

**SPE Palisades New Jersey Virtual Section Meeting**  
**Thursday, November 19, Noon, n/c**

**CREATING HIGH PERFORMANCE COMPOSITES FROM SUSTAINABLE PLASTIC FEEDSTOCKS**

***Dr. Jeffrey Cernohous, Interfacial Consultants***

Recycled plastic feedstocks, specifically those derived from post-consumer recycled waste (PCR) offer economic incentives to materials formulators and processors. However, such materials are extremely difficult to operationalize given the inherent compositional and rheological variability of these streams. This talk will describe how we created high performance composite materials utilizing 90% PCR content, that have been rapidly adopted at commercial scale. To achieve this required a combination of innovative material science and processing strategies.

The link for the GoToMeeting Video Meeting and Phone Dial-In Information will be posted on our website [www.spe-pnj.org](http://www.spe-pnj.org) on the day of the meeting.

The board meeting will be on "GoToMeeting" on Nov. 19 at 4:30 pm; contact us at [info@spe-pnj.org](mailto:info@spe-pnj.org) with questions or if you want to attend the board meeting.

***Speaker biography:***



Dr. Cernohous has successfully founded several companies, including Interfacial Solutions, which was acquired by Stratasys. In 2012, he founded Magma Flooring, a company focused on creating high performance substrates from recycled plastics. Dr. Cernohous founded Interfacial Consultants, LLC in 2016, a company that is focused on creating novel materials and process technology platforms for its customer base. Interfacial Consultants bought out Magma shareholders in late 2017. This is now IFC's Engineered Substrates Division. In 2018, IFC entered into a 50/50 joint venture with Nagase to form Infinite Material Solutions, a company focused on providing disruptive materials to the Additive Manufacturing Market. In 2020, Nagase acquired 75% of IFC. Dr. Cernohous is IFC's Chief Operating Officer at present. Since inception, the IFS and IFC have been involved in over 50 product launches and Dr. Cernohous has become a recognized leader in sustainable materials, additive manufacturing, advanced composites and specialty additives.

**UPCOMING IMPORTANT DATES**

2020

**December** Virtual Social TBD

2021

**Jan 21** TBD

**Feb 25** TBD

**March 22-25** ANTEC®2021

**May 17-21** NPE2021



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## PRESIDENT'S MESSAGE



I am so happy to be able to say that our first virtual VINYLTEC® was a huge success! The two day event, held on October 20-21 attracted over 200 registrants. Additionally, we had great support from sponsors and it all will help our scholarship program in the spring. Kudos to TPC Chairman, Ron Raleigh of BYK and Conference Chairman, Mark Lavach of Arkema and their committees for a great job! Next year the Vinyltec® will move to Indianapolis and hopefully we will be back to the regular “in person” format. Time will tell.

Many parts of the plastics industry are doing well. Some are doing well because they are helping in the fight on COVID, others are doing well because building and construction is booming (somewhat due to COVID), and others are doing well because of changes in society due to COVID. Hopefully, you are doing well also, but if you're not, please don't hesitate to reach out to this group for help. We can list “positions wanted” (or “positions available”) in the SPEC Sheet. We are a well-connected and networked group and may know of open positions if that's what you're looking for. Most of us have been in the position of looking for a new job and may have support and tips to help you with networking, resumes or LinkedIn profiles. And sometimes it just nice to be able to talk to someone who has been through it before.

Lastly, please join us on November 19th for our November meeting as we experiment with a new timeslot and a noon “lunchtime” meeting! Our speaker will be Dr. Jeffrey Cernohous, COO of Interfacial Consultants, and he will be talking on [Creating High Performance Composites from Sustainable Plastic Feedstocks](#). Admission is free!

Best Regards & Stay Healthy!

Peg Schipper



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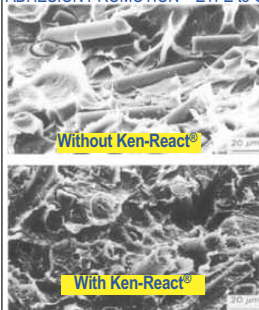
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### New Directors Appointed

Congratulations to two new directors appointed to openings on our Section's board of directors: Sanjna Sukumaran (2020-2021) and Gregory Treich (2022-2023).

Sanjna Sukumaran is a current junior majoring in Materials Science and Engineering and minoring in Business Administration at Rutgers-New Brunswick. She joined SPE because she has an interest in plastics and wanted to learn more about the plastics industry. Sanjna is currently president of the Rutgers chapter of SPE and was social media chair last year. She is enthusiastic about being a part of the board of directors as a student chapter representative and is looking forward to working with plastics professionals this upcoming year.



Gregory Treich is an Applied Technology Scientist for Evonik in Piscataway NJ, working on functional silanes for plastics, fillers, and industrial applications. Previous to his current role he was a research scientist for Cytec Solvay in Stamford CT developing novel UV and thermal stabilizers for polymers. He first joined SPE while pursuing his Ph.D. in polymer chemistry at the University of Connecticut, serving as treasurer and student chapter president. Since then he has been an active member of the Connecticut section, serving as their councilor and also as the immediate past chair for SPE's Next Generation Advisory Board (NGAB), now called the Young Professionals Committee (YPC).



### Rutgers Student Chapter News

So far the Fall 2020 semester has been quite a ride, but the SPE Rutgers Student Chapter has been running as usual. We have an exciting event coming up in collaboration with Material Advantage on the fifth of November. The event allows students to network with current Materials Science and Engineering professors and allows them to get insight into their classes and research. In addition to the networking event, we are hoping to have a guest speaker and alumni event in the upcoming future. We are also looking to collaborate with SPE-Palisades members in the future to host a mock interview event at some point this semester.

### Manufacturing Training at RVCC



At our last Section meeting, Maggie Baumann introduced the board to Conrad Mercurius, the coordinator of the [Advanced Manufacturing program at Raritan Valley Community College \(RVCC\)](#), and his class of students attended our virtual zoom meeting. Since 2014, Conrad has been coordinating the program at RVCC, which offers career training with certificates for manual mill operator, engine lathe operator, manual machinist, and CNC production technician. Additive manufacturing is a new and growing part of the program.

Conrad explains that currently in classes, they discuss both subtractive and additive concepts. He is planning a program that covers CAD and best practices in loading/unloading files and troubleshooting additive manufacturing machines. The RVCC program owns several different machines so that students can get comfortable working with them. They are considering providing each student with a machine as part of the program and are looking for equipment manufacturers who would like to help out in this area.

As program coordinator, Conrad talks regularly with employers, and he says hiring managers are looking for skills in additive manufacturing as well as for maintenance technicians for additive manufacturing equipment. In addition, he finds that companies are beginning to hire specifically for additive manufacturing, for medical devices and prototyping, for example.

In addition to introducing additive manufacturing to Advanced Manufacturing career training students, Conrad has made connections with other departments at RVCC and introduced them to additive manufacturing. He hopes to also offer more weekend classes that would be open to faculty and community members who want to learn about additive manufacturing.

The Palisades-New Jersey Section is currently exploring how we might work with the RVCC program.



## VinylTec® Report

### *PVC conference recap.*

Vinyltec® 2020 brought together a distinguished slate of industry experts who shared their extensive knowledge. The first day of the conference included presentations of the basics of PVC that were particularly valuable for anyone new to the industry, and a good background for understanding the technical content presented on the second day of the conference. Sylvia Moore from Shintech spoke about the different types of resins and applications in which they are used. A presentation from Bob Paradis, Formosa Plastics, explained how suspension PVC is polymerized and described resin properties and formulation. Thomas Schelling, research associate at Teknor Apex, presented an overview of PVC compounding and explained the equipment and process for dry blending, melt mixing, and pelletizing.

“The continued success of PVC industry depends on a highly knowledge supply chain,” said Schelling. He noted that his goal was for his presentation to contribute to the industry knowledge to help the industry thrive.

Bill Arendt, president of Arendt Consulting, served as moderator for several of the VinylTec® sessions and also shared an educational presentation on formulating with plasticizers. Understanding the characteristics of plasticizers is a starting point for developing and improving formulations. Bill also shared an extensive bibliography with resources for more information.

Additional education sessions included Bob Smith, PMC Group, on Additives for PVC; Christoph Pielen, CW Brabender Instruments, on measuring PVC fusion and stability on a torque rheometer; and Mark Lavach, Arkema, on PVC properties and testing.

The second day of the conference included perspectives on trends and legislative and regulatory news affecting the PVC industry as well as practical information for formulators and processors of PVC.

Ned Monroe, president and CEO of the The Vinyl Institute described how the organization represents the PVC industry, noting that legislative issues affect many different PVC markets,

and that the organization seeks to counteract what is sometimes a bias against PVC. He congratulated the PVC industry on its role in providing for needs during the COVID-19 pandemic, with increased production for PPE, blood bags, and tents and sheet vinyl flooring for field hospitals, to name a few. “We have to play defense, but we also have to play offense,” said Monroe, pointing out the benefits of PVC; for example, PVC has a better “embedded carbon story” compared to alternatives, and PVC provides a solution for clean water for the growing population of the globe. The Vinyl Institute is also pushing for economic support from government for water infrastructure projects; Monroe noted that legislation is pending on a water infrastructure bill to provide funding by year end.

Keynote speaker Yvonne Huang, Formosa Plastics, reviewed 2020, discussing how the challenges of the pandemic and the hurricane season on manufacturing and PVC production, and how the economy and the pandemic affected PVC markets, such as housing. She also looked at some long term trends and how industry might change; for example, looking at “on-shoring” and domestic supply as a contingency for supply chain disruptions.

Several of the technical presentations touched on formulating PVC for the needs of various markets. For example, Amy Lefebvre, Arkema, discussed vinyl in flooring applications, in particular looking at the use of acrylic modifiers. Nischay Shivaprakash and Raf Brussels, Mitsubishi Chemical Performance Polymers, presented on plasticizer migration in automotive PVC skin compounds. Steve Grunzinger, Idea Forge LLC, spoke on applications of microporous PVC in irrigation, aeration, filtration, extraction, and catalysis.

PVC additive formulations are complex, as many of the additives provide multiple functions and interact with each other. The speakers noted this throughout their presentations, which provided insight on how to choose additives and evaluate formulas. For example, Rob Decker, Norac Additives, presented information on lubricants and how they influence PVC properties; Geert Sterkendries, Chemours, discussed titanium dioxide use in PVC; Manoj Nerkar, Dow, described using acrylic processing aids to foam PVC; and Philip Richards, Sasol, discussed using Fischer Tropsch waxes for rigid PVC extrusion.

Recycling is a hot topic in all parts of the plastics industry. Rich Krock from The Vinyl Institute discussed end-of-life material management for PVC. Using recyclate is a valuable way to re-

*continued on page 6*



duce carbon footprint, he noted. He said that PVC is a minor component of curbside recycling, but there is a significant amount of pre-consumer recycling (eg, startup and shut down materials, fabricating remnants). Krock presented results of a survey about recycling processors and the end markets vinyl recyclate is going into. He also discussed the Vinyl Sustainability Council's +Vantage Vinyl program and a new V-Cycle Task Force. This "industry procompetitive collaboration" aims to grow recycling throughout the value chain through various initiatives, including increasing end markets, improving collection, expanding infrastructure, and communicating successes, which Krock discussed in more detail, along with additional upcoming programs.

Sal Monte, Kenrich Petrochemicals, discussed the use of titanate and zirconates in PVC and their ability to enhance recycling by "in-situ coupling, in the polymer melt, by proton coordination to all fillers, pigments, and organics, with many benefits coming from the titanate's catalytic function.

More than 225 attendees benefited from the educational sessions at Vinyltec 2020. If you missed the presentations, you can purchase the recorded sessions – go to [www.4spe.org](http://www.4spe.org) under [Content and Events](#).

### PlastiVan Changes Perceptions, One Classroom at a Time

SPE's PlastiVan, which takes a hands-on program about plastics into schools, has "shifted gears" to create new online resources including "PlastiVideos". In-person PlastiVan programs are on hold through December, but the team hopes to get back to school visits. Eve Vitale, Chief Executive of the SPE Foundation reports: "Our PlastiVan team has worked all summer developing lesson plans that are connected to Next Generation Science Standards, have pre- and post-activities, assessments, as well as extension projects. Taping began 3 weeks ago and is ongoing. The topics include interesting demonstrations to support a number of discoveries, inventions, and innovations with historical significance for our industry."

Eve adds: "Many school districts around the country have to educate their students about 'career pathways'. The PlastiVan program has always talked about careers, but the PlastiVideos will very specifically discuss how an interest in certain topics in school can lead to a very successful career in the plastics industry (e.g. students who like chemistry may want to be a chemical engineer or a polymer chemist)."

"Even after pandemic conditions are over, these video resources will be important in helping the PlastiVan create a greater impact in plastics education. We take our mission to change the perception of plastics one classroom at a time very seriously."

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