TO: IPG Customers

FROM: Joe Tocci
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DATE: February 26, 2021

RE: **Raw Material Update**

Executive Summary:

- We are currently experiencing cost increases that are causing some economists to believe that we have entered a Super Cycle Event.
- 53 of the 63 commodity prices tracked by the World Bank were higher in December 2020 than they were in December 2019. Many of them were trading at 10+ year highs in December. January and February have seen these indexes increase additional amounts. Examples include Crude Oil, Liquid Natural Gas, Steel, Framing Lumber, and Iron Ore.
- These events are being triggered by the following:
  - Global stimulus spending by governments to counter the economic events of COVID-19. Globally, more than $13 trillion dollars have been committed to stimulus.
  - Extremely strong demand – especially in China and the United States
  - A weakening US Dollar

Texas Winter Storm Update:

- Production and inventory of natural gas hit low levels at the beginning of this week as more than 30 gas pipelines declared Force Majeure.
- The impact on the US Chemical industry is as follows:
  - Refining (general) — >25% of production is down
  - Propylene — >90% of the production is down
  - PP — >64% of the production is down
  - Polyethylene — >66% of HDPE, 52% of LLDPE, and 26% of LDPE is down
  - Toluene — >70% of the production is down
- Force Majeure or sales allocations have also been declared by the following suppliers:
  - PE — Chevron, LBI, Dow, Exxon
  - PP — Total, Braskem, LBI, Ineos, Formosa, Exxon
  - SIS (synthetic rubber) — Kraton
  - Acrylic Monomer — Dow, Arkema, BASF
  - Fiberglass — Vetrotex
  - Release coating — Wacker
- Despite only being a one week long event, this storm will create supply chain disruption for several months.

Conclusion

Over the coming months, pricing of raw materials will stay at elevated levels. The larger concern, however, is availability of key raw materials and security of supply. These factors will inevitably lead to more supply chain disruptions.

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Crude Oil

- Since dropping to below $20/barrel during the quarantine, crude has recovered quickly and is currently over $60/barrel.
- Longer range forecasts have crude staying above $60/barrel for the extended future.
- These increases affect almost all our raw materials – particularly PE, PP, and all our adhesives.

Polyethylene

- Polyethylene has seen steady and unprecedented increases over the past year. After dropping slightly in price at the onset of COVID, we have seen 7 market increases beginning in June 2020.
- PE pricing for February 2021 is 68% higher than January 2020.
- Additionally, North American suppliers have already issued an additional 7 cpp increase for March. These appear likely to hold because of the Texas storms.
- These pricing trends are being driven by strong global demand, but an even stronger demand on North American production due to both our strong economy and strong exports to Asia, Central America, and South America.

Polypropylene

- Pricing for PP and Polymer Grade Propylene (PGP) has increased dramatically over the past six months. The key drivers here are:
    - Demand has surpassed global supply for PP, enabling all manufacturers to announce "margin expansion" increases that have been accepted by the market.
    - Unplanned downtime of multiple PDH units has caused a shortage of PGP.
- PP pricing for February 2021 is 121% higher than January 2020, and 83% higher than it was in November 2020.
- Additionally, due to extreme tight supply, PP producers have announced multiple increases tied to margin enhancement. Since January 2020, suppliers have added 23 cpp in margin enhancement. This has increased the spread between Polypropylene and PGP from 27 cpp in January 2020 to 50 cpp in March 2021.
- These increases also affect pricing on acrylic adhesives, purchased BOPP films, and our WAT laminating resin.

Natural and Synthetic Rubber (SIS)

- COVID has created a global shortage in natural rubber. In short, Asian production was shut down during peak "tapping season" due to the pandemic. When the Chinese and US economies recovered faster than expected, this created the shortage.
- The Natural Rubber index is up 60% versus the low point, and 15% versus historic average.
- Synthetic Rubber (SIS) is also affected by a global shortage of Isoprene. This is happening at the same time demand for SIS has surged as manufacturers use it as a replacement for natural rubber. This has caused double digit increases in the cost of SIS.

Pulp & Paper

- The pulp index has moved 16.6% since January 2020, and 9.5% in the month of February 2021 alone.
- Strong markets include kraft, linerboard, tissue, TP and towel, wipes, and medical
- China's fast recovery from COVID has also resulted in a 67% increase in their demand from the US for linerboard.

Freight

- Truckload cost/mile is up 21% on contracted lanes and 44% on the spot market versus January 2020.
- Biggest concern within the industry is the change versus typical seasonal trends. This suggests the high costs will continue well into 2021.

Ocean Freight

- COVID-related issues with ocean freight are prevalent across the globe. Examples include:
    - Rates – Rates have increased between 2x-4x since the start of COVID
    - Availability – container availability is limited due to global imbalance
    - Lead times have increased across all ocean lanes
    - All major US and Canadian ports are experiencing congestion and dwell times range from 7-12 days

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