

## Panel

### *Green Chemistry: The View from the Middle of the Supply Chain*

**Presentation:** [Click here to download slides](#)

**Moderator:**

*Tess Fennelly*, CEO remooble

**Presenters:**

*Annie Bevan*, Global Head of Sustainability, Superior Essex Communications

*Mike Patel*, Director of Marketing and Business Development, Teknor Apex Company

*Emily Williams*, Global Growth Platform Leader - Circular Economy, Michelman

**Summary:**

Three presenters each shared their perspectives on the challenges and opportunities for advancing green chemistry from the middle of the supply chain.

Mike Patel, Director of Marketing & Business Development at Teknor Apex, a large plastics compounder, gave an overview of the company, highlighting their business in supplying materials to the packaging, industrial consumer, electrical, transportation and other sectors. They supply materials for PVC products used in many daily applications. They are engaged in sustainability practices for example in their Hose Division where they recycle PVC.

From a plastic compounder's perspective:

- Teknor takes design specifications from their customers and they are dependent on their supply chain to provide them with raw materials. Their preference for green or other raw materials in essence is less important than the customer's demands. They need to utilize: (1) What's available, (2) What's economically acceptable, and (3) What can be handled by their customers. The value they bring is their compounding know-how, i.e., how do you put all the materials together to get the product that is desired.
- Teknor brought Biovinyl to the market in 2012 as a flexible PVC product with bio-sourced plasticizers. It required significant investment on their part to find viable applications and there were numerous challenges to bring the material to market. They encountered limited success due to economics – their customers didn't want it at the time and weren't willing to pay added cost.
- Teknor brought Terraloy, a bioplastic with bio-content and composability, to market. It also had limited market uptake because of cost.
- Is the market ready for green? Teknor Apex has not seen the evidence. They are willing to advance greener materials if they have partners that want to go down that path.

Annie Bevin, Global Head of Sustainability from Superior Essex Communications described her company's businesses in electrical and communication cables for buildings. Superior Essex is selling into many markets and to companies such as ATT and Verizon. Annie echoed Eunice Heath from Dow's refrain with regard to green chemistry, "If you don't ask for it you aren't going to get it." Annie and

Superior Essex are very involved in initiatives such as LEED, ILFI, and the Declare Label program. Their cable is always behind the wall but there is significant chemistry in these products.

- The market is demanding green chemistry – LEED, Well, Living Building Challenge. In 2012 architects and designers sent Superior Essex letters saying for example, “If you don’t know the chemical content of your products down to the 100-ppm level, we will not specify.” Superior Essex didn’t know which chemicals were in their products at that time and this motivated them to figure out how to communicate it to their customers. This led to development of Environmental Product Declarations (EPDs), to study the total life cycle impacts of their products, develop Health Product Declarations (HPDs) to report chemical content down to 1000 ppm and hazard and report that transparently to the world. This is a tremendous amount of work for the company but now with Google committing that all their buildings will comply with the Living Building Challenge, Superior Essex is further dedicated to this work.
- Superior Essex and other companies are now evaluating the impact of their work to meet these stringent healthy materials specifications and they are not seeing the payoff to their businesses. Superior Essex and fifty other companies wrote an open letter to the A&D community stating this. In response, sixty-one A&D firms have signed a pledge to buy these materials. The company believes this will help.
- The company is working with Toxnot to determine chemical composition of materials. They upload a Bill of Materials (BOM), it goes to supplier, the supplier fills in the BOM with chemical information and the system has hazard data. It can output HPDs and EPDs and helps determine compliance with REACH and RoHS.
- The company is trying to go beyond Toxnot to learn more about the human health of their materials and chemicals. They use ToxServices to determine if they are using the best material for an application.
- The company is working with other leading manufacturers to develop “green PVC”: Tarkett, Armstrong, Interface, and Saint Gobain.

Emily Williams, Global Growth Platform Leader Circular Economy for Michelman provided an overview of the company’s broad packaging business and talked about their focus to make packaging biobased, biodegradable, recyclable and compostable. Emily described the holy grail as being able to make a single use coffee cup that is fully recyclable or biodegradable. The major hurdle is the inner material composition of the inner coating. Michelman is participating in the NextGen Cup Challenge where companies are collaborating to develop and demonstrate a more sustainable cup design.

#### **Key Takeaways:**

- Major drivers for green chemistry are: market pull from consumers and brand owners; negative view on certain chemicals, e.g. phthalates.
- The challenges to getting green chemistry products to market are cost and performance and the lack of good safety and performance data for some new materials. Change is slow, typically 3 – 4 years. There is a need to get the spec writers to demand greener chemicals and materials. If they don’t, it won’t happen.
- Ways to overcome challenges are to demonstrate the performance of new products to show that they have equal or better performance. Also, it is important to pitch to customers differently by

stating, “We align with your vision in sustainability,” instead of stating, “Let me tell you about our sustainable products.”

- Collaboration can happen with value chain partners, e.g., Superior Essex collaborates with building owners that have purchasing power and want to create the optimal office space to attract and retain talent. They partner to provide those products.
- It’s not build it and they will come, we need the pull. GC3 should work to create the demand pull. Also, companies need help getting new materials on line and help identifying where there are data gaps on safety of new chemicals and materials – they don’t want to spend the money on new chemicals and materials unless there is robust data.
- Startups in the room would like to know who the companies are in the middle of the supply chain with the capacity to test and convert their technologies. Can the GC3 help identify those companies?
- Raw material and brand owners should bring to the GC3 RT their most important middle of the supply chain suppliers to get the cross sectoral discussion going.