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WHAT'S HAPPENING TO PIGMENT PRICES?

Clariant's head of global procurement Dr Heinrich Berger has compared industry supply chains with traffic jams. Consultants at **TZMI** look at how the analogy can be applied to recent events in the TiO_2 pigment market

Stuck in the pigment jam

Clariant's head of global procurement Dr Heinrich Berger delivered a presentation at last year's European Coating Congress where he drew an analogy between a traffic jam and industry supply chains. In retrospect, he was quite accurate in describing the events that were about to unfold in the pigment industry.

A traffic jam starts with the first cars braking due to an unforeseen event. The cars behind them also brake, but slightly later due to their reaction time. Eventually the cars further down in the line come to a complete halt.

In Q4 of 2008, the TiO_2 supply chain started to "jam". By Q1 of 2009, sales in the global paint and coatings sector dropped by almost 25% year-on-year. Producers of petrochemicals and plastics saw sales drop by almost 50% (Table 1); however, the contribution of falling prices to this drop was more than half.

TiO_2 demand was already quite soft in 2008, but dropped off dramatically in Q4 of that year. It took the industry as a whole approximately three months to realize the severity of the situation and throttle production levels, but in the mean time, inventories levels had

increased substantially (as shown in Figure 1).

Due to the reduction in sales, the industry motto changed to "cash is king". Fixed cost were no longer diluted by sales volumes and had to be stripped to the bone. Among other measures, this led to destocking of the supply chain, creating inventory levels in line with demand. Pigment inventory levels are generally measured by the volume expressed in days of sales (DSI). Due to the strong inventory build and the drop in demand, the DSI skyrocketed from 52 to almost 80 days (note this was not the case for all producers, but was an estimation of the global position). To bring inventory levels in line with demand, production was reduced below demand levels. In addition, cycle and security stocks were reduced; make-to-order policies and smaller order sizes were implemented.

In his presentation, Dr Berger went on to predict the events that occur when the first car in the traffic jam starts to accelerate again. The cars behind the first car will have a certain reaction time to re-start and it will take considerable time before the entire jam has

The way that traffic jams build and dissipate can help our understanding of industry supply chains

Table 1: Major company's petrochemical and plastic sales

US\$ millions	08Q3	09Q1	change
Reliance - petrochemical segment	3,522	1,935	-45%
SABIC - petrochemical segment	11,818	5,832	-51%
Dow - basic plastics segment	3,849	2,029	-47%
BASF - Plastics	3,687	1,912	-48%
Shinetsu - Organics and inorganics segment	1,721	1,142	-34%
Total	24,597	12,850	-48%

dissolved. In some cases there is overreaction which could lead to stops again.

The customers first in the chain will increase orders to restock ahead of final product demand. The companies later in the chain will take some time to interpret the situation. Is it really a trend change? Is it only a temporary demand spike? Since the suppliers may be still in the "cash is king" mode, hesitation to increase stock levels can occur. As a result, restocking the supply chain takes time, which can lead to intermittent raw material shortages.

Most large pigment companies have a diverse portfolio of production assets. Some of these assets are highly profitable, while others operate at the break-even point or even worse. During periods of normal economic activity, the latter plants generally do not lose enough money to be closed down. However, when the economy collapses as it did during the global financial crisis of 2008/09, companies have to decide how to rationalize excess production capacity.

Cristal already shut down its Le Havre plant in 2007. The first casualty of the financial crisis was Huntsman's Grimsby plant in Q1 2009. During 2009, Tronox decided to slow down and eventually cold idle its Savannah plant. Cristal's Baltimore facility was also cold idled. Both plants have now been permanently closed,

although Cristal has indicated the white-end of Baltimore might have a future use. In total, these four plants accounted for 5.4% of non-Chinese 2007 production.

As pigment demand started to recover, the jam did not dissolve quickly. Producers began to start-up production facilities on the back of healthier order books, but there were factors that would negatively affect the supply of TiO₂ pigment:

- Non-Chinese production capacity was down by 5%.
- Pigment plants had been fully idled, or individual production lines had been idled. Starting up these lines generally takes time to re-attain pre-closure production and product quality levels.
- To reduce expenditure during the downturn, maintenance was delayed where possible and maintenance practices were changed from a strategy of preventing downtime to a strategy of preventing cost. This resulted in a maintenance backlog, which in turn resulted in additional downtime when production was started back up.
- There were unforeseen events that led to production outages; the fatal accident at Stallingborough, UK, and an equally serious incident at Kemerton, Australia, being the most significant.
- Expansions at Tiwest in Australia and Greatham, UK, would have led to downtime related to tie-ins as well as commissioning of the new capacity.
- There were even cases where feedstock shortages resulted in production losses.

Normally the TiO₂ pigment industry uses the fourth and first quarter of a calendar year to increase supplier stock levels for the traditional painting seasons of Q2 and Q3, but customer restocking resulted in demand exceeding supply and inventories even fell further during these periods in late 2009 and early 2010.

On the demand side, customers started to order at normal demand volumes, but also the additional volume required to rebuild stocks (not only of pigment, but also of finished goods). As the supply/demand situation got tighter and tighter, pigment producers were forced to put consumers on allocation. This resulted in additional reactive demand by the customers, who were ordering more than was immediately required in an effort to secure basic needs and restock prior to escalating prices.

In contrast, judging from key indicators, demand in the mature regions is still depressed. The US coatings market accounts for 60% of regional TiO₂ demand. Demand for architectural coatings, of which approximately 85% is used for repaint, occurs mainly when people sell and buy existing homes. Existing home sales in the US peaked in 2005 at an annualized rate of 7.1 million units and seemed to have bottomed out in 2008

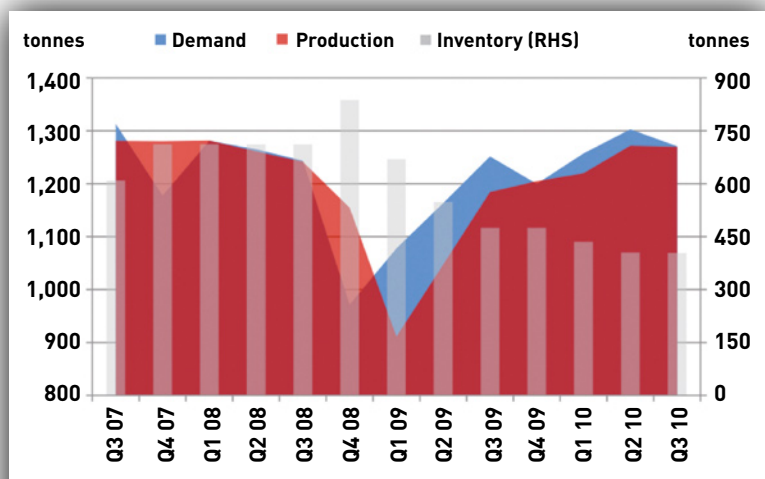


FIGURE 1: QUARTERLY TiO₂ SUPPLY AND DEMAND: Q3 2007–Q3 2010

at a level of 4.9 million units. In July 2010 housing sales dropped significantly after a government supported package expired. Annualized sales levels in September were 4.5 million units.

In Western Europe, trade volumes between countries are still down significantly compared to the period before the financial crisis. In Q2 2007, 269,000 tonnes was traded, while Q2 2010 trade levels were 192,000 tonnes, 29% down. The same applies for imports into Western Europe, where Q2 2007 resulted in 123,000 tonnes of imports; Q2 2010 is likely to be down to approximately 100,000 tonnes (-19%). High regional unemployment rates and declining construction sectors will continue to have negative effects on TiO₂ demand. Although unemployment seems to have stabilized at a level of around 10%, it will take some time before it returns to pre-crisis levels of 7%.

Presentations on quarterly results, trade data and general economic indicators all point to strong demand from the emerging regions, with demand already above 2007 levels.

Despite underlying demand fundamentals in the mature markets still being weak, the TiO₂ pigment



industry has not yet recovered from the significant supply shock the downturn caused. The traffic jam is still in the process of dissolving and while it is doing so, the markets will remain tight. TZMI expects that supply and demand will remain balanced to the extent that inventories should rebuild only marginally in 2011 and even in 2012.

www.tzmi.com

The TiO₂ pigment industry has still not recovered from its significant supply shock



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