

Investors' Meeting for Business Strategy
for the Petrochemicals & Plastics Sector
Q&A Summary

Date and time: Thursday, October 8, 1 p.m. to 2:45 p.m.

Presenter: Tomohisa Ohno, Representative Director & Senior Managing Executive Officer

<Supply-Demand and Market Situation for Petrochemical Products>

Q. A total of 30 million tons of olefins are expected to be produced in China by coal-to-olefins and methanol-to-olefins projects. It is said that coal-to-olefins and methanol-to-olefins process technologies are cost-competitive when crude oil prices are above 70 dollars to 80 dollars per barrel. If oil prices stay at their current levels of below 50 dollars per barrel, to what extent do you think these coal-to-olefins and methanol-to-olefins projects will be implemented in China?

A. If crude oil prices move between 50 dollars and 60 dollars per barrel, I think the implementation of these projects will be delayed from a cost-effectiveness perspective. Compared to some years ago, such projects in China are now implemented after considering their cost-effectiveness, so there are fewer cases of plants going into the red after the start of operations. Therefore, we do not expect these projects in China to become a big threat to us unless crude oil prices recover to a certain level.

An increase in Iran's oil exports puts downward pressure on crude oil prices, but I don't think oil prices will remain at the current level of around 50 dollars per barrel. Crude oil prices have been rising in recent days, and I expect prices to continue rising gradually. Higher oil prices will lead to implementation of coal-to-olefins and shale gas projects. Our manufacturing bases in Japan and Singapore target customers who need value-added products and offer products that meet customers' demands, so these bases will not be directly affected by the launch of operations of new plants overseas. Our manufacturing base in Saudi Arabia produces products that will be in direct competition with products of these new plants, but our base in Saudi Arabia has cost advantages over our rivals if it can maintain stable operations, by using highly cost-competitive ethane as feedstock. Our business is thus in a good position to compete with new plants that will start operations.

Q. Slide 14 in the presentation shows cash margins on polyolefins. What is your view on cash margins? Is there any concern over margin erosion, as occurred in 2012 and 2013?

A. The bar graph in slide 14 indicates cash margins on general-purpose resins. When margins are negative, the supply of resins should decline, theoretically, due to production adjustments. In 2012 and 2013, however, despite negative cash margins, production was not adjusted, and the supply of resins increased following the start of operations of new plants in China. In the past, there were negative cash margins temporarily, but, in contrast to 2012 and 2013, large loss margins did not continue for long periods of time. We should consider such periods, when money-losing operations lasted for such a long time, as aberrations.

Margins were quite good in the first half of the current fiscal year. I think they were almost too good, benefiting from lower oil prices. In the second half of the year, we expect cash margins to shrink by 100 dollars to 200 dollars per ton from those in the first half. We hope margins will fluctuate within a narrower range amid recent changes in attitudes in purchases by Chinese customers, who have refrained from speculative purchasing, such as increasing or decreasing procurement volumes in anticipation of higher or lower market prices.

<Domestic Operations>

Q. You closed the MMA polymer plant and the liquid-phase caprolactam process plant at your Ehime Works. Are there any domestic businesses left that need restructuring?

A. Considering domestic operations at our Chiba Works and Ehime Works, there are no plants left that need restructuring at our Chiba Works. We closed our styrene monomer and propylene oxide joint production plant, from which no stable long-term profitability could be expected. Currently, only polyethylene and polypropylene plants as well as a propylene oxide plant using a proprietary process remain at the Chiba Works, but they are competitive enough. Unlike Chiba, our Ehime Works produce a wide variety of products. Among them, the performance of our caprolactam business is especially weak. At the Ehime Works, we closed our liquid-phase caprolactam process plant that was influenced by market prices of ammonium sulfate. But, unlike the Chiba Works, restructuring of the Ehime Works is not over yet. As business becomes more global, it is important to maintain our domestic operations. From this perspective, we want to retain our operations in Japan as much as possible. We will carefully consider the restructuring of the Ehime Works by closely examining structural changes in the business environment.

Q. Do you have any plans to use the former site of the ethylene plant at the Chiba Works?

A. The site is very conveniently located about one hour by train from Tokyo, and it is well equipped with utilities, so it could be used for a plant in the process industry. We want to consider various possible uses of the land, and we have not yet made any final determination.

<Operations in Singapore>

Q. It is said that utility costs are high in Singapore. How does it affect your business? In your operations in Singapore, higher margins on ethylene make Petrochemical Corporation of Singapore (PCS) profitable, and lower margins on ethylene make The Polyolefin Company (TPC) profitable. Can we consider this as your earnings structure?

A. It has long been pointed out that utility costs in Singapore are high. The Singaporean government is very much aware of the issue and has taken measures to address this issue. Utility costs have been decreasing in the past two or three years due to lower crude oil prices and new utility plants constructed at the encouragement of the Singaporean government. Utility costs are still high compared with emerging countries, but the situation has improved. The Singaporean government and industry agree that high utility costs are a big problem that must be resolved, and they are working together to solve the issue.

The earnings structures of PCS and TPC are a little more complicated, but as a general understanding, what you said is correct. Anyway, as our final products are polymer products, our basic strategy is to build good relationships with customers who need polymers of high value and to increase profit by offering high-value-added products.

Q. The graph in slide 25 shows TPC's shift to high-value-added products. Would you explain each product in the graph?

A. Let me explain from the bottom of the bar graph. EVA is polyethylene containing vinyl acetate, and HEVA is polyethylene with higher vinyl acetate content. These are differentiated products of low-density polyethylene. Demand for HEVA, which is used as an encapsulating material for photovoltaic cells, surged temporarily, but is now leveling off. There recently has been a shift in demand from EVA to higher-value-added HEVA. The red part of the bar graph shows random copolymer, and the green part shows terpolymer, both of which are polypropylene products. Random copolymer and terpolymer are mainly used as food packaging materials. TPC is the first manufacturer in Asia to develop markets for films and packaging materials, and its customers include leading food packaging producers. Amid growing demand in our areas of strength, we have been investing in plants and equipment. At the top of the bar graph is capacitor film, which is very difficult to produce due to the need to remove all impurities in the manufacturing process. We were able to launch a capacitor-grade product developed in Singapore, where we have a plant using a bulk polymerization process, which was suitable for producing this higher grade of product. We also offer many high-value-added low-density polyethylene products, which are used in a wide range of applications and still have great potential.

Q. There have been large fluctuations in the performance of your methyl methacrylate (MMA) business. What efforts, such as reducing procurement costs for the raw material, MTBE, are being made to improve profitability?

A. The price of MTBE, which is used to produce MMA, is linked to gasoline prices, but the price of MMA is determined by other factors. Unlike the prices of naphtha and polyolefin, which move in tandem with each other in the long term, the price of MMA sometimes moves opposite from the price of MTBE. When that happens, fluctuations in earnings get larger. In order to stabilize earnings, it is very important to ensure a stable supply of MTBE at low cost. For our MMA business in Singapore, we procure more than half of the MTBE from PCS. We are trying to lower procurement costs for MTBE from PCS and to purchase MTBE from outside suppliers at a low cost. In addition to reducing raw material procurement costs, we are also working to enhance the added value of MMA polymer, as most of the MMA products that we sell are polymers. When demand for MMA polymer for use in light-guide plates increased, we focused on cultivating this demand, and did not give enough attention to cultivating demand for other uses. We have dispatched researchers to Singapore to explore new applications. We can also expect synergy effects of the reorganization that took place in April of this year, through which our MMA business was transferred to the Petrochemicals & Plastics Sector, where staff engaged in our MMA business can learn about such things as TPC's shift to high value-added products.

<Petro Rabigh>

Q. In addition to operational problems, low margins on oil refining apparently were another factor in the unstable performance of the Rabigh Phase I Project. Do you have any plans to improve margins by upgrading oil refining facilities?

A. In order to make Petro Rabigh's profit base stronger, it is necessary to upgrade oil refining facilities. We are moving forward with the Rabigh Phase II Project, and after the operations of plants in the Rabigh Phase II Project become stable, we will consider investing to make the oil refining facilities more advanced. As it requires a large-scale investment, depending on the type of upgrades undertaken, we will consider making investments in several stages while thinking about the best timing of such investments. Looking at the past performance of the Rabigh Phase I Project, however, lost business opportunities resulting from the low operating rates of the plants had a greater impact than margin fluctuations. Therefore, for now, our priority is on maintaining stable operations.

Q. Among diversified chemical companies in Japan, your plants cause fewer accidents than others. Please tell me why your plants are operating smoothly. Your plants in Singapore also continue stable operations. Why is Petro Rabigh's plant operation unstable? Is it caused by the introduction of new technologies? New technologies are also introduced in the Rabigh Phase II Project. Are there any operational risks?

A. You have such an impression because large accidents occurred at other companies' plants. But there are no major differences in operating technologies among Japanese chemical manufacturers. Fortunately, no serious accident has occurred at our plants, but it is not because our plants are especially superior.

There are two factors behind the successful launches of our plants in Singapore. The primary factor was excellent human resources. In addition, we had enough time to provide training for employees, as our plants in Singapore were completed during a tough economic time in Asia and did not start operations until two years later.

Petro Rabigh's unstable operations were chiefly due to limited human resources rather than the introduction of new technologies. We have taken necessary measures, and we believe that operations will become stable sooner or later. As for the Rabigh Phase II Project, we think there will be no major problems as we learned lessons from the Rabigh Phase I Project about how to solve operational problems.

Q. Petro Rabigh will start periodic maintenance of its plants this weekend. But why is the start of the maintenance delayed by about a week from an earlier announcement? The period of the periodic maintenance four years ago was extended. Will the maintenance this time be completed as planned?

A. Before the scheduled start date, Petro Rabigh considered the right timing and decided to delay the start to carry out periodic maintenance smoothly. When periodic maintenance was performed at Petro Rabigh for the first time in 2011, the plan was a little too optimistic. Careful preparations have been made for the second periodic maintenance, such as considering ways of doing construction work based on lessons learned from the previous maintenance. I cannot say it's 100% certain, but we expect Petro Rabigh's plants to restart as planned after the maintenance.

Q. This time, work needs to be done to connect an ethane cracker with the plants of the Rabigh Phase II Project. Are there any risks of a delay in periodic maintenance?

A. The connections of the ethane cracker were completed before the start of periodic maintenance. So the periodic maintenance will not pose an obstacle to construction work.

Q. What do you think of the competitiveness of the Rabigh Phase II Project?

A. In the Rabigh Phase II Project, although the procurement volume of ethane is smaller than that for the Rabigh Phase I Project, Petro Rabigh will create value by producing petrochemical products using naphtha as feedstock, which is produced for sale in the Rabigh Phase I Project. The Rabigh II Project's main products will include low-density polyethylene and methyl methacrylate (MMA), which have higher added value compared with products of the Rabigh Phase I Project.

Q. In your premarketing research, how are customers evaluating the Rabigh II Project's products? There are disadvantages in the delivery of products. Is the project sufficiently competitive compared with competitors' products?

A. As for the distribution costs you just mentioned, we have implemented various measures to establish efficient distribution networks. In the Asian region, we sell the Rabigh Phase I Project's products produced in Saudi Arabia. We do not think it is a disadvantage to supply products from Saudi Arabia to Asian markets. Petrochemical products are not necessarily produced in locations where they are consumed. There is no particular disadvantage, as many petrochemical products, not limited to those of Petro Rabigh, are delivered to distant places.

Q. Do you still continue to consider investment in acrylic acid, superabsorbent polymer (SAP) and polyols in the Rabigh Phase II Project?

A. We have the will to invest in these products, but we want to keep this issue under consideration for the time being because the cost-effectiveness is currently limited.

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Forward-Looking Statements

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