



**November 2011 Printing Ink Raw Materials Supply Update**

Commodity and resin prices continue to be dramatically higher than a year ago. There doesn't appear to be any relief anticipated in the near term although a few of the supply disruptions have been alleviated. Volatility has been the norm as supply remains snug in many areas and market speculation continues to drive very dynamic commercial behaviors. The supply of many critical raw materials and feedstock's continues to be constrained due to operational, market, and weather related issues. The drivers for these supply issues were the same factors we were challenged with in 2010, increased demand from developing markets, feedstock volatility, supply disruptions, and environmental and regulatory constraints in India and China. These dynamics will most likely continue to a degree through 2012. Due to demand, the recent cost reduction of crude had almost no effect on the fundamental cost structures. For example, carbon black with growth in the tire markets and pigments due to shortages of some key intermediates and pressure of environmental costs in India and interest charges in China.

**Pigments**

Phthalo blue/green pigments are tight and prices continue to escalate. Environmental legislation in India is the main contributing factor. Yellow pigments have increased due to the key intermediates rising in Asia. Violet remains constrained but recently more available however prices have stabilized at very high levels

**Nitrocellulose**

Nitrocellulose supply continues to be snug and experience price escalation due to raw material increases. The key drivers are the elevated costs of wood pulp and cotton linters as well as the impact of curtailed production capacity as a major producer exited from the industrial NC market. This scenario will most likely be prevalent through 2012 especially if the demand increases globally.

**Energy Curing and Acrylic Resins**

Energy curing and acrylic resins are under continued price pressure. Even though propylene values have retreated slightly from an all-time high recently, they remain at very high levels in the mid .70's lb. and are expected to move into the mid-.80 in 2012. This has a significant impact on acrylic acid which is the primary building block for most of these resins. Propylene is a key feedstock for many acrylic esters, epoxy resins, and polyols. Lighter feed slates driven by the explosion in shale gas capacity (ethane versus naphtha) and a reduction in gasoline demand has contributed to lower supply of propylene and higher prices.

**Titanium Dioxide (TiO<sub>2</sub>)**

Major suppliers announced ~ .35 lb. for October due to rising raw material costs. The mineral sands used in TiO<sub>2</sub> production have increased almost 100% and forecasted to escalate further going into 2012. They will continue to press for further increases as their market has been under financial pressure for years. Some producers have already announced additional increases for January 1, 2012 of similar magnitude to the October levels.





**November 2011 Printing Ink Raw Materials Supply Update**

**Carbon Black**

The carbon black industry in North America has curtailed capacity by almost 25% over the past ten years. Suppliers have merged or been acquired by competitors, exited the ink market, and closed inefficient facilities. No investment has been made due to poor returns. Suppliers claim to be at full capacity and there is very little supply available for growth or reallocation. Suppliers are seeking to secure volumes at elevated prices in Q4 for 2012.

**Rosin Resin (Gum and TOR based)**

Rosin resin prices have escalated over 130% on some key grades from January 2010. Global gum rosin supply continues to be challenged. Due to limited availability of gum rosin, traders and producers in China are maintaining elevated price levels based on limited supply perception. TOR resin supply in North America remains tight as plants are at full capacity. Suppliers have implemented sales control, some at less than 100% with no additional volume available.

**Distillates and Ink Oils**

Refiners pay a premium to obtain ample supply products for specialty oils and distillates. Otherwise the feedstock would remain with gasoline producers. Alternative use significantly impact prices and influence benchmark pricing. This prevents prices from decreasing as crude decreases. Competing industries for these products are adhesives, rubber, industrial lubricants, and metal working. The tire market also switched to naphthenic oils away from previously used aromatic oils [due to health concerns] which applied additional pressure to the market. The cost escalation in this area has been primarily driven by the value suppliers see in markets outside of the graphic arts industry. Prices are directly impacted by crude oil feedstock but a shift away from ink markets has opportunistically driven prices up. For example, diesel fuel can be produced from a barrel of oil and sold directly without the cost of the further fractionation needed for downstream markets. This is a favorable position for suppliers. The competing downstream markets for distillates go beyond fuels and include other hydrocarbon fluids such as thinners, cleaners, insecticides, and industrial coatings. These markets typically offer much higher return and as a result curtail our supply and put pressure on price.

