanol consumption in Thailand is expected to relatively increase assuming a 90% operating rate for MMA, POM, formaldehyde and MTBE.

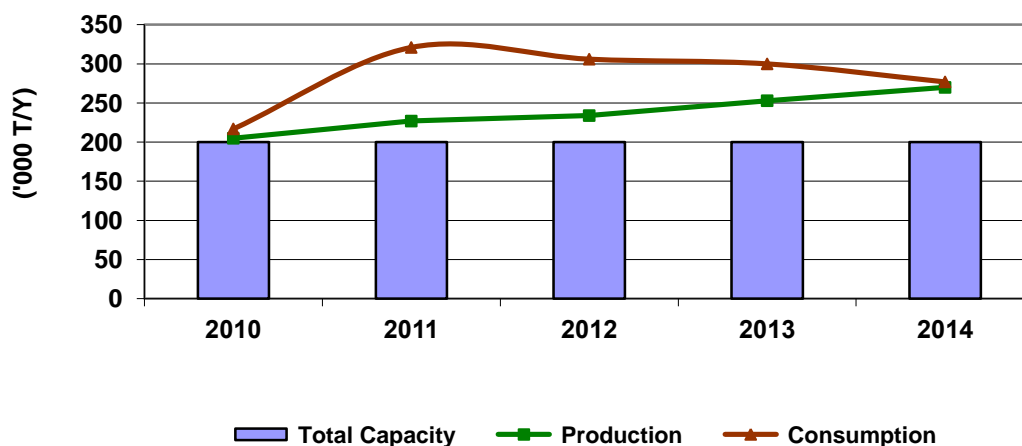
## Capacity, Production and Consumption of Phenol

Unit: '000 T/Y

	Historical				Estimated
	2010	2011	2012	2013	2014
Total Capacity	200	200	200	200	200
Production	205	227	234	253	270
Consumption by Derivative Prod.	217	321	306	300	369*
Export	166	106	113	103	
Import	178	200	185	149	

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 2013

Domestic phenol production increased around 8% compared with the previous year while domestic consumption remained stagnant.

### 3. Outlook for 2014

Phenol production in Thailand is expected to slightly increase while consumption is forecasted to surge, assuming a 97% operating rate for bis-phenol A and phenolic resin. PTT Phenol Co., Ltd. postpones an expansion plan of 250,000-ton/year phenol to 2015.