

# **2009 EPCA REPORT**

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## **43rd EPCA Annual Meeting**

**Hotel InterContinental Berlin**

**October 3-October 7, 2009**

**Marubeni**  
Chemicals Group



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## **EPCA 2009 OVERVIEW**

The Annual Meeting of the European Petrochemical Association (EPCA) was held in Berlin, Germany from October 3<sup>rd</sup> through 7<sup>th</sup>, 2009. The theme of this year's meeting was "Turbulent Times for Chemicals". Because it was convened in the midst of the current financial and economic crisis that was sparked by the Lehman shock, the number of registered participants was slightly under 2,000—significantly fewer than the 2,300 participants that attended last year. Even so, participants thronged the InterContinental Hotel, the venue for this year's EPCA meeting, creating a lively atmosphere. However, because it was scheduled during national holidays in Asia, such as National Day in China, compared to other years there seemed to be very few Asian participants.

While it seemed that the economy had bottomed out in the 1<sup>st</sup> quarter of this year, certain products generated an unexpected recovery of demand and have helped to revive the market. However, it will still take more time for other products to recuperate demand and revitalize the market. Likewise, the petrochemical industry lacks uniformity, and the current economic forecast is still uncertain. Thus, there was a sense of anxiety among both the suppliers and consumers that attended the EPCA meeting. (Incidentally, the 44<sup>th</sup> EPCA 2010 is scheduled to be held from October 2<sup>nd</sup>, 2010, in Budapest, Hungary.)

A GDP real growth rate of -4% is projected for the EU and Euro economic zone in 2009. However, there was a small favorable turn in growth during the 2<sup>nd</sup> quarter, and the EU economy seems to be at a turning point. The reasons for this are 1) a decrease in exports, 2) fewer minus figures for investment, and 3) financial-policy measures, such as government support for trading in for a new car. Still, the current climate cannot be considered to be a self-sustained recovery driven by the vitalization of economic activities, and thus uncertainty remains high.

Meanwhile, the European petrochemical industry is in the midst of an economic recession. For many years the industry has enhanced its competitiveness by switching to high-profit businesses or expanding the scale of business through acquisitions. Prices in the 4<sup>th</sup> quarter for 2008 remained high and consumers were not willing to acquire products. As a result, inventory levels rose sharply, causing commodity prices in Europe to take a great dive in the 1<sup>st</sup> quarter, and forcing businesses to adjust their operations. However, multipurpose petrochemical products, namely PP, were shipped from Europe to China and Southeast Asia after the Chinese New Year, taking advantage of unexpected upturn in China. This helped to ease the pressure on the European petrochemical industry. Drawing upon the lessons derived from this experience, the industry discussed the monthly feed stock pricing system in order to determine the best way for handling price fluctuations of raw materials in real time. A trial of this system was then conducted. Aside from the pricing field, the entire industry is working to enhance its competitiveness through technological innovation.

On the first day of the meeting a business session was held, with the theme being “Turbulent Times for Chemicals: Coping with Challenges through Sustainable Development”. Mr. Stephen Pryor, President ExxonMobil Chemical as well as Vice President ExxonMobil Corp., delivered a speech that focused on the theme of “Survival through Sustainable Development for Chemicals: an Industry View”. He discussed the issues facing the petrochemical industry (economic recession, environmental concerns such as reducing CO<sub>2</sub> emissions, delivering higher-value products to customers, etc.) and stated that technological innovation is vital for the continued growth of the petrochemical industry. Then, he indicated the following tasks that the industry must address: 1) investing in production systems that employ low-cost raw materials, 2) long-term projects for developing bio-based feedstock, 3) securing administrative support for reducing CO<sub>2</sub> emissions, and 4) enhancing product safety management.

Next, a panel discussion was held with Mr. Joschka Fischer, Former Minister of Foreign Affairs and Vice-Chancellor of Germany (1998 – 2005), Dr. Gerd Leipold, Executive Director-Greenpeace International, Mr. Nikhil Meswani, Executive Director-Reliance Industries, and Mr. Frank Rinderknecht, CEO-Rinspeed. The theme of this discussion was “Downturn, Survival and Sustainability: Urgent Action Items”. History, they claimed, proves that political and economic measures cannot adequately address critical and unstable economic conditions, such as the global financial crisis of 2008. Corporations and companies must be innovative and transform these conditions into opportunities. They said that they believe the petrochemical sector will continue to grow, because it proactively contributes to society as a model corporate citizen.

On the second day of the workshop, Dr. Ulrich von Deessen, BASF-President Competence Center Environment, Health & Safety, delivered a speech that focused on the theme of “Turbulent Times for Chemicals: Coping with Challenges through Sustainable Chemical Supply Chains in the Near Future-an Industry View”. He stated that his company has been achieving steady results in reducing CO<sub>2</sub> emissions. This has been done by addressing supply chain management, implementing a policy of self-management that is centered upon “product safety and product stewardship” and “responsible care”. This policy applies to the entire cycle, from the supply of raw materials, to the delivery of products to the customers and finally disposal. He stated for these reasons, they must focus on 1) selecting suppliers and 2) training suppliers that fail to meet the company’s standards, as well as emphasize the safe delivery of products. Referring to their success in China as an example, he indicated that establishing a partnership with local customers is essential for the success of any supply chain.

Following this speech, another panel discussion focusing on the theme of “Turbulent Times for Chemicals: Coping with Challenges through Sustainable Supply Chains” was held. The individuals that participated in this discussion were Mr. Edouard Croufer, Director, Leader of the Global Chemicals & Health Care Practice, A.D. Little, Mr. Joschka Fischer, Foreign Minister and Vice President, Mr. Herve Montjotin, Norbert Dentressangle Transport Division

Executive Vice President, Norbert Dentressangle and Dr. Ulrich von Deessen, BASF-President Competence Center Environment, Health & Safety. Examining the activities addressing environmental issues and supply chains that BASF has conducted over the last 30 years, they stated that the European petrochemical industry possesses a distinct advantage. This is because it has been coping with these issues long before other leading petrochemical companies across the world, and also because of the strong infrastructure Europe possesses, which in turn leads to long-term benefits. Before considering China to be a threat, the European petrochemical sector should seek to have confidence in itself. In relation to this, they discussed trading CO2 emissions trading and stated that proactive participation is needed.

During the lunch session, Professor Condoleezza Rice, US Secretary of State (2005-2009) delivered a speech centering on the theme of “How to Achieve Global Sustainable Development in an Economic Downturn and Geo-political Uncertainty”. She stated that though we find ourselves in difficult times, it is necessary for individuals, corporations, and governments to fulfill their respective responsibilities for the sake of national stability. And, because the movement of products, human resources, and capital cannot be restricted, it is necessary to promote free trade and pursue mutual benefits between nations. In the end, she fielded questions from participants, discussing the problems in Iran and issues related to the G8 and G20.

## 1. Naphtha

Actual Data and Forecast of Price

	(APR-JUN)	(JUL-SEP)	(OCT-DEC)	(JAN-MAR)
CIF NWE	US\$ <b>490</b> /MT	US\$ <b>602</b> /MT	US\$ <b>520-630</b> /MT	→
C&F JAPAN	US\$ <b>524</b> /MT	US\$ <b>613</b> /MT	US\$ <b>550-700</b> /MT	→

\* Compared to the previous quarter

### Supply:

#### Middle East

In the Middle East, supply is expected to increase by up to 3,000KMT per year, diminishing the export decrease of the Aroma Plants and the export increase resulting from projects such as gas field expansion. The progress of plant projects, however, has been repeatedly delayed, and the supply amount might vary largely in the future.

The KUWAIT AROMA PLANT commenced operation at the beginning of October 2009, with a supply decrease of 1,700KMT per year.

The OMAN AROMA PLANT will commence operation in December 2009 and consume 1,500KMT of naphtha per year, thus transforming Oman into an importing country. Previously the country supplied 500KMT per year, and as result of this new consumption there will be a negative supply decrease of 1,000KMT per year.

On the other hand, the production of QATAR LAS RAFFAN has increased by 200KMT per month since October, and the annual supply is increased by 2,400KMT. In the U.A.E., two development projects related to land gas-field expansion have led to a supply increase of 3,000KMT per year (Habsan III: Work to be completed in 4<sup>th</sup> quarter 2009, ASAB II: Work to be completed in 1<sup>st</sup> quarter 2010).

#### Japan

As a result of the narrow profit margin for middle distillates (JET and diesel oil), refineries in Japan, Korea, and Taiwan have been unable to boost their operating rates. Some refineries lowered their operating rates to between 70-75%, but on average rates are currently holding at around 80%.

On the annual average, Japanese refineries have lowered operating rates by 20%, with an annual supply decrease of 3,500-4,000KMT.

#### India

The export amount has held steady at 600-800KMT per month since May 2009.

### Arbitrage Cargo

Surplus Naphtha in Europe is mainly used for 1) blending fuel that is exported to the U.S.A., 2) petrification in the U.S.A., and 3) petrification in Asia.

From January to the first half of September 2009, approximately 3,500-4,000KMT of arbitrage cargo was shipped to Asia. From January to September 2008, 3,200KMT of cargo was shipped; thus this year's total is roughly the same as last year. The difference between the West and the East for this past month has been minimal, and no cargo is expected to be shipped from the second half of September to the second half of October. Freights are rising, which makes it difficult for arbitrage cargo shipments to increase.

### Demand:

For the 2<sup>nd</sup> and 3<sup>rd</sup> quarters in 2009, Ethylene crackers located in Asia maintained an overall operating rate of almost 100%. Because of the actions taken to account for the decrease in demand for the 4<sup>th</sup> quarter in 2008, the tendency has been to limit the number of term contracts and use spot contracts to perform procurement; therefore, PREMIUM is plus, and market conditions are showing steady backwardation; initially high in the short term but ultimately falling low in the long term. In the 4<sup>th</sup> quarter demand for LPG will start full swing and the seasonal demand for naphtha will rise, so this needs to be incorporated into the plan.

It is forecasted that the export of polymer from petrification plants for raw material gas (LNG) will start full swing. It is uncertain how long the consumer appetite will last in China; however, petrification companies are estimated to maintain their current operating rates of around 100% until the end of November.

### Price:

For the 4<sup>th</sup> quarter in 2009, it is estimated that the supply increase from the Middle East and the supply from India will be offset by the supply decrease resulting from the lack of arbitrage cargo. Based on this fact, Ethylene crackers will maintain their current operating rate of 100%, causing the domestically produced naphtha supply to continue to decrease. As a result, in order to stay balanced the naphtha market is expected to be somewhat tight.

The fluctuation in the absolute value of naphtha is strongly related to the price of crude oil. A large amount of money is and will continue to be inserted in the stock market and the merchandise market, due to the financial and economic measures enacted by governments around the world; therefore, the price of naphtha is estimated to be higher than the current level, hovering in the higher range in the 4<sup>th</sup> quarter of 2009.

The outlook for the 1<sup>st</sup> quarter of 2010 and after is extremely uncertain. It is necessary to bear in mind the possibility of a sudden plunge in market conditions if the chemical market, currently sustained by Chinese buying, comes crashing down.

## 2. ETHYLENE

### Price Forecast

		OCT.	NOV.	DEC.	1Q (JAN.-MAR.)	2Q (APR.-JUN.)
EUROPE	CONTRACT	EUR <b>860</b> /MT (US\$ <b>1255</b> /MT)	EUR <b>760</b> /MT (US\$ <b>1110</b> /MT)	EUR <b>730</b> /MT (US\$ <b>1066</b> /MT)	→	↗
	SPOT	US\$ <b>920-970</b> /MT	US\$ <b>850-900</b> /MT	US\$ <b>850-900</b> /MT	→	↗
USA	CONTRACT	¢ <b>32.5-34.5</b> /LB (US\$ <b>717-761</b> /MT)	¢ <b>31-33</b> /LB (US\$ <b>683-728</b> /MT)	¢ <b>30-32</b> /LB (US\$ <b>661-705</b> /MT)	→	→
	SPOT	¢ <b>25-27</b> /LB (US\$ <b>550-594</b> /MT)	¢ <b>24-26</b> /LB (US\$ <b>528-572</b> /MT)	¢ <b>24-26</b> /LB (US\$ <b>528-572</b> /MT)	→	→
ASIA	SPOT	US\$ <b>780-830</b> /MT	US\$ <b>800-850</b> /MT	US\$ <b>800-850</b> /MT	→	↗

### EUROPE

#### SUPPLY/DEMAND:

Cracker operating rate has been increasing gradually since 2Q after hitting the bottom of Ethylene demand; however, some of crackers are in long-term shut down because of economical reasons or plant troubles. This would result in average cracker operating rate in Europe at 80% on nameplate Ethylene capacity.

Although operating rate in 4Q was estimated to maintain over 90% due to turn around, such as Bolearis/Stenungsund, Shell/Heide, Polimeri/Brindisi, LyondellBasell/Wesseling, market players already show anxiety about Ethylene supply after November because BASF/Ludwigshafen which had been shut down since April decided to re-start operation from middle of October and Ethylene derivatives supply from Middle East is expected to be sufficient after commercial start up of PetroRabigh and Yansab.

On the other hand, the EU economic growth rate in 2009 seems to be minus 4-4.5%, Ethylene demand would be even worse than minus 6% though demand from derivatives had been supported by export for non-EU countries. In short term, regional demand has been recovered since 2Q, and estimated to reach the peak in October, however, the derivatives export can potentially be down so that chances of significant recovery of Ethylene demand would be slim. Towards next year, regional derivatives demand is expected to be positive growth but demand of Ethylene monomer itself will not be changed much due to significant supply increase of derivatives from Middle East.

#### PRICE:

Contract Price in October was settled down at Euro860/MT lower by Euro15/MT from previous month. The extent of reduction is not more than that of naphtha and cracker margin is improving. On the other hand, the concern about demand shrink lead the spot price lower, transacted at US\$920-970/MT for October parcel, and it seems to be below US\$900/MT.

Due to inflow of Middle East Ethylene into Europe, price will move to follow per Naphtha price fluctuations.

## **USA**

### **SUPPLY/DEMAND:**

Ethylene supply volume will remain at lower level, because of turnaround of crackers such as Dow No.1, Taft/Nova, Sarnia/Shell, DeerPark and little possibility that crackers using heavy feedstock improve their operating rate steeply due to economical reason. As regards to cracker feed, ethane is favored against any feedstock so that ethane is actively used. Shell, Norco cracker has been modified to consume light feed up to 70%, and same industry trend will be seen.

Although the growth rate of US GDP shows minus 0.7% in 2Q which is in tendency of recovery, strong domestic demand cannot be seen yet. On the other hand, Ethylene derivatives export continues to be strong and marked record high of 590KMT in June.

In line with this movement, demand had been kept strong so far, but demand which is count on export will be weak after 4Q, because the mood is being spread not to buy derivatives among Asian countries mainly China recently. Also it is due to uncertainty of economy at present and start up of new cracker in China and Middle East.

### **PRICE:**

Contract price negotiation of July, August, and September was finally closed at once and agreed at ct29.75/lb, ct32.5/lb, and ct34.5/lb respectively. Price prospect is a little negative outlook for near term, although natural gas price is uptrend due to coming winter but it seems still weak against crude oil and neither domestic or export demand seems strong towards end of this year.

## **ASIA**

### **SUPPLY/DEMAND:**

Regional Ethylene demand had been strong since 2Q with significant recovery of downstream demand especially Polyethylene in China. Furthermore, it is supported by excessive decrease of inflow volume from Middle East (especially from Iran due to series of plant malfunctions) since July and delay of Ethylene capacity expansion in Middle East. As the result of above, operating rate in the region has parallel reached 95-100%.

At present, demand started to become weakening and buyer became cautious to purchase in line with inactive sales of derivative products, which was caused by the start up of 3 new crackers in China and overstocking of polymer in some regions.

Due to these weak derivatives situation, Taiwan has cut operating rate down by 10% due to economical reasons and this tendency may spread to other crackers mainly in Japan and Korea further depending upon derivative market situation.

In addition to this, Ethylene plant in Iran has resumed regular operation so that Ethylene inflow as monomer will start to increase into Asia. In near term, derivative products from Middle East will come into Asia on a full scale which will worsen cracker margins. As a result, Ethylene demand will potentially shrink.

**PRICE:**

Polyethylene price has been kept at high level since 2Q, and spread between Ethylene widened around \$300/MT. On the other hand, Ethylene price level had been around \$600-700/MT affected by inflow of deep sea Ethylene cargo until May, and after that climbed up to around \$1,000/MT in line with price increase of Polyethylene and Naphtha.

In July, the volume of deep sea cargo coming from Middle East decreased suddenly and Ethylene price reached at \$1,100/MT due to tightness. Currently, price is hovering around \$800/MT due to resumed export from Iran and decreasing derivative price on top of weak Ethylene demand. As Middle East Ethylene inflow continues into the region, Ethylene price will move in parallel with Naphtha Ethylene cost.

Newly start up cracker (scheduled) in this year

Fujian (China)	800KT	September
Dushanzi (China)	1,000KT	September
Yansabu (Saudi Arabia)	1,300KT	September
PanJing (China)	420KT	October
SHARQ (Saudi Arabia)	1,200KT	November
Morvarid (Iran)	500KT	November

### 3. PROPYLENE

#### Price Forecast

		OCT.	NOV.	DEC.	1Q (JAN.-MAR.)	2Q (APR.-JUN.)
EU	CONTRACT	CIF EURO <b>750</b> /MT (settled)	CIF EURO <b>670-690</b> /MT	CIF EURO <b>650-680</b> /MT	→	↗
	SPOT	CIF EURO <b>740-770</b> /MT	CIF EURO <b>680-700</b> /MT	CIF EURO <b>670-700</b> /MT	→	↗
USA	CONTRACT	¢ <b>48-50</b> /LB	¢ <b>46-48</b> /LB	¢ <b>42-44</b> /LB	→	→
	SPOT	FOB ¢ <b>44-48</b> /LB	FOB ¢ <b>42-46</b> /LB	FOB ¢ <b>41-45</b> /LB	→	↗
ASIA	SPOT	US\$ <b>900-950</b> /MT	US\$ <b>850-900</b> /MT	US\$ <b>800-870</b> /MT	→	→

#### **EUROPE**

##### **SUPPLY/DEMAND:**

PP export volume to China, Turkey etc during 1H/2009 was very close level with whole European PP export volume last year and which led to rapid regional propylene demand. Regional balance has been keeping tight during 1H this year due to crackers reduced operation rate and even after 3Q it has still kept tight because of many crackers outages such as Total Carling explosion (which is estimated to restart their operation before the end of this year) and lower FCC's operation rate. Even though after 3Q derivatives export demand became slowing down, due to lower inventories level, propylene's regional demand was keeping stable. However PP import demand from China started decline due to new domestic supply increase and PP flow from Middle East and India to Europe has started and as a result regional propylene demand has decreased. Bearish trend is estimated during this year.

##### **PRICE:**

Even though European propylene spot price before middle of September have reached more than Euro800/MT, it has started decline because of feedstock price dropping, derivatives flow from other regions and regional demand decrease. At this moment it's moving around Euro750-780/MT and it is estimated further dropping. October CP has been agreed at Euro750/MT dropped from September CP at Euro778/MT and it's expected further Euro100/MT decline for November and it will be keeping bearish sentiment before the end of this year.

#### **USA**

##### **SUPPLY/DEMAND:**

Even though there is no change for natural gas preference, propylene supply tightness has been weakened because of slightly higher naphtha feed due to higher propylene and C4's price and RGP production increase from FCC due to lower alkylation value from lower

gasoline demand. However it is estimated that Naphtha cracking economics will be dropped and light feed will be more consumed which is same with before.

On the other hand, although Propylene demand has been recovering smoothly same with Europe until now which was supported by derivatives export increase, it has started weakened sharply due to decrease of derivatives export demand from September. It is estimated it will still take longer period to recover domestic demand and export mainly to Asia will be also keeping less for a while. Therefore supply demand balance in USA will be steadily weak.

Petrologistics PDH will be starting their operation in 2010.

### **PRICE:**

PGP spot price has been drifting at ct55-57/lb in early September, it has been dropping rapidly in these days and reflecting big price adjustment October CP is estimated to show around ct10/lb drop from September CP at ct57/lb. Current PGP spot price has moving down to ct45-46/lb from ct60/lb level dragged by RGP price dropping. It's estimated to keep weak trend until the end of this year because it is difficult to recover demand so quickly.

### **ASIA**

#### **SUPPLY/DEMAND:**

From the beginning of this year Propylene production units have kept adjusted operation rate, on the other hand unexpectedly Chinese rapid demand recovery happened and as a result regional balance has kept tight until 3Q. Chinese PP and Propylene importing volume showed 50pct increase during January to July compared with last year. However such balance suddenly have weakened from middle of September because of Chinese new crackers expansions (SECCO, Fujian, Dushanzi etc), export volume increase from Japan and Korea, Reliance Propylene export besides PP etc. Chinese reaction after National Day Holidays is focused at this moment, however it is not expected rapid recovery during this year. It's also estimated that uncertain situation will be continued even after beginning of next year because of several uncertain factors, like early next year's South East Asian new crackers (Shell MOC etc) starting, scheduled turnaround during 2Q-3Q, concerns about operation rate adjustments due to worse crackers' economics, unstableness of FCC operation rate etc.

### **PRICE:**

After reaching US\$1,150/MT in August, North East Asian spot Propylene price started weakened from September due to the above reasons and has dropped to low mid US\$900's/MT at this moment. South East Asian market is also down trend due to Indian cargoes flow to this area etc and it's currently moving around low mid US\$900's which is same with North East Asian level. It's estimated a little bearish trend will be continued for 4Q and even though it's not easy to estimate future price movement due to unclear balance 2010, it's expected a little up-trend movement because of more scheduled turnaround during 2Q-3Q.

## 4. BUTADIENE

### Price Forecast

		OCT.	NOV.	DEC.	1Q (JAN.-MAR.)	2Q (APR.-JUN.)
EUROPE	CONTRACT	EURO <b>900</b> /MT (Confirmed)			→	↗
	SPOT	US\$ <b>1450-1500</b> /MT	US\$ <b>1350-1450</b> /MT	US\$ <b>1300-1450</b> /MT	→	↗
USA	CONTRACT	¢ <b>68</b> /LB	¢ <b>65-68</b> /LB	¢ <b>65-68</b> /LB	→	↗
	SPOT	¢ <b>70-75</b> /LB	¢ <b>65-75</b> /LB	¢ <b>65-70</b> /LB	→	↗
ASIA	SPOT	US\$ <b>1350-1500</b> /MT	US\$ <b>1300-1450</b> /MT	US\$ <b>1350-1450</b> /MT	↗	↗

### EUROPE

#### SUPPLY/DEMAND:

Butadiene balance became a big surplus during 1H of this year because of weakened demand in Europe and US, and as a result around 70KT Butadiene has been exported to Asia. It has been almost balanced during 3Q because of import demand from US and showed regional recovery of synthetic rubbers demand for automobile use caused by tax reduction system effect.

Although current trucks production is very weak with only around 50pct of the previous year's result, middle or small size automobile demand is recovering to around 80pct level.

Although it is expected demand will be keeping firm during this year, it's not easy to figure out the situation from next January onwards because of uncertainty of each country's governmental tax system continuation.

On the other hand, crackers operation rate adjustment possibilities are getting higher due to worse crackers economics occurred by Ethylene and Propylene's derivatives flow from outside of Europe. Therefore it is expected next year's Butadiene balance will be relatively tight because concern for supply decrease is bigger than it for demand decrease.

#### PRICE:

4Q contract price has been settled at Euro900/MT. Even though such contract price is lower than spot level, it is expected future demand for both of outside of Europe and regional will be slowing down and therefore there was no higher offer price from sellers for this contract price negotiation. Spot price has also started decline gradually and it is expected it will become around US\$1,300-1,400/MT level in near future from current level at US\$1,450/MT.

### USA

#### SUPPLY/DEMAND:

Even though supply has been choked, because of car industries decline and demand decrease

for home appliance it has been big surplus during 1H/2009. And as a result, same with Europe, it has exported 50-60KT butadiene to Asia from North and South America. Due to more demand for automobile tire affected by governmental tax system, regional Butadiene demand started recovering from summer period. However number of new registered cars for October is estimated to drop to 600,000 levels from September with 1 million. Considering the reality that tax system was only effective for short span and such budget amount has been already spent out, it is concerned recession will be continued for middle or long term basis in near future. On the other hand light feed cost advantage to Naphtha will be keeping and CC4 and Butadiene's supply tightness will be continued. Therefore the key of the balance shall be count on its balance.

### **PRICE:**

Although supply has been tight because of lightening of feedstock, rapid price increase like Asia, have not happened until 2Q due to unstable domestic demand. However the tight situation has been seen since 3Q. This comes from the Reasons of the shortfall of the exportability from Europe, and quick recovery for the automobile industries.

As a result spot price increased to ct80/lb in September which is almost three times of June price with ct25/lb. It is expected price in 4Q will be gradually down trend due to lower demand by unclear future balance estimate and termination of tax system. Contract price has been increased to ct65/lb for September and October one is expected to be settled with ct2-4/lb increase considering future balance even though suppliers are requesting ct4-5/lb increase. It is expected balance will be softened during 4Q temporally as mentioned above and there are some possibilities of downward revision from November.

### **ASIA**

#### **SUPPLY/DEMAND:**

Demand has been very strong during 1H/2009 because of Chinese car industries quick recovery which was totally unexpected in the end of last year. Chinese middle or small size cars production level is reaching around 10 million per year bases. On the other hand supply has been reduced because of continuous lower cracker's operation rate and troubles in Iran, India etc and regional shortage became serious. Although import volume from North and South America and Europe was over than 120-130KT during 1H/2009, that could not cover Asian shortage balance. It has been keeping tight during 3Q continuously because of demand recovery from Japan and Korea, from middle of September Chinese buyers started refrain of purchasing due to new Butadiene crackers operation starting (Fujian 130KT, Dushanzi 150KT) and US's announcement of anti-dumping to tires made in China. It is scheduled new production plans starting in near future like Panjin 65KT, Shell Singapore 155KT, it will become surplus balance. However demand and price decrease of Ethylene and Propylene shall be very sharp and Butadiene supply will be reduced due to lower crackers operation rate and as a result future balance is very uncertain.

**PRICE:**

Price has been increased from US\$350/MT in the beginning of this year to US\$1,750/MT to September due to strong demand from China and Korea. However it's facing adjustment period from October because of new Butadiene production units starting and price drop of natural rubber and current price is down to US\$1,450/MT. Both of supply and demand will be very uncertain and future price range will be also very wide with between US\$1,300-1,700/MT.

## 5. BENZENE

### Price Forecast (SPOT)

	Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
E U	US\$ <b>730</b> /MT	US\$ <b>730</b> /MT	US\$ <b>680</b> /MT	→	→
U S A	US\$ <b>770</b> /MT	US\$ <b>750</b> /MT	US\$ <b>700</b> /MT	→	→
A S I A	US\$ <b>700</b> /MT	US\$ <b>700</b> /MT	US\$ <b>650</b> /MT	→	→

#### **Europe**

##### **SUPPLY & DEMAND:**

Although intra-regional economy generally started on a gradual recovery trend, demand for derivatives remains weak in murky situation. Long position of BZ remains in European market due to inflow from outside and increased operation rates in 3Q. Some of SM produced by newly increased SM started in the Middle East is expected to be exported to Europe, and this will have a negative impact on regional BZ demand once it causes a restructuring of SM chain including its derivatives in the future. Arbitrage both of to/from other regions will occasionally open.

##### **PRICE:**

It is a thought that intra-regional BZ demand continuously reflects the price difference with BZ price in other regions as before. BZ balance has softened and price is estimated to be weaker relatively, although it depends on crude price. Meanwhile, Europe contract price in Oct was reported to be settled at Euro505/MT which was approx. US\$734/MT (Europe contract price in Sep was Euro576/MT which was approx. US\$828/MT).

#### **USA**

##### **SUPPLY & DEMAND:**

Demand for domestic derivatives remains weak and reduced operation continues with reflect to the lackluster demand. While on-purpose BZ production has been kept as low as possible due to its thin margin, there is a possibility that high inventory of petroleum products bring refinery operation rate into lower level and BZ production may stagnate as a result. Although SM export to South America is expected to steadily increase in the medium- and long- term views, SM export to Asia will decrease as newly projected SM plants in Asia and the Middle East will start. Accordingly, demand is concerned to be reduced further, depending on supply/demand trends of SM export to Europe and South America. In the years ahead,

adaptation to MSAT II applied from 2011 is expected to lead BZ plants to be abolished or merged further.

**PRICE :**

It is expected that price may be in upward depending on top-heavy production and crude price trend, while price tends in general toward downturn by inflow from outside and visible signs of further reduction of inventory towards the end of the year. US contract price in Oct was settled at US\$2.60/GAL (US\$778.18/MT).

**ASIA**

**SUPPLY & DEMAND :**

While derivatives demand has recovered led by China and export to outside the regions has been stable, China turned to net BZ exporting country after starts-up of several new plants and Asian BZ balance has been regularly in long position especially in Far East Asia. Due to sluggish petroleum products demand, such as middle distillate, BZ production from reformer has been reduced especially in the countries in which operation rate of refinery has been low, and weak PX price possibly forces TDP operation at lower rate. Furthermore, operation rate of steam cracker had been almost full in 3Q begins to decline and it also may affect BZ production slightly. On the other hand, new BZ plants in China and delay of starting up of new SM plants softens BZ balance. Although active export to US which was witnessed in 3Q has been scarce because of recent narrowed spread between Asian and US price, export to outside of the regions will keep the intra-regional BZ balanced. On-purpose production sources, such as HDA, TDP and etc., are forced lower operation due to bad economics.

**PRICE :**

It is unlikely that BZ price rises firmly with sluggish BZ price in other regions and SM price in Asia. Inter-regional export and import remain continue and BZ price in Asia will move structurally in tandem with price in USA and Europe to adjust supply/demand balance and price gap. While recent BZ price has had downward momentum due to weak SM price, even in the medium- and long- term views, Asian BZ price subsequently remains at lower level compared with those in other regions because of structural excess in supply, and spread with crude and naphtha price will be subsequently squeezed. Asian contract price in Oct was settled at US\$700/MT as well.

## 6. STYRENE MONOMER

Price Forecast(SPOT)

	Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
E U	US\$ <b>1000</b> /MT	US\$ <b>1000</b> /MT	US\$ <b>950</b> /MT	→	→
U S A	US\$ <b>970</b> /MT	US\$ <b>950</b> /MT	US\$ <b>900</b> /MT	→	→
A S I A	US\$ <b>950</b> /MT	US\$ <b>950</b> /MT	US\$ <b>900</b> /MT	→	→

### **EUROPE**

#### **SUPPLY & DEMAND:**

Regional derivatives demand is weak. Following the closure of several Styrene derivatives plants as INEOS just announced the closure of its 90kt Polystyrene unit at Breda, Netherland by the end of the year; more than 20% of West European GPPS capacity will have been closed over a three year period. On the supply side, Styrene production from PO/SM plant has decreased due to the profit deterioration of PO since beginning of this year, although currently styrene plant operation rate remain relatively firm following by the profit recovery of the PO/SM plant since 3Q/2009. Styrene import from U.S. periodically continues for the time being under this shrink market and supply-demand is more balanced.

#### **PRICE:**

The forward curve is strongly backward because spot Styrene for October increased to US\$1,100/MT level with significant buying for the short coverage by one Styrene producer before the October contract price negotiation, while spot deals for November are only traded at around US\$1,000/MT with anticipation of downward trend in accordance with the lower Benzene and lackluster Styrene and its derivatives demand. The contract price for October (FD) was settled at Euro829/MT which was Euro45/MT lower than the contract price for September.

### **USA**

#### **SUPPLY & DEMAND:**

Overall domestic demand is poor as it will take more time for the U.S. economy to recover and also consumers are pulling down inventories for the year-end. On production, the supply availability for October and November will be lower than normal because several turnarounds, such as AMERICAS STYRENICS, INEOS NOVA and SHELL are scheduled. On the other hands, the export arbitrage in near term has closed to Asia and Europe due to the bearish sentiment in each region.

**PRICE:**

Styrene price will move closely tied to the Crude oil and Benzene price. It is anticipated that Styrene price will remain at low level because some of export volume and opportunities for Asia will not be sustained with new production coming on line in the Middle East and China, and also lackluster regional demand for the time being.

**ASIA****SUPPLY & DEMAND:**

Styrene demand is steadily firm supported by the recovery of Chinese domestic demand, but regional supply/demand balance is gradually eased with new capacities come on line in the Middle East and China. As for China, having a majority of total Asian demand, their import volume for the 1H/2009 remained quite steady at high level as last year but it is estimated that total import volume for 2H/2009 will decrease because of bearish sentiment in the near future and because consumers are securing required volume cautiously with anticipating possible risk for the further price drop.

**PRICE:**

Styrene price outlook over the medium term remains bearish with influence of new SM production in Middle East and China and also anticipation of weaker Benzene sentiment. Styrene price is correlated with the feedstock price very closely, but it is unlikely that Styrene price keep at high level compared to the feedstock price because import arbitrage from USA where has enough idling capacity will open even if Asian market price temporarily rise.

## 7. PARAXYLENE

### Price Forecast

		Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
E U	CONTRACT	EURO <b>615</b> /MT	EURO <b>625</b> /MT	EURO <b>615</b> /MT	→	↗
	SPOT	EURO <b>615</b> /MT	EURO <b>625</b> /MT	EURO <b>615</b> /MT	→	↗
U S A	CONTRACT	¢ <b>42.25</b> /LB	¢ <b>43.00</b> /LB	¢ <b>42.25</b> /LB	→	↗
	SPOT	¢ <b>42.25</b> /LB	¢ <b>43.00</b> /LB	¢ <b>42.25</b> /LB	→	↗
A S I A	CONTRACT	US\$ <b>840</b> /MT	US\$ <b>875</b> /MT	US\$ <b>860</b> /MT	→	↗
	SPOT	US\$ <b>840</b> /MT	US\$ <b>875</b> /MT	US\$ <b>860</b> /MT	→	↗

### Europe

#### SUPPLY & DEMAND :

The dull balance is hovering at significant level than usual due to the decrease of demand induced by the shutdown of ARTENIUS UK PTA unit from February 2009, the rapid rise of PET imports from outside area, and the reduction of export opportunity for Asia or USA. On the production side, the completion of EXXONMOBIL capacity expansion enhances oversupply all the more. Meanwhile, decreased production of CDU can be found (e.g. less 5% operation rate of BPRP CDU) due to economics. If such a trend to be continued, PX makers in Europe will be placed in difficult situation between excess capacity and high cost of feedstock. PETROGAL decided to shut down their PX unit from end of this week for 30 days, and EXXONMOBIL consider adjusting the operation rate of one of their PX line for the purpose of ameliorating their economics by repressing resent dull balance.

#### New expansion as of 2009 (Product • Company name • Capacity • Completion)

PX	PKN ORLEN	450KMT	4Q/2010
PTA	PKN ORLEN	600KMT	4Q/2010(halt)
PTA	ARTENIUS (Portugal)	700KMT	1H/2011(halt)

### USA

#### SUPPLY & DEMAND :

The demand of downstream products seems to increase apparently by new PET capacity of INDORAMA. However it is expected the demand growth is limited due to economics recession, PET bottle lightning, and the effort of raising recycle rate of PET bottles by major bottlers. The PX demand in the medium term seems to follow the above situation of downstream products. On the production side, supply is quite enough because of peak operation rate of refinery preparing winter demand season. The fact that BP restarted their PX unit in Texas City in concert with PTA demand increasing for above INDORAMA capacity

can be one of stuff indicates enough production. Some small-scale PX unit started to prepare for shutdown considering their economics and the dull balance evolved from intraregional weak demand and the reduction of export opportunity to Asia.

## **Asia**

### **SUPPLY & DEMAND :**

The supply was limited in 1H/2009 due to the lack of feedstock caused by low operation rate of refinery and the delay of new PX unit start-up in China and Middle East. On the demand side, steady demand was continued under the boom of future PTA market supported by Chinese economic stimulus policy. And the price came to be higher under the situation that consumers who were afraid of overstocking continuously took spot cargoes off and on. Heightened sense of uncertainty about the future forced the consumers to buy the limited spot cargoes, which accelerated the price hike furthermore. The present balance is in temporary lull upon the confirmation as of September for certain start-up of new PX unit in China ahead of start-up in Middle East. Now, spread between NAPHTHA and PX is approaching at level of US\$250/MT stems from speculation of further oversupply. Some manufacturer started to work for decreasing their production considering the economics, and the possibilities that the tendency accelerates in future is high.

#### Schedule of Turn Around in 2H/2009 (Product • Company name • Period)





PTA	SAMSUNG PC No. 1,3,4	October/2009 • 10days
PTA	KP CHEMICALS No. 2	October/2009 • 15days
PTA	SAMNAM PC No. 3	November/2009 • 15days
PTA	KP CHEMICALS No. 2	October/2009 • 15days
PX	KP CHEMICALS No. 1,2	October/2009 • 15days
PX	FCFC No. 2	October/2009 • 45days
PX	SK ENERGY No. 1	October/2009 • 30days

## **PRICE**

Oct. ACP is partially settled at US\$840/MT between EXXONMOBIL and major buyer, and Oct. EUCP fixed at Euro615/MT in concert with ACP. It is difficult to assume drastic raise in 4Q/2009 considering start-up of new PX unit in China on September 2009 and the market participants share the sense of caution that Middle East PX starts to be distributed to Asian district as world demand center. Meanwhile, the balance may come to be tight in the short term by the continuous spot procurement on based of low inventory of PTA makers and adjusting operation rate of refinery along the way. The present price seems to be out of proportion to the benefit would be redressed autonomously.

## 8. PTA

### PRICE FORECAST

		Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
A S I A	CONTRACT	US\$ <b>730-760</b> /MT	US\$ <b>770-800</b> /MT	US\$ <b>750-780</b> /MT		
	SPOT	US\$ <b>720-750</b> /MT	US\$ <b>760-790</b> /MT	US\$ <b>740-770</b> /MT		

### EUROPE/USA/ASIA

#### DEMAND :

Chinese polyester market in 2009 is expected to grow by more than 10% per year supported by expanding domestic demand created by government stimulus packages, despite the previous pessimistic forecast of world polyester industry under global recession. In Indian market, stable growth is expected since the market basically depends on the domestic demand. In the second half of this year, overall Asian markets would remain firm by expected recovery of Chinese polyester export to the world market which is in some recovery after the recession.

In Europe, PET makers are still under the severe circumstance facing competition from PET of new capacities in Middle East since the last year. The demand remains the same as the last year due to favorable weather although that was once expected to be shrunken by influence of further lightening of bottle weight and the more use of recycled PET. However, the demand from 2H/2009 is still expected to be bearish since the economy remains sluggish.

#### SUPPLY :

In Asia, the supply was very tight because, firstly PTA makers were forced to limit the operation due to shortage of PX and lastly MCPI No.2 (800KT/Y) and YISHENG DAHUA (1,500KT/Y) were in delay of operation. From now onwards, PTA production would be normalized by stable PX supply out of new lines, and PTA makers would achieve full operation in order to improve the low inventory. However, PTA supply is expected to have oversupply after starting up of PENGWEI (900KT/Y, 4Q/2009) and JIALONG (600KT/Y, 2010).

Regarding the Chinese anti-dumping issue against Korean and Thai origin PTA, the survey by Ministry of Commerce is still continued. The provisional arbitration would be postponed to October onwards.

In Europe, the supply is maintained stable, although the supply from ARTENIUS/Wilton plant was stopped in March due to the plant closure the deficit was well covered by supply from





BP/Geel which had completed debottlenecking (350KT/Y) in time. On the other hand, PTA projects by PKN ORLEN (600KT/Y, 4Q/2010) and ARTENIUS/Sines (750KT/Y, 2011) seem to be suspended by lack of capital.

**PRICE :**

The spot price for China reached to US\$ 960/MT at the beginning of August in the light of rebounding Crude Oil/Naphtha price and tightening PX supply. However, in September it slipped to US\$ 780/MT under the pressure of the polyester inventory temporally increased. In future it seems not to be easily improved because PX would be bearish while inventory would be normalized by the end of October due to seasonal demand.

## 9. Mono Ethylene Glycol

### PRICE FORECAST

		Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
A S I A	CONTRACT	US\$ <b>800</b> /MT	US\$ <b>750-850</b> /MT	US\$ <b>750-850</b> /MT		
	SPOT	US\$ <b>700-800</b> /MT	US\$ <b>700-800</b> /MT	US\$ <b>700-800</b> /MT		

### EUROPE/U.S./ASIA

#### DEMAND :

As described in PTA.

#### SUPPLY :

The expected big oversupply has not yet become realized due to unstable operation of new capacities in Middle East and the production cut at Naphtha-based producers out of economic reason. In future, this situation would not change much because these economic reductions and more closures of uncompetitive plants could be a buffer against the big oversupply.

In EU, domestic supply in 2010 would be diminished by half compared to that of 2008 due to the total capacity decreases, for example, DOW's plants closures at Terneuzen and Wilton and the likely closure of IQA plant which has recently suspended its production. These deficits, meantime, could be compensated by the imported cargoes from Middle East.

In US, despite announced plants' closures such as DOW/Taft and PD GLYCOL; it would continue to be in oversupply position because of the fact that SHELL/Canada would shift the quantity originally for Asian market to US domestic market.

#### Major Expansions in future

SHARQ 4	Saudi Arabia	700KT/Y	4Q/2009
SHELL	Singapore	750KT/Y	4Q/2009
SINOPEC/TIANJIN	China	420KT/Y	4Q/2009
LIAONING HUAJIN	China	200KT/Y	1Q/2010
ZHENHAI	China	650KT/Y	2Q/2010
IOC	India	300KT/Y	3Q/2010

#### PRICE :

Its outlook for 4Q/2009 is still very unclear in the light of several uncertain factors such as prospective credit crunches by Chinese government, existing high MEG inventories in East China, outcome of usual upcoming seasonal demand for polyesters and cutback of MEG production. In future, although it would temporally soften when new capacities start up; it could finally converge in the range of "Naphtha + US\$100-120/MT".

## 10. CAPROLACTAM

### GENERAL REMARKS:

Compared to the slowly improving nylon demand in US, smooth recovery is seen in European and Asian nylon demand thanks to various measures by each government to stimulate economy. In general view, the world CAPROLACTAM demand has been getting healthier through 2Q-3Q/2009. Across the world today, the market pays the most attention to the demand in China after its National Foundation Days, which has taken initiative to overcome the worst time of the economic crisis and led the world nylon market. With the possible tight money policy and/or depressed demand caused by excess inventory, it will be a significant key whether the China can maintain its healthy market even after the holidays. In addition, the Ministry of Commerce of People's Republic of China started to conduct an investigation for Anti-Dumping duty (A.D.) on NYLON6 CHIPS in April 2009. It is said that the Ministry will announce a tentative decision during the period of end October to December 2009. The tax rate and other details are still not disclosed. As for US, on September 11, 2009, the US government announced the additional tax imposition to the tires manufactured in China (implemented on September 26). However, major opinion is that its influence on Chinese nylon industry will be limited because the Chinese nylon tire-cord is mainly used for big automobiles such as buses and agricultural/mining vehicles.

### SUPPLY:

In Asian region, the following plants' turnarounds are planned during 4Q/2009;

- UBE (1line) in Ube city, Japan
  - 50 KMT...Scheduled for approximately one month from October 2009
- SUMITOMO in Niihama, Japan
  - 180 KMT...Scheduled from October 20 to end of November 2009
- CPDC in Taiwan
  - 180 KMT...Hsiaokang (Kaohsiung) plant. Scheduled for 45days from middle of December 2009
  - 90 KMT...Toufen plant. Scheduled for 2-3 weeks from middle of October 2009
- CAPRO CORP in Ulsan, Korea.
  - 270 KMT...Scheduled for 2-3 weeks in October 2009

In addition, SHIJIAZHUANG new plant (100KMT) has been continuing operation tests but some technical problems still delay the starting of commercial production. THAI CAPROLACTAM PUBLIC COMPANY LIMITED (TCL) will start the operation of new polymerization facility (+50KMT) in October 2009, and its sales volume of CAPROLACTAM will be reduced. As for European region, the volume from Europe to Asia will be limited because of the recent domestic demand recovery. Due to those factors, it is expected that the CAPROLACTAM supply will be tight through the end of the year 2009.

#### DEMAND:




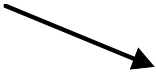



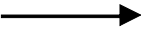

European automobile production has been recovering since 3Q/2009, and the total production in 2009 will be increased compared to one in 2008. This trend is derived from the stimulatory economical campaign by EU government and the large production restriction led by European Union from 4Q/2008 until recently. Now accompanied with the healthier automobile industry, the European nylon demand has also been improved. In Asia, the Chinese demand, which has remained healthy through 2Q-3Q due to the political support, will hold the key to predict the Asian whole demand after the Chinese national holidays in October.

#### PRICE:

Since 4Q/2008 the price spread between CAPROLACTAM and BENZENE has been narrowed to less than USD\$1,000 because of the distortion of Supply and Demand balance which also has squeezed the CAPROLACTAM producers' profitability low. However the same spread is now widening since August and during 4Q/2009, Supply and Demand balance will be much more tightened, and the price spread will be maintained on the appropriate level.

## 11. ACRYLONITRILE (AN)

### Price Trend

	4Q/09 (Oct-Dec)	1Q/10 (Jan-Mar)	2Q/10 (Apr-Jun)
EU			
USA			
ASIA			

### **OVERALL IMPRESSION:**

AN supply-demand balance have rapidly recovered driven by Asia (mainly China), in line with recovering economic condition all over the world as well as recovering demand in petrochemical sector from beginning of 2009.

Price difference between AF and POLYESTER FIBER has been drastically reduced and also AF production capacity has been consolidated in global-scale, AF producers have recovered up to full operation level at the end of 2Q-3Q.

ABS has not yet recovered to the last year level, but its operation ratio has achieved large improvement same as AF due to governmental plan for economic stimulus that supported demand recovery of car industries, although still on the way to recovery, as well as strong growth of domestic demand in China supported by governmental policy to expand domestic-demand. Meantime, cautious movement can be seen nowadays worrying about demand decrease of AN derivatives which are entering demand off season.

Also, there are opinions pointing out the possibility of change in structure of AN supply-demand and in its trade flows among regions in line with many AN plants production stops.

To sum up, slight adjustment can be considered to happen on AN supply-demand balance after current tight balance situation is over but it will possibly be tight again toward the middle of 2010 due to supply decrease and demand increase in high season.

### **SUPPLY:**

In line with the wide ranged operation adjustment carried out by each AN producer, AN inventory level was low in 1Q/2009. Thereafter, backed up by rapid recovery of AN derivatives demand , AN operation ratio now have reached high level having got rid of sluggish period in 2H/2008 completely.

By region; Asian AN operation ratio achieved great recovery where AN derivatives demand is strongly glowing, in Europe total demand is also moving stably supported by the good

demand for AF. While in USA, where feedstock PROPYLENE price is soaring, the operation recovery of AN remains at limited level.

After NPRA this year, following REPSOL/ Spain (130KMT p.a., halted in 2009 May), and LUKOIL/ Bulgaria (45KMT p.a., halted in 2009 June), LUCITE/ USA (145KMT p.a.) also announced to discontinue operations at end of 2009. Counting in these changes there are opinions that AN export volume from USA would be decreased so that European AN supply-demand balance will be tightened.

As for new & additional capacities of AN, JILIN PETROCHEMICAL/ China may start operating No.3 line in 4Q/2009 out of these completed 2 lines (No.3 & 4, 110KMT p.a. X 2) however, total AN supply volume may not be increased as they have to stop one of the current unit (No.1 & 2, 110KMT p.a. X 2) due to feedstock PROPYLENE shortage, INEOS/ USA has completed the additional capacity (84KMT p.a.) but not yet started operation, PEMEX/ Mexico (65KMT p.a.), a group of UNIGEL, may restart operation in this month however, incremental export availability is considered to be limited to only 10KMT p.a.

#### **DEMAND:**

**ACRYLIC FIBER (AF):** From the beginning of 2008 to the end of 1Q/2009, four Chinese AF plants halted operation, but the following AF demand increase has made Chinese AF operation recover up to full operation level. This year Chinese total AF demand volume (Mill demand) will be expected to increase more than 10% compared to the last year, getting rid of continuous three consecutive years decrease. Pricewise, AN-AF spread has been drastically improved and AF producers can enjoy their profit.

In the region other than China both AF demand and production are also steadily moving. However there are some concerns about the most recent decrease of sales volume and increasing of distribution inventory.

**ABS:** ABS demand is steadily increasing in line with the recovery of cars and home appliances production. Especially demand for transparent plastics are very good such as transparent ABS and SAN etc., to be used for high value added products such as power-saving LED TV etc. With anticipation of main feedstock high prices, many inquiries both from end users and traders are rushing so that ABS inventory at producers is at low level.

Currently, main feedstock prices are under adjustment and sentiments now are wait and see, but producers are also expected to adjust operation slightly, so fundamental supply-demand balance could be possibly maintained in a good level.

**ACRYLAMIDE:** In line with crude oil price recovery, demand for Enhanced Oil Recovery is also rebooting. Demand for Water Treatment, one of the major uses, is increasing in line with glowing environmental consciousness. AN demand from ACRYLAMIDE sector is expected steadily growing.

**PRICE:**

PROPYLENE price is rapidly increasing, while AN price cannot be increased in order to meet such feedstock hike, consequently profitability of AN producers is still not improved enough even though it has already overcome the worst period in the beginning of 2009. In line with AN supply-demand tight balance, it is considered AN producers tend to proceed toward achieving spread improvement.

The AN market from now on would be forecasted as follows; there will be once slight and short lived price adjustment in reflection of the current feedstock, PROPYLENE price adjustment as well as AN derivatives prices now softening for off season, thereafter, however the market will start again gradually to be firm entering into an uptrend toward the next high season period.

**TOPICS:**

Peoples were pointing out a possibility of future decrease of US AN export to Europe and Asia as a result of AN plant stop by LUCITE/USA and lowered operation by the other AN producers in US. Also AF demand became a popular topic of conversation; on how long will it last as it continues booming longer than expected.

## 12. CAUSTIC SODA

### **EUROPE**

#### **SUPPLY & DEMAND:**

- The operation rate in August remained at further low level of 70% under influences from plant trouble, annual shutdown and production cutback. (The average operation rate in 2008 and 1H/2009 are 80% and 68% respectively)
- Not the seasonal demand increase after September but rather supply decrease in the same period contributes to improvement of supply and demand balance in the market.
- In 2H/2009, it seems that both supply and demand will fall to well below 90% compared to the same term in last year due to poor demand of chlorine derivatives.
- Reacting to the announcement of price increase by US manufacturers, US customers in East Coast have contacted European manufacturers; however there is a price gap between suppliers and customers, and the export availability is limited.

#### **PRICE:**

- Market price in Europe hit bottom in August due to recovery of supply demand balance, which was realized by preceding improvement of market price in US and by limited supply of caustic as a complementary response for poor ECU netback from chlorine side. In September, suppliers have increased price slightly by Euro20-30/DMT in some regions, and current market price is around Euro230-250/DMT (US\$340-370/DMT).
- Although suppliers have announced price increase by Euro80-100/DMT for the contracts for 4Q/2009, it seems that the negotiation will be protracted due to slumping demand condition.
- Export price for US East Coast, which has once reached as low as US\$50/DMT FOB in August, has recovered to US\$150-180/DMT level with such limited export availability from Europe and preceding price increase in US. East Coast market.

### **USA**

#### **SUPPLY & DEMAND:**

- The operation ratio of electrolysis in August was 85%, which was a record high ratio since November 2008, the improvement was mainly due to the improvement of Chlorine value (the annual average ratio of 2008 was 83 and the average ratio in 1H/2009 was 72%). Even in these situation, it seems that the operation ratio will be reduced to lower to meet the demand of both Caustic Soda and Chlorine because the demand of Caustic Soda has continued to stay stagnant, and the demand for Chlorine derivatives like PVC is not recovering more than expected
- ECU cost at US Manufactures has been more competitive than other manufacturers due to the lower price of Natural gas (estimated ECU cost by US manufacturers:US\$200-250 vs. by other manufacturers:US\$350-400).
- The negotiation of Alumina contract price for 2H/2009 is under way individually between US manufacturers and Alumina manufacturers in Latin America, same as in 1H/2009.

- Due to lower demand from Alumina manufactures in Latin America especially from June to August, US manufacturers were forced to export some amount of quantity for Australia, Asia on a spot basis to adjust the supply and demand balance in USA. However since September, when the market situation was recovered in domestic market after price up announcement in August, these spot business would be decreasing (The export in 1H/2009 was decreased by 10% compared to 1H/2008).

### **PRICE :**

- As the result of spot exports in summer for Australia and Asia as well as usual destination, Latin America, the inventory level was kept at normal level, and since customers of Chlorine derivatives had little allowance to accept price increase anymore, the manufactures announced the price increase of Caustic Soda in August 2009 several times. These price increases as a total amounted US\$180/DST (IM), US\$150/DST (Diagram).
- While the Caustic demand continue to stay low, the demand of Chlorine stays low too. In consequence electrolysis operation ratio would be low with less room for additional supply. Spot prices hit the bottom in August (US\$80-100/DST=Domestic, US\$20-50/DMT=Export), and these prices turned to uptrend in September (US\$130-150/DST=Domestic, US\$140-150/DMT=Export). As the contract price, an initial increase was accepted by US\$60-90/DST, but additional price increases are facing difficulty because the buyers are resisting with high inventory build up from their protective pre-buying.

### **ASIA**

#### **SUPPLY & DEMAND:**

- The demand in Far East Asia has seemingly hit the bottom in 1Q/2009, however the demand has been still generally weak, and the operation ratio remains at about 80%. Besides, the export from China has been decreasing after 2Q/2009 due to steady domestic demand; therefore, the spot exports from Far East Asia and China have been limited.
- Due to the downward trend of Chlorine netback toward the end of 2009, the pressure to raise price of Caustic Soda will become stronger. However, it will take longer time before the recovery of the demand from North America and South East Asia is realized, so it will be difficult to expect higher spot prices for sometime to come.

### **PRICE :**

- The Asian regional price, which reached around US\$100/DMT FOB as the bottom, has been recovered to US\$170-180/DMT FOB. The contract price for 2H/2009 for Australian Alumina manufactures were fixed at US\$180/DMT FOB after laborious negotiation.
- There is a signal that the conventional export from Asia to US. West Coast is recovering, however the second price increase in USA market needs more time to be achieved, and Asian price has still difficulty to raise over US\$200/DMT FOB.

### 13. VINYL RAW MATERIALS

Price forecast(VCM)

		Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
U S A	SPOT	FOB US\$ <b>600-650</b> /MT	FOB US\$ <b>580-620</b> /MT	FOB US\$ <b>550-600</b> /MT	→	↗
	100%	CIF US\$ <b>690-710</b> /MT	CIF US\$ <b>670-700</b> /MT	CIF US\$ <b>650-700</b> /MT	→	↗

#### **USA**

##### **SUPPLY & DEMAND:**

In 1H/2009 EDC/VCM export quantity from USA was drastically shrunk compared to 2008, respectively 208KT was of EDC, down by 43%, and 409KT was of VCM, down by 22%. Considering the decrease of PVC production in US, the supply volume of EDC/VCM seems to be dropped more significantly. This situation would last for awhile due to the following reason. 1) PVC domestic demand would not recover so sharply, 2) Operation of C/A plants might be obliged to be at low level and 3) Export of VCM for European market and EDC for Asian market would not be active in the light of poor PVC demand there.

##### **PRICE:**

With decreasing inquiry from potential market like China, FOB price of EDC might be below US\$300/MT FOB in near future, and the SPOT sales of VCM have been limited. It seems that some spot VCM export was done at US\$650/MT FOB for September shipment.

#### **EUROPE**

##### **SUPPLY & DEMAND:**

In concert with the depressed PVC demand, which is mentioned around minus 30% compared to last year, the demand of EDC/VCM in 1H/2009 was also decreased drastically. In the same period the demand of caustic soda was also at low level in this region, thus the supply/demand balance of PVC and EDC/VCM seemed to be in equilibrium. However, the VCM supply has been negatively influenced by the accident with lightning on VCM unit of INEOS/Norway and the shutdown of ARKEMA/France with their cracker trouble, and as the result some of VCM cargoes have been supplied from US. These troubles would be recovered in October, so the demand/supply balance thereafter seems to be affected by the PVC demand in the market.

In east European market, some of the VCM importers like BORSODCHEM/Hungary, ANWIL/Poland, and OLTCHIM/Romania etc have been obliged to reduce their PVC operating rate because of VCM supply stop from LUKOR/Ukraine, who has been facing a financial problem. Seems that LUKOR will resume production in 1H/2010, but TGL/Egypt, who is regarded as a potential supplier for this market, would delay the start of operation until 2H/2010. So East European PVC manufactures would be obliged to keep their production at low level for a while.

**PRICE:**

Currently in this region EDC/VCM seems to be almost in balance, and there is little transaction of EDC/VCM in inter European market; besides, some of PVC producers have still imported EDC/VCM on SPOT base, where the prices might be around US\$400/MT CFR for EDC, and US\$850/MT CFR for VCM. It would be influenced by the movement of PVC demand in near future.

**ASIA****SUPPLY & DEMAND:**

Because of price's rise of crude/naphtha, the Ethylene method PVC, which is based on the import EDC/VCM in China, has lost the cost merit. And both EDC/VCM import in China, which had recorded the maximum amount in 1H/2009, have now shrunk to the same or less amount as 2H/2008. However, it is expected that EDC/VCM demand will recover again in China due to the following reasons, 1) the crude/naphtha prices become weaker so far, 2) the Ethylene supply is now expected to be loosen because the start of a new Ethylene cracker would be in near future in Middle-East, and 3) there is no clear factor to expect decline in the cost of acetylene-based PVC. In expectation of good PVC demand in future, new PVC plants started to operate one after another in this region. CHEMPLAST/India started operation of new PVC plant (220KT/Y) in June 2009 and TGC (220KT/Y), which is TOSOH's subsidiary and started operation in 2007, have continued full operation from 2009. It would seem that EDC/VCM supply/demand become tight in near future due to the following reason, 1) TPC-VINA/Vietnam will build additional 100KT/Y PVC in 2009, 2) Additional VCM demand can be expected as the raw material for PVC substituting acetylene-based PVC, and 3) there is no new plan for building EDC/VCM plants corresponding to the new increasing PVC capacities.

**PRICE:**

In this region, the contract price in September shipment was around US\$400/MT for EDC and from US\$710/MT to US\$720/MT for VCM. At the time of writing, the contract prices of EDC/VCM for October shipment is right in the middle of negotiation. However the negotiation is not progressing smoothly due to the stagnation of PVC demand, which had once been under the upward trend in this region, especially India and Middle-East, but the slowdown of PVC demand has made the buyers more cautious. As for EDC, there is some information that might kindle downward trend here and there in this market. For example, there is a rumor that EDC from outside like Brazil has been offered with special cheap price, about US\$350/MT. On the other hand, in case of VCM, some buyers want to reduce the price, down to US\$700/MT or less. But VCM supply at present is not satisfactory enough because of the turnaround in TOSOH and HANWHA, as a consequence, it is regarded that the VCM would not drop down as drastically as expected.

## 14. PVC

### Price forecast (PVC)

		Oct	Nov	Dec	1Q (Jan-Mar)	2Q (Apr-Jun)
U S A	CONTRACT	¢ <b>58-60</b> /LB	¢ <b>56-62</b> /LB	¢ <b>56-62</b> /LB	→	→
	SPOT	FOB US\$ <b>790-810</b> /MT	FOB US\$ <b>750-800</b> /MT	FOB US\$ <b>750-800</b> /MT	→	→
F E	SPOT	CIF US\$ <b>840-870</b> /MT	CIF US\$ <b>820-840</b> /MT	CIF US\$ <b>800-820</b> /MT	→	↗

### Euro

#### SUPPLY AND DEMAND :

The year before last the demand of PVC recorded over 5,000KMT and last year it was also at the same level. But this year it has been dramatically dropped, the record shows 30% down from that of same period last year. We estimate the volume of 2<sup>nd</sup> half will be 10% to 15% decrease from the same period last year, thus the total demand will be 4,000KMT in this year. The reason of this decrease is that the demand of PVC for construction has been decreased, mainly for window profile. We estimate there will be not much improvement in Euro economy; in consequence not much recovery will be considerable in PVC demand.

As for supply side, some suppliers in West Europe had to reduce production because of plant troubles. Suppliers in East Europe, like BORSODCHEM in Hungary and PETKIM in Turkey etc... could not arrange enough VCM and have been failed to keep their operation ratio at high level.

VINYLS ITALIA, which was once overtaken by some industrialist but had to stop operation, is going to re-start their operation under a help in finance from Italian government by the end of this year.

The volume of import cargoes, for example U.S. cargoes which are competitive under favorable raw materials costs, are limited owing to the slumping demand in Europe and the costs and difficulty of handling at the working site coming from the difference of packing style.

#### PRICE :

Euro 900-1,000/MT (delivered, equal to US\$1,300-1,450/MT) is the market price and has not changed these several months. Import product is offered at Euro600/MT CFR Antwerp (equal to US\$870/MT), but it is not influential at all to make the internal European price down. Instead, as regards influence on PVC price more concern would be paid to the price of Ethylene which will be affluent after the periodical shut down to be finished soon.

## **U.S.A**

### **SUPPLY AND DEMAND :**

Demand of Caustic soda showed once some recovery in some area, in consequence, the operation rate of Chlor-Alkali plant went up. The amount of PVC production in U.S.A for August was 552KMT, which was 1% up from same period of last year. However from January to August, the total quantity of PVC production in U.S.A was 3,800KMT, compared with the quantity of the same period last year, 4,300KMT, it was nearly 11% down. The most important reason of the decline was poor domestic consumption, especially slump in the construction of new houses. (The amount of PVC domestic sales was 15.5% down from the same period of last year.) On the other hand, PVC demand has increased in developing countries and the amount of PVC export from U.S.A in August marked 83KT, 19% up of the same month last year. From January to August, the cumulative total record was 7% up from same period last year. SHINTECH, which was newly built last year, will expand their PVC capacity by additional 300KMT next spring. Therefore if recovery of domestic demand takes more time, PVC suppliers should need to attach greater importance to PVC export.

### **PRICE :**

With the price down of Caustic Soda, the net back of ECU price has gone down. PVC suppliers have made efforts to raise PVC price from May. In consequence from August to September, there was the price hike with ct1.5/lb respectively. However Ethylene price, which backed up the PVC price up for these several months, has already started to decrease again and will be a trigger for domestic PVC price down.

On the other hand, until September there were so many inquiries from developing countries, like Turkey/AG and also from West Europe in which several plant troubles created emergency needs. However after October these demands have changed slowly. Some supplier has reportedly offered as low level as US\$850-870/MT CFR (the net FAS is US\$790- 810/MT). From now on more pressure will come to make PVC price go down, depending on the development of demand in importing countries, including China.

## **Asia**

### **SUPPLY AND DEMAND :**

Because Naphtha and Ethylene price was maintained at high level, the price of Ethylene based PVC has gone up since August to September. In the important market, China, Acetylene based PVC became competitive and its operation has gone up. Consequently the total supply-demand balance in China changed from short side to long side. As a result Ethylene based PVC suppliers in Far East Asia started to shift their destination to India, Turkey, and other Middle East countries. Especially in India, where this year's rainfall was less than normal in rainy season, PVC buyer's operation level was so high that the PVC stock level became very low. Taiwan and Korean supplier, they are free of anti dumping duty in India, enjoyed orders so much.

In contrast, at the negotiation for October shipment, because buyers had done overbooking for

September shipment and CHEMPLAST re-started their operation, as the result the import inquiries disappeared abruptly. In addition, PVC supplier in Europe and U.S.A, they had some plant troubles or at low operation ratio because of the low plant productivity of Chlor Alkali plant at summer season, have come back to the market. Therefore PVC sales competition in Far East Asia has come to be very severe and it will make PVC price down further.

**PRICE:**

The market price in China for August to September shipment has gone up to US\$900/MT. Under the situation as we mentioned above, PVC suppliers now have to offer at a little lower price than that of previous two months. Finally it is estimated that the agreed price will be at US\$850/MT CIF level for October shipment. From now on, the price of Ethylene will be estimated not strong and the seasonal PVC demand is not good in China and Europe. Therefore PVC price will grow weaker by the end of this year.