spe INJECTION MOLDING

MOLDING VIEWS

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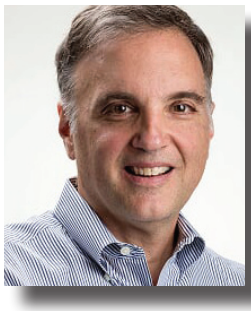
Spring 2021 | No. 114

Chair's Message

Rick Puglielli



It has been a great honor to serve as the Injection Molding Division Chair for the Society of Plastics Engineers for the past two years and I look forward to handing over the gavel to Joseph G. Lawrence, Director & Research Professor of The Polymer Institute at University of Toledo. I am confident the injection molding division will be in good hands and continue to offer valuable opportunities to its members and the industry in general. After working many years in the injection molding industry, I am fortunate to have had this opportunity to contribute back to the industry. SPE has given me the opportunity to make new friends and industry connections from around the globe and continues to inspire me with ongoing events and learning opportunities.

I am very fortunate to still be able to own and operate my own injection molding company after so many years of challenges the industry has faced. The only way to face those challenges is together and SPE has given me the opportunity to face those challenge with a team of great industry leaders. Individually we have all done some great things in our careers, but together we make great things happen in the injection molding industry. Whether you know nothing at all about injection molding or think you know everything there is to know, SPE is the place to make new connections, continue to learn about industry trends and opportunities and share your knowledge and insights with industry professionals from around the world.

Sincerely,

Rick Puglielli
2020-2021 SPE Injection Molding Division Chair

In This Issue:

This Month's Features:

Keep the connection!
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Industry Events/Webinar Calendar

Click the show links for more information on these events!

MARCH 2021

SPE ADDITIVES & COLORS ACADEMY: TRENDS & TRAINING

MARCH 11, 2021; 9:00AM—5:00PM CET

The content of the seminar will focus on fundamentals & new trends on additives and color technology in plastics. Topics of the course:

Additives
- Antistats and Antifogs
- Light Stabilizers
- Flame Retardants

Colors
- Impact of pigment processing on color
- How to process color masterbatches
- Pigments for plastics in contact with food

REGISTER AT: https://www.4spe.org/i4a/pages/index.cfm?pageID=6446

WEBINAR: THERMAL ANALYSIS OF PLASTICS

MARCH 18, 2021 AT 11:00AM-NOON EDT

Webinar via Zoom

Thermal analysis is an important group of tests used in the analysis of plastics and other polymeric materials. It consists of a family of well-established techniques that evaluate material properties as they change with temperature, time, and ambient environment under conditions of thermal programming. The results of thermal analysis tests provide qualitative and quantitative information about the material being evaluated. In particular, this information is important to address plastic failures or in characterization of the material composition and physical properties.

FOR MORE INFORMATION VISIT:

https://www.4spe.org/i4a/pages/index.cfm?pageID=6490

APRIL 2021

SPE PLASTICS PROCESSING CONFERENCE 2021

APRIL 6-7, 2021 — VIRTUAL EVENT

Hosted by the Lehigh Valley Section

The SPE Lehigh Valley Section is organizing technical sessions for the inaugural SPE Plastics Processing and Compounding Conference 2021.

The following areas being covered will include:
- Current Trends in Plastics Processing and Compounding Technology
- Advances in Plastics Processing
- Single and Twin Screw Extrusion
- Reactive Extrusion
- Injection Molding
- Advances in Compounding
- Polymer Blends
- Filled Polymer Systems
- Post compounding processes
- Process-Property Relationships
- Polymer Modification
- Modelling/Simulation
- 3D Printing
- Sustainability & Recycling

FOR MORE INFORMATION VISIT:

https://www.4spe.org/i4a/pages/index.cfm?pageID=4969

Industry Events/Webinar Calendar

MAY 2021

SPE 2021 AUTO EPCON CONFERENCE

TUESDAY, MAY 4, 2021 8:00 AM EASTERN STANDARD TIME (EST) - 5:00 PM EASTERN STANDARD TIME (EST)

Detroit Troy Marriott Hotel, Troy, MI

Engineering Plastics Worth Driving

Hosted by SPE Detroit Section

Event Partners: SPE Automotive Division and SPE Injection Molding Division.

ANTEC® 2021

WEDNESDAY, MAY 5, 2021 - FRIDAY, MAY 28, 2021 - ALL DAY VIRTUAL CONFERENCE

Detroit Troy Marriott Hotel, Troy, MI

SPE is expanding ANTEC® 2021 to include multiple attendee options, enhanced networking and an international focus.

The 2021 program will include three segments: ANTEC® Industry Insights, ANTEC® Classic and ANTEC® International.

Each segment will be presented virtually. ANTEC® will kick off with Industry Insights, a two-day offering presented via SPE's exclusive live-streaming service to remote attendees from May 5-7. ANTEC® Classic will offer real-time, remote presentations occurring over 10-days from May 10-21. ANTEC® International, which begins on May 24, will include live online presentations from Asia, Australia/New Zealand, Europe, India, the Middle East and South America. International dates will be announced shortly.

FOR MORE INFORMATION VISIT:

https://www.4spe.org/i4a/pages/index.cfm?pageID=6098

JUNE 2021

SPE SHAPE EXTRUSION CONFERENCE

TUESDAY, JUNE 22, 2021 - THURSDAY, JUNE 24, 2021 - ALL DAY

Hilton Nashville Green Hills, Nashville, TN

Hosted by SPE Extrusion Division

Learn the latest theories, tips and technologies to extrude precision parts!

Look around us, the world is filled with products that are the result of precision extrusion! To make these items a thorough knowledge of extrusion is required, beginning with fundamentals and material selection, learning advanced extrusion techniques, as well as implementing process monitoring and analysis. Success in today's "Industry 4.0 environment" requires a thoughtful and thorough integration of all these disciplines! Hence, the SPE Shape Extrusion Topcon was conceived.

FOR MORE INFORMATION VISIT:

https://www.4spe.org/i4a/pages/index.cfm?pageid=5086

ANTEC® 2021

CHOOSE THE EVENT THAT'S RIGHT FOR YOU!

ANTEC® Industry Insights
NEW DATES! May 5–7, 2021

Kicking off ANTEC® 2021, must-hear plastics leaders will share their valuable industry insights. Join us for this two-day event via SPE's exclusive live-streaming service to your remote location.

Program includes:

A View From the Top: Industry Perspectives from Plastics Industry Leaders — Monday AM
Hear industry executives give their perspective on the state of our industry. Last year's speakers included Dow CEO Jim Fitterling and Barry CEO Tom Salmon.

Plastics & The Environment: It's Not Just Bags, Bottles and Straws — Monday PM
A variety of viewpoints on topics like reduce/reuse/recycle, circular economy, advanced recycling etc., representing all industries which use plastics (consumer and industrial). The focus will be on how these vertical industries are addressing any negative environmental impacts of pre- and post-use plastic in their businesses. We'll showcase real-world examples of the good things that people, and companies are doing to mitigate issues related to the use of plastic by their business and customers.

Emerging Plastics Technologies: What Are the Next Big Things on the Plastics Horizon — Tuesday AM
From metallocene catalysis to additive manufacturing, SPE has covered these game changing technologies. What's the "next big thing"? Our speakers will share their predictions. Topics covered: Biomimetic Polymeric and Composite Materials, Advances with Cyclic Monomers, AI/Big Data/Robotics, Plastics and Pandemics, Lightweighting through the use of composites, carbon fiber, and graphene, high performance foams and sandwich structures, and more.

ANTEC® Classic
NEW DATES! May 10-21, 2021

ANTEC® Classic, slated for May 10-21, will offer real-time, remote presentations occurring over 10-days with 20 technical tracks. Additionally, it will include International Spotlights, which will begin on May 24, with real-time global presentations broadcast online from various regions around the world, including Asia, India, Australia/New Zealand, Europe, and the Middle East. Dates for International Spotlights will be forthcoming.

Hear from the industry's top researchers as they discuss their latest findings. In the traditional ANTEC® format, 200+ papers across a wide variety of topics will be presented. Watch the presentations real-time, with Q&A after each presentation, or watch the recorded sessio

ANTEC® International
May 27, 2021

SPE ANTEC® Latin America is a one-day program with speakers and topics of interest to the region's markets.

For more information visit: www.injectionmoldingdivision.org/antec/

By BYann-Jiun Chen [1,2], Matthieu Fischer [1], Chao-Chang A. Chen [2], and Ines Kuehnert [1], [1]Department of Processing Leibniz Institute for Polymer Research, Dresden, 01069, Germany [2]Department of Mechanical Engineering National Taiwan University of Science and Technology, Taipei, 10607, Taiwan*

Study on Thermal Characteristics and Mechanical Properties of Poly (Lactic Acid)/ Paraffin Wax Blends

Poly(lactic acid) (PLA) plastics have been popularly applied on many bio-degradable products and claimed as a green polymer materials for environmental concerns. In this study, a poly(lactic acid) (PLA)/paraffin wax (PW) composites with blends containing different amounts of PW and different compounding times have been developed and investigated. These composites blends were prepared by a micro-compounder with twin screw. Then, a neat PLA and the PLA/PW composites have been used to fabricate tensile specimens by micro injection molding machine. Effects caused by different compounding time and PLA/PW ratios, the thermal behavior and mechanical properties have been tested and investigated. Moreover, distribution and dispersion of PW in the PLA matrix have been observed in optical microscope and then calculated for comparison. Experimental results showed that the addition of PW yields significant improvements in ductility and toughness compared to that of neat PLA. The crystallinity and complex viscosity have also been improved. Finally, the samples of PLA/PW made by longer compounding time exhibits better distribution. Results of this study can be used for developing PLA/PW composites for bio-prosthesis for implants applications.

Introduction

In the past decades, polymers materials have contributed to popularity of technical products to human life. Some polymers such as polyethylene, polystyrene, polypropylene, and poly (vinyl chloride) are widely used in disposable products suitable for mass production. However, polymer pollution has become a serious issue to living environment [1]. Nowadays, poly (lactic acid) (PLA) has become one of the most popular biomaterials since it is made from agricultural sources such as starch, cellulose, roots, or sugarcane, which makes it widely available for use in food packaging, disposable utensils, medical devices, and structural applications [2-6]. However, the biodegradable properties of PLA also limit its potential applications. PLA is inherently brittle and has a slow crystallization rate, low thermal resistance, and higher viscosity when molten [7, 8]. Thus the PLA composites with other additive materials need to be investigated. In previous studies, paraffin wax (PW) has been used as a filler for the PLA matrix to investigate the thermal properties, mechanical behavior, and

morphology of PLA/PW blends [9]. This is because paraffin wax is chemically inert, is an excellent lubricant, is commercially available at a low cost [10], undergoes ductile failure at low strain rates [11], and is water resistant. Paraffin wax has also been used in research as a sacrificial material [12-15], phase change material [16-18], and food additive [19, 20].

This study focuses on the effects of the compounding time and the paraffin wax ratio in the PLA/PW composites. Due to the physical properties of paraffin wax, it is expected that the hydrolysis degradation and water resistance of the blends can be superior to that of the neat PLA.

Experimental Methods

Processing

Materials

Materials for experimental study including PLA and PW. The Ingeo 3001D, an injection grade poly(lactic acid) (PLA) in pellet form, was purchased from NatureWorksm (Minnetonka, MN) and it had a MFR of 22 g/10 min (ASTM D1238), a density of 1.26 g/cm^3, and a 1.4% D-LA content. Purified paraffin wax beads were obtained from LorAnn Products (Michigan, MI) with a density of 0.88 g/cm^3. They arrived as white, odorless beads and were used as received.

Material Preparation and Process Conditions

PLA was melt compounded with paraffin wax at ratios of 15%, 20%, and 25%, and the compounding times were 1, 5, and 10 minutes as shown in **Table 1**. After pelletizing, solid tensile bars were injection molded. An investigation of the thermal properties, mechanical behaviors, water absorption, and rheological behaviors of as-injected specimens have been undertaken to study the effects of the compounding time and the ratio

Table 1: Designation of Materials and Their Compositions.

Description	Materials	Composition (wt/wt)	Compounding Time (mins)
PLA			1
PLA 5	PLA	100/0	5
PLA 10			10
P85/PW15 1			1
P85/PW15 5		85/15	5
P85/PW15 10			10
P80/PW20 1	PLA/PW		1
P80/PW20 5		80/20	5
P80/PW20 10			10
P75/PW25 1			1
P75/PW25 5		75/25	5
P75/PW25 10			10

of paraffin wax. A polarized optical microscope is used to characterize the distribution and dispersion of the paraffin wax in the PLA matrix. Mixing of the blends was performed using a Daca micro-compounder (Goleta, CA). The total amount of processed volume was 5cc. Before extrusion, PLA pellets were dried in a vacuum oven at 40 °C for 24 hours to remove any moisture. Prior to injection molding process, the extruded pellets were again dried in a vacuum oven at 40 °C for 24 hours. Tensile test bars with a diameter of 0.6 mm were injection molded using a Desma FormicaPlast 2K microinjection molding machine. Some major processing conditions are listed in **Table 2**.

Table 2: Major Process Conditions.

Extrusion	
Temperature (°C) 175	
Screw speed (rpm) 50	
Injection Molding	
Nozzle temperature (°C) 170	Mold temperature (°C) 50
Cylinder temperature (°C) 180	Feed temperature (°C) 170
Injection speed (mm/s) 100	Cooling time (sec) 4.5
First packing phase pressure (bar) 1200	Second packing phase pressure (bar) 700

Polarized Optical Microscopy (POM)

The extruded pellets were cut into 10 μm slices via a Leica RM 2265 microtome to study the distribution and dispersion of paraffin wax in the PLA matrix using a ZEISS microscope. The middle parts of the extruded pellets were sliced and sandwiched between glass slides. Given the obtained POM images, the amount of paraffin wax, as well as its distribution and dispersion in the PLA matrix, can be calculated using a Matlab program.

Rheology

The rheological properties of the extruded pellets were investigated on a TA Instruments ARES-G2 rheometer. The extruded pellets were placed between 25 mm parallel plates with a fixed gap of 1.5 mm. The strain amplitude was set at 1%. The frequency sweep was run from a high of 100 Hz to a low of 0.1 Hz at 180 °C.

Tensile Properties

Tensile tests were carried out on a Zwick/Roell universal testing machine with a 100 kN load cell at a crosshead speed of 3 mm/min. Five samples of each composition were tested to obtain the tensile stress vs. strain curves and to examine the consistency of the results.

Results and Discussion

Thermal behavior by DSC

The DSC thermograms recorded during the second heating scan of the paraffin wax, PLA, and PLA/PW blends are shown in **Figure 1**. It can be seen from **Figure 1** and **Table 3** that, with the addition of paraffin wax, the cold crystallization temperature decreased slightly and the crystallinity increased. The presence of paraffin wax served as a lubricant in the PLA matrix leading to an improved crystallinity which can be observed on the lower cold crystallization temperature compared to neat PLA. This increase in the degree of crystallinity

Figure 1:
DSC thermograms of (a) paraffin wax and neat PLA, and (b–d) PLA/PW blends.

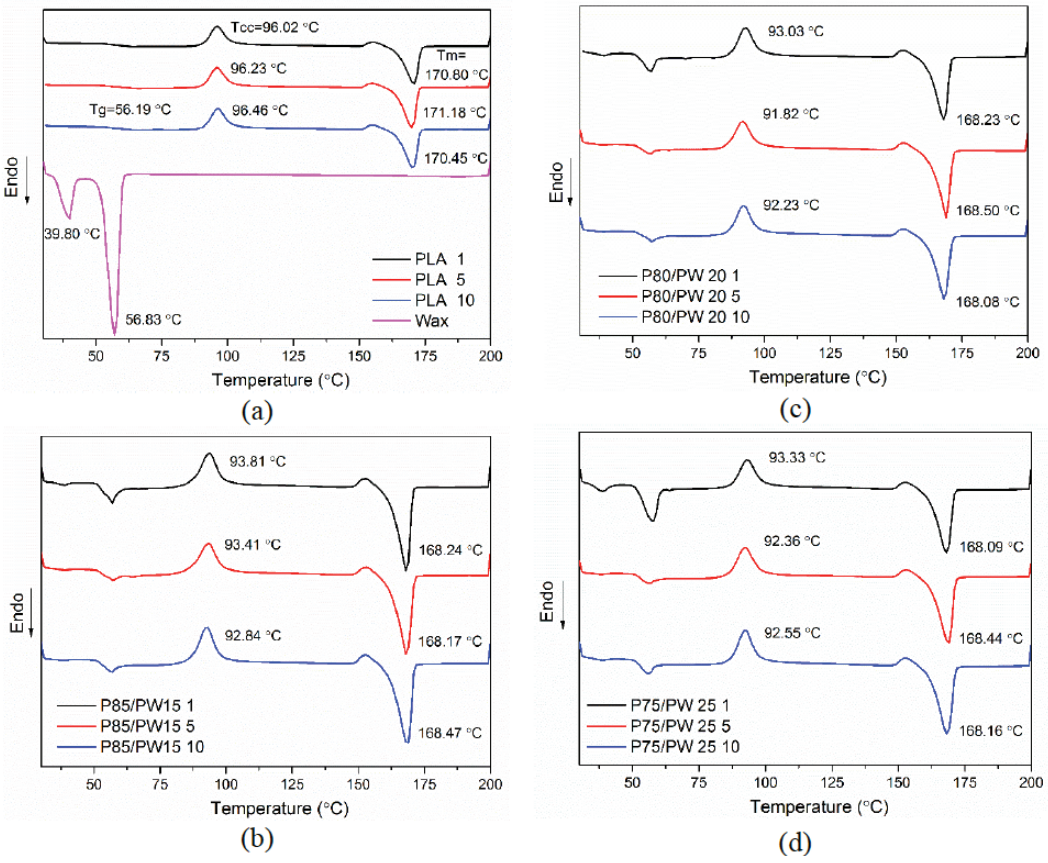


Table 3: The Crystallinity of Neat PLA and its Blends.

Material	Xc (%)
PLA 1	8.1
PLA 5	8.1
PLA 10	8.1
P85/PW15 1	14.9
P85/PW15 5	15.2
P85/PW15 10	15.1
P80/PW20 1	17.8
P80/PW20 5	17.6
P80/PW20 10	17.9
P75/PW25 1	20.4
P75/PW25 5	20.9
P75/PW25 10	20.7

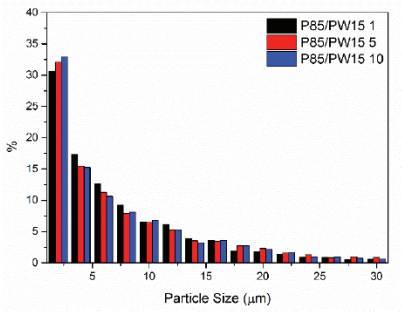
of PLA in the PLA/PW blends was due to the nucleating effect of the paraffin wax phase on the PLA matrix. Conceivably, the molecular mobility and crystallinity of the blends strongly depend on the paraffin wax content and its distribution in the PLA matrix. As the temperature exceeded the melting temperature of paraffin wax, the intramolecular interactions of the paraffin wax collapsed and the low molecular weight chains of paraffin wax began to disentangle and rearrange in the PLA matrix, [22], eventually contributing to the change in crystallinity of the PLA in the PLA/PW composites.

From the DSC curves, it can be seen that there are two melting temperatures. This indicates that PLA and paraffin wax are immiscible. Additionally, the glass transition temperature of PLA and the melting temperature of paraffin wax are 56.2 °C and 56.8°C; thus, they overlap one another. For this peak, the one-minute mixing blends acquired higher enthalpy than the five- and ten-minute mixing blends, thus demonstrating that the paraffin wax was not well mixed in the PLA matrix. As the content of the paraffin wax increased, this peak was even more significant.

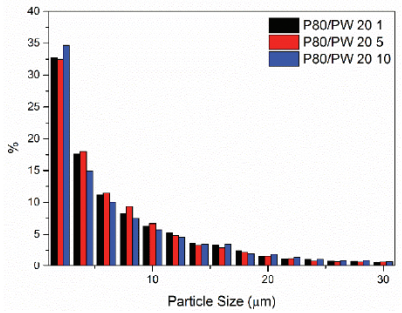
Distribution and dispersion of PW in PLA matrix observed by POM

The dispersion of the paraffin wax in the PLA matrix was slightly affected by the mixing time. With a higher content of paraffin wax, the paraffin wax percentage could be increased, as shown in **Figure 2**. Since a material such as PLA takes a longer time to crystalize, the POM image of neat PLA showed only a few crystals, as can be seen in **Figure 3 (a)**. The nucleating effect caused by the paraffin wax introduced a large number of crystals into the PLA matrix. Moreover, the longer mixing time and greater shear force yielded a better distribution of the paraffin wax, as shown in **Figure 3 (b–d).**

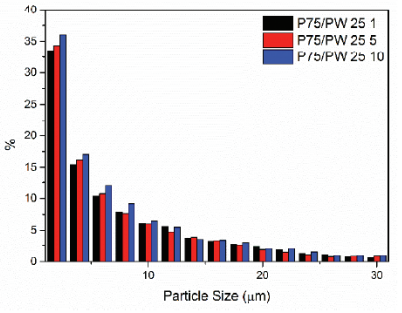
Figure 2:
The dispersion of (a) 15%, (b) 20%, and (c) 25% paraffin wax in the PLA matrix.



(a)



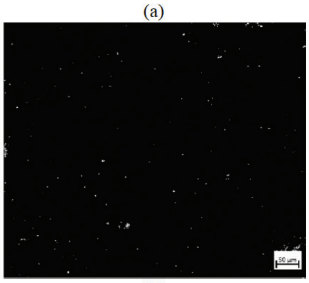
(b)



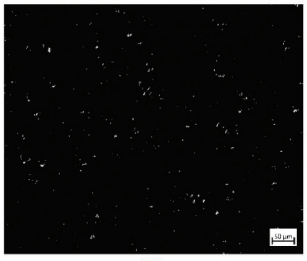
(c)

Figure 3:
The distribution of 15% paraffin wax in the PLA matrix at (a) one minute, (b) five.

(a)



(b)



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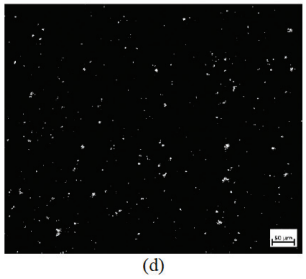
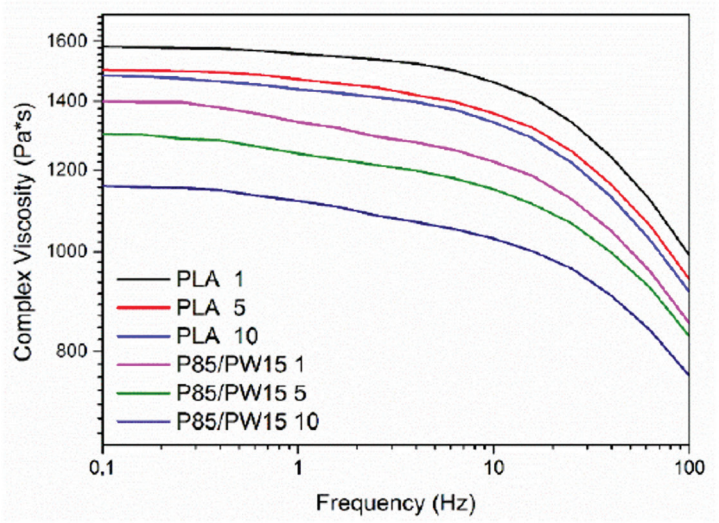


(d)

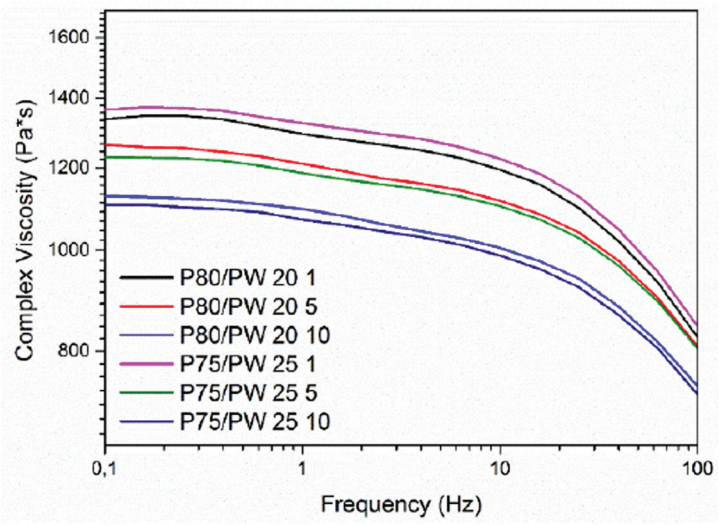
Rheological Properties

Under shear stress, paraffin wax lowers the viscosity of molten polymer composites as shown in **Figure 4**. As is well known, PLA is very sensitive to high temperatures. Thus, longer processing times during PLA compounding caused PLA to undergo severe thermal degradation and chain scission, leading to a lower molecular weight and broadening the molecular weight distribution curve [23, 24]. Therefore, as expected, the ten-minute processing curves exhibited the lowest complex viscosities in each group. In addition, when paraffin wax was added to the polymer matrix, a decrease in complex viscosity values was observed. Furthermore, since paraffin wax acted as a lubricant in the polymer matrix, it is expected that the addition of paraffin wax will further improve the fluidity and processability of the blend as compared to neat PLA.

Figure 4: Complex viscosity (η*) verses frequency of neat PLA and PLA/PW blends.



(a)



(b)

Mechanical Properties of PLA Blends

Figure 5 plots the Young's modulus, tensile strength, ductility (elongation-at-break), and toughness (area underneath the stress vs. strain curve) of neat PLA and the blends obtained through tensile tests. The incorporation of paraffin wax exhibited dramatic improvements in ductility and toughness compared to neat PLA. This is due to plasticizer and lubricating effect of the paraffin wax. The Young's modulus, ductility and toughness of neat PLA slightly decreased with the longer compounding time, however, the blends showed different tendency. The elongation at break and the toughness of the blends were increased with the increasing compounding time. This is because the agglomerated paraffin wax disperse more uniformly in PLA matrix as well as lower the standard deviation.

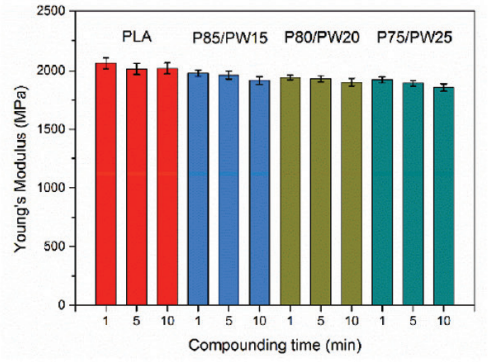


Figure 5: (a) Young's modulus, (b) elongation-at-break and (c) toughness of neat PLA and PLA/PW blends.

Conclusion

This study has developed and investigated PLA/PW blends and compared with mechanical properties of micro tensile specimens by injection molding process. The key that greatly improved ductility and toughness under tensile loading is the incorporation of percentage of paraffin wax in PLA/PW composites. Paraffin wax also served as nucleating agent, plasticizer and lubrication in PLA matrix, increasing the crystallinity, ductility, toughness and lowering the complex viscosity. From experimental results, the distribution of the secondary phase material in polymeric matrix can be improved by longer compounding time.

Acknowledgements

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By Ron Leonardi Erie Times-News

'Hey, Are You One of the PlastChicks?' Erie Plastics Engineer Co-Hosts Industry Podcast

Lynzie Nabel, a plastics engineer with Erie-based TechTank, is co-hose of the podcast "PlastChicks"

The tone is light, lively and fun.

Discussion centers on popular plastics industry topics and people who inspire the trade.

Subjects range from CEOs, production managers, and management consultants to sales and marketing directors, and product safety engineers.

"We wanted to do something as an excuse to hang out more and to educate people about the plastics industry," said Lynzie Nebel, a plastics engineer at Erie-based TechTank and co-host of the podcast "PlastChicks — The Voices of Resin!"

Since March 2018, Nebel, 35, and Mercedes Landazuri, 38, a Chicago resident and member of the Society of Plastics Engineers, have teamed to provide a colorful, informative presentation of interviews and news pertinent to their profession.

Nebel is a Harborcreek Township resident and native of Hamburg, New York. She graduated from Penn State Behrend in 2008, earning a degree in plastics engineering technology.

Nebel has worked at TechTank since 2018 as a program and project engineer. The Erie company, at 1524 E. 10th St., is a plastics injection molding business founded in 2016.

"There's not that many women in this industry and Mercedes had been featured in a profile," Nebel said. "My husband was reading an article on her and he said, 'She's kind of like you.' "

Nebel eventually met the woman who would become her co-host at a 2017 industry conference in Anaheim, California.

"We met up and hit it off and got along ridiculously well," Nebel recalled.

"They grab a person from industry once a month and start to talk about their specific facets, like how they got started," TechTank owner Brock Allen said. "They basically do an interview and talk about interesting, new developments in the industry. ... I think Lynzie has a fun, bubbly personality. So does Mercedes."

The women release one podcast per month. Shows vary in length from 15 minutes to 1 hour. Their podcast, sponsored by the Society of Plastics Engineers, can be found at http://bit.ly/plastchicks and on many podcast player apps.

Allen says the women have built a fan base during their 2½-year run with the show.

"We've had vendors come into our building and they would see Lynzie doing a show and they would ask, 'Is she one of the PlastChicks?' " Allen said. "There's a lot of people in the industry who listen to that podcast. ...

Lynzie is very involved and very connected with clubs and societies in the plastics industry. I think the two of them form a very interesting dialogue with some of the people they have."

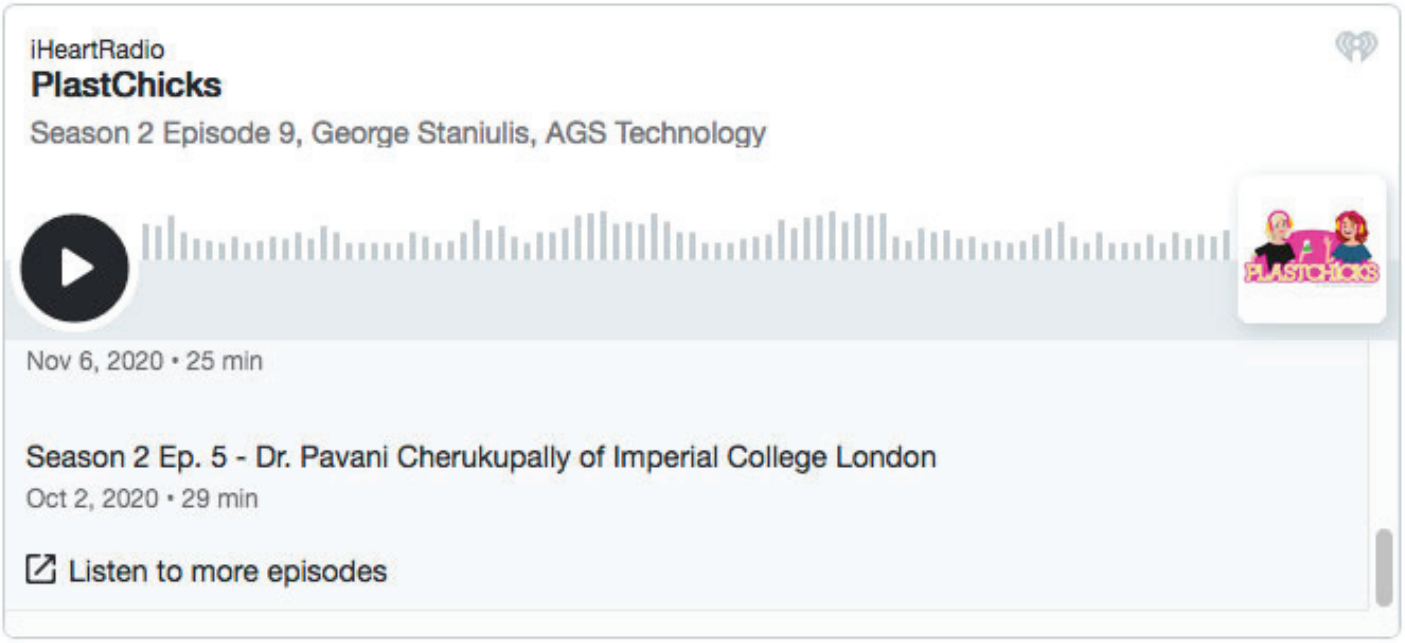
Lately, the women have been presenting both podcasts and video streams of their recording sessions.

"We talk to a lot of people who have cool jobs and we talk to people who weren't traditionally in the plastics field and moved into the industry," Nebel said. "We thought we were doing it more for us, but people say, 'Hey, are you one of the PlastChicks?' We have industry people asking if they can be on the show. We usually have a list of four or five people who want to be on it."

Public feedback has been positive.

"They say they like it because we make it fun," Nebel said.

Contact Ron Leonardi at rleonardi@timesnews.com. Follow him on Twitter @ETNLeonardi.



About PlastChicks

PlastChicks — The Voices of Resin! A new plastics podcast hosted by Lynzie Nebel and Mercedes Landazuri, discussing popular plastics topics and the people inspiring the industry! Tune in every month on your favorite podcast directory for a new episode of PlastChicks featuring a guest interviews. This podcast is sponsored by SPE-Inspiring Plastics Professionals.

Listen to the latest episodes at https://www.4spe.org/i4a/pages/index.cfm?pageid=4743

IMD Board of Directors Meeting

January 29,2021

. . . . . .

Respectfully Submitted by Secretary Jeremy Dworshak

Welcome & Opening Remarks – Rick Puglielli, Division Chair

Chair Rick Puglielli called the meeting to order at 9:00 AM EST and welcomed all attendees.Secretary Jeremy Dworshak called roll at 9:15 AM (EDT).

Roll Call – Jeremy Dworshak, Secretary

Present: Adam Kramschuster, Alex Beaumont, Amanda Nicholson, Angela Rodenburgh, Bradley Johnson, Chad Ulven, David Kusuma, David Okonski, Edwin Tam, Erik Foltz, Hoa Pham, Jeremy Dworshak, Joseph Lawrence, Kishor Mehta, Larry Geist, Lynzie Nebel, Peter Grelle, Ray McKee, Rick Puglielli, Saeed Farahani, Srikanth Pilla, Susan Montgomery, Tom Turng, Tom Giovannetti, Vikram Bhargava, Kathy Schacht and John Ratzlaf.

Absent were: Jim Wenskus, Sriraj Patel, Sue Wojnicki

Motion: Previous minutes approved by Peter Grelle, and seconded.

Financial Report – Ray McKee, Treasurer of IMD

Ray McKee presented the financial report and mentioned that the only expense is of the website and newsletter production. Current revenue is the SPE rebate $1,600. Current membership is $1,200. Question: how many SPE members are not members on specific divisions/sections? Edwin Tam will cover this in his councilor report. Question: Brad Johnson's question about student activities cost. Will discuss in New Business.

Action: *ANTEC sponsorships, $2,500, not used and not refunded. Discussion on what should be done with the funds and how we will use it in the future. Ratzlaff spoke about a virtual conference the Recycling Division did.*

Council Update – Edwin Tam

SPE's president spoke about 'a sustainable SPE' focusing on the membership shift to GenX and Millennials. Roger Avakian is leading a 'Business Development and Technology Committee.' SPE HQ budget summary slides shown.

Technical Director Report/TPC update – Pete Grelle, Technical Director and Joe Lawrence

ANTEC 2021 and IMTech 2021 updates and TOPCON activities review

2021 IMD papers count is at 14 which is the lowest total since, at least, 1992. There were 35 IMD papers presented at ANTEC 2020. Pete Grelle presented data on the breakdown of papers by type and region. Amanda Nichols spoke about a virtual event she's hosting. Discussed IMD speaker opportunities at this event: specifically on simulation.

David Okonski stated that IMD will not be participating at AutoEpCon this year, as this was their choice to partner with SPE HQ for 2021.

Joe Lawrence spoke about ANTEC 2021. 18 virtual sessions: 10 with 5 papers, and 8 with 6 papers. IMD has 2 live sessions, each with 6 papers.

Motion: Rick Puglielli made a motion to postpone IMTech until 2022, seconded. The IMD monies are on deposit with the venue. Is the money available for refund? Not available for refund, per Rick.

Motion passes.

Bylaws Committee Update - David Okonski and Pete Grelle, Technical Director

No update.

Action: Jeremy Dworshak will set up a meeting with David Okonski, Peter Grelle, and Hoa Pham. The virtual meeting is setup for 2/4/2021.

Board Nominations Update - Hoa Pham

Motion: 2021 Board officers presented. 2021 Board Directors presented. Motion by Hoa Pham seconded. Motion passes.

Membership Update - Erik Foltz

No update.

Action: Erik Foltz will send out an update via e-mail.

Communications Update - Angela Rodenburgh

Newsletter and website have a real lack of content. Newsletter open rate is high.

Action: Discussion around content and how we will address this as a board. Jeremy Dworshak will add this to the Bylaws committee discussion. Angela will email/solicit content from the IMD Board Membership. Rodenburgh requested sponsorship level information yet, this information does not exist per David Okonski.

Other Business-Passing of the Gavel - Rick Puglielli

Brad discussed sponsoring undergrad projects at Penn State Behrend. Two projects discussed for a request of $250/project.

Motion: $500.00 to support project (Edwin Tam) and seconded. Motion passes.

Chad Ulven spoke about NDSU's re-invigorated SPE Student Chapter! Tom Turng spoke about two IMD SPE Fellow nominees have been elected!

Open nominations for SPE Honored Service Members needed.

Adjournment

Next Meeting at Antec/Virtual? Time/Date/Place T.B.D..

Action: Next meeting will be virtual on April 30th.

Motion: Motion to adjourn (Puglielli) and seconded. Motion passes.

ANTEC® 2021

EXHIBITOR & SPONSORSHIP OPPORTUNITIES

ANTEC® is the largest, most respected and well-known technical conference in the plastics industry. It's where must-hear plastics leaders share their valuable industry insights and classroom theory connects with real world solutions. ANTEC® 2021, will offer real-time, remote presentations occurring over 10-days with 20 technical tracks. Additionally, it will include International Spotlights with real-time global presentations broadcast online from various regions around the world, including Asia, India, Australia/New Zealand, Europe, and the Middle East. Dates for International Spotlights will be forthcoming.

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» Machining Centers
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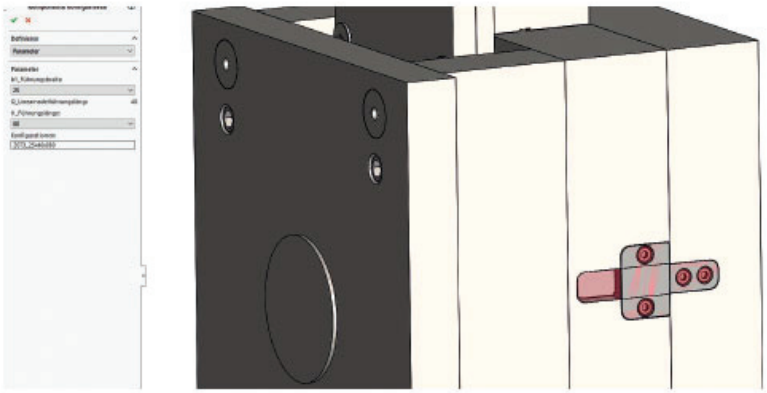
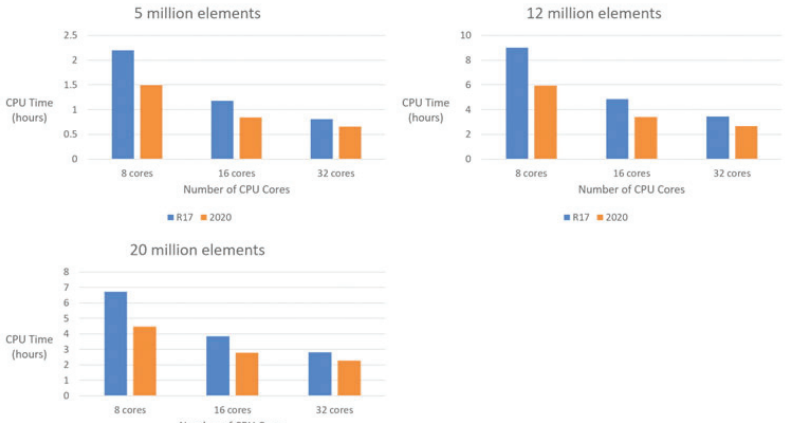
HASCO Native CAD Data Now Available for SolidWorks®



To facilitate the work of designers and provide them with the best possible support, HASCO, as a leading international supplier of standard parts for tool and mouldmaking, began making parametric data available for design purposes some time ago. Close cooperation with reliable software partners has enabled the standard parts required to be implemented in the most common CAD systems in a user-friendly manner. After Siemens NX and Catia, native data is now available for SolidWorks® too. All the data is perfectly tailored to the needs of modern mouldmaking. Numerous additional advantages and digital services ensure that users benefit from considerable time and cost savings over the entire value-added chain for mouldmaking.

Read Full Story>

Moldex3D 2020 Reduced 30% Calculation Time Through Solver Optimization



Under the trend of artificial intelligence, the demand for handling big data is emerging, driving the development of High-Performance Computing (HPC) platforms and devices. In the field of molding analysis, the utilization of HPC platforms can be widely applied in the development stages of plastics. The limitation of software specifications will no longer exist.

Nevertheless, as the products and manufacturing processes are getting complicated, great mesh amounts and accurate analysis require longer computing time. Repetitive virtual simulation also leads to a long development cycle. In order to speed up the mold filling analysis and successfully manufacture the products in the scheduled time, users need to choose between the computing efficiency and accuracy.

Read Full Story>

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Top Reasons to Join SPE and its Injection Molding Division

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Treasurer: Raymond McKee (Currier Plastics)
Secretary: Jeremy Dworshak (3M)
Technical Director: Peter Grelle (Independent Consultant)
Past Chair/Education Committee Chair: Srikanth Pilla

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Communications Committee: Adam Kramschuster (University of Wisconsin)
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Sponsorship Committee: Alex Beaumont (Beaumont Technologies), David Kusuma (Tupperware)
Education Committee: Vikram Bhargava (Independent Consultant),
Dr. Saeed Farahani (Clemson University), Chad Ulven (C2Renew)
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Awards Committee: Kishor Mehta (Retired Plastics Engineer), Tom Turng (University of Wisconsin)
Board Nominations Chair/Historian/Asst. Treasurer: Hoa Pham (Freudenberg Performance Materials LP)
Bylaws Chair: David Okonski (General Motors)
Bylaws Committee: Hoa Pham (Freudenberg Performance Materials LP),
Peter Grelle (Independent Consultant), Jeremy Dworshak (3M), Kishor Mehta (Retired)
Councilor: Edwin Tam (Teknor Apex)
Larry Geist (Ferguson Production)
Amanda Nicholson (Polymers Center)

ANTEC TCP:

2020 Dave Okonski
2021 Joseph Lawrence
2022 Chad Ulven
2023 Raymond McKee
2024 Edwin Tam
2025 Lynzie Nebel
2026 TBD

EMERITUS:

Mal Murthy (Doss Corp.)
Larry Schmidt (LR Schmidt Assoc.)
Jim Wenskus (Retired Plastics Engineer)