



**CENTURY  
EXTRUSION**  
*Your Partner in Productivity*

## **“MAKING PROPERTIES AND PROFITS”**

**Twin-Screw Extrusion Seminar**

**March 12-13, 2019**

Seminar Leader: Adam Dreiblatt  
Akron Polymer Technology Services  
Akron, OH

### **Program Overview**

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This two-day seminar focuses on the application of intermeshing co-rotating extruders in polymer compounding applications. Training is directed towards machine operators, process engineers and supervisors as well as product development scientists in both research and manufacturing environments. **Participants are reminded that the goal of compounding is to produce properties, not pellets.** The goal of this seminar is to explain **how** twin-screw extruders create properties.

Interactions between screw design, raw materials and process parameters are presented in such a way that both experienced users and novices will benefit. Common unit operations are explained in practical terms with no prior knowledge or experience required. Upon completion of the training, participants will return to the workplace armed with techniques to improve quality, production rate and yield.

### **Adam Dreiblatt**

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Adam has been involved with the practical aspects of twin-screw extrusion for over 30 years. He was formerly Manager of Process Development at Werner & Pfleiderer Corporation and Director of Manufacturing for the Novon Products Division of Warner-Lambert. Adam is now Director of Process Technology for CPM Century Extrusion, a global supplier of twin-screw extrusion equipment and replacement parts.

Adam has authored and presented numerous technical papers as well as published articles on various aspects of twin-screw extrusion. He has contributed several chapters in reference books including: “Screw Design,” Encyclopedia of Polymer Science and Engineering (John Wiley), “Intermeshing Co-rotating Twin Screw Extruders,” Mixing in Polymer Processing (Marcel Dekker), “Internal Mixers, Single and Twin Screw Extruders,” Handbook of Process Plant Machinery (Butterworth Publishing). Adam holds a M.S. in Applied Science from New York University.

### **Akron Polymer Technology Services**

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Akron Polymer Technology Services (formerly Akron Polymer Training Center) provides workforce development for the rubber and plastics industry. World-class training seminars and workshops are presented by instructors from industry who bring practical experience to the classroom. Courses are offered in rubber compounding, formulating and testing as well as plastics injection molding.

***The 18,500 square foot Akron Polymer Technology Services facility houses three classrooms, a polymer processing laboratory, a computer lab and a laboratory devoted to physical and dynamic properties testing.***



## **Seminar Program**

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**Tuesday, March 12, 2019, 8:00 a.m. - 5:00 p.m.**

### **Twin-Screw Extruder Design**

- Introduce concepts responsible for creating properties on co-rotating twin screw extruders
  - Degree-of-fill, shear rate, residence time/residence time distribution, heat transfer
  - Dispersive vs. distributive mixing
- Influence of extruder configuration on compounding performance
  - How machine design impacts mixing (e.g.  $d_o/d_i$ , co versus counter rotation, etc.)
  - What is optimum extruder configuration?

### ***Lunch break***

### **Process Design**

- Description of unit operations: feeding, melting, mixing, venting, pressurization
- Introduction of the process model – role of specific energy
- Interaction of process parameters
- Process optimization

**Wednesday, March 13, 2019, 8:00 a.m. - 5:00 p.m.**

### **The “Art” of Screw Design**

- Functional description of the working principles for each element type (conveying, mixing)
- Overview of available screw element designs
- Characterization of dispersive and distributive mixing elements
- Selection of the optimum screw type for each of the unit operations

### ***Lunch break***

### **Industry Best Practices**

- Guidelines for set-up, operation and maintenance of your twin-screw equipment

### **Process Troubleshooting**

- Diagnosis of compounding instabilities with respect to residence time
  - Consistency (i.e. within-lot)
  - Reproducibility (i.e. lot-to-lot)

*Bring your current processing problems or screw configuration questions to discuss privately with the instructor...this alone can justify the seminar fee!*

*Participants will return to the workplace prepared to design and optimize screw configurations as well as develop operating conditions to meet compound specifications.*



## **General Information**

**Location:** The seminar will be held at the Akron Polymer Technology Services (APTS) facility, 225 East Mill Street, Akron, Ohio. Telephone (330) 972-8303.

**Hotel Reservations:** Attendees are responsible for making their own lodging arrangements. Refer to APTS website (<http://www.uakron.edu/apts/training/travel-lodging.dot>) for a listing of local hotels with discounted rates.

**Time:** Seminar hours are from 8:00 a.m. to 5:00 p.m. on March 12th and 13th. Akron Polymer Technology Services will provide continental breakfast in the morning, lunch and refreshments each day.

## **SEMINAR FEES**

**Seminar fee is \$ 950.00 per person**  
**SAVE! Company registrations of three (3) or more save 10% each**

**Cancellations:** If you must cancel, call APTS's Seminar Registrar at (330) 972-8303 who will assign you a cancellation code number. You will need this number for verification to receive a refund or to transfer to another seminar. You may cancel your registration for a full refund up to March 1, 2019 less a \$30 processing fee. Refunds will be credited to the same form of payment used for registration. **REGISTRANTS WHO FAIL TO ATTEND ARE LIABLE FOR THE ENTIRE FEE UNLESS THEY CONTACT APTC PRIOR TO THE SEMINAR TO CANCEL.**

APTS reserves the right to cancel a workshop or substitute instructors. If APTS should cancel, they will call that phone number which the attendee has given APTS as the contact, no later than 10 days prior to the workshop. You will receive a full refund if the workshop is cancelled. **APTS is not responsible for airline penalty fees or any other costs incurred by the attendee due to the cancellation of a seminar.**

## Registration Information

All registrations must be guaranteed by a purchase order number or a credit card. Checks should be made payable to **Akron Polymer Technology Services** and must include a copy of your registration.

### NOTE THAT SEMINAR FEES ARE DUE PRIOR TO ATTENDING.

All registrations whether by phone, fax or mail will be confirmed by mail and considered binding and subject to all cancellation policies. If you do not receive a confirmation prior to the workshop, please call APTS to verify your registration.

Seminar fee includes classroom instruction, seminar manual, continental breakfast, lunches and refreshment breaks. It does not include hotel accommodations. If you require special accommodations to fully participate, please attach a description of needs.

**To register by phone:** Call APTS's Seminar Registrar at (330) 972-8303.

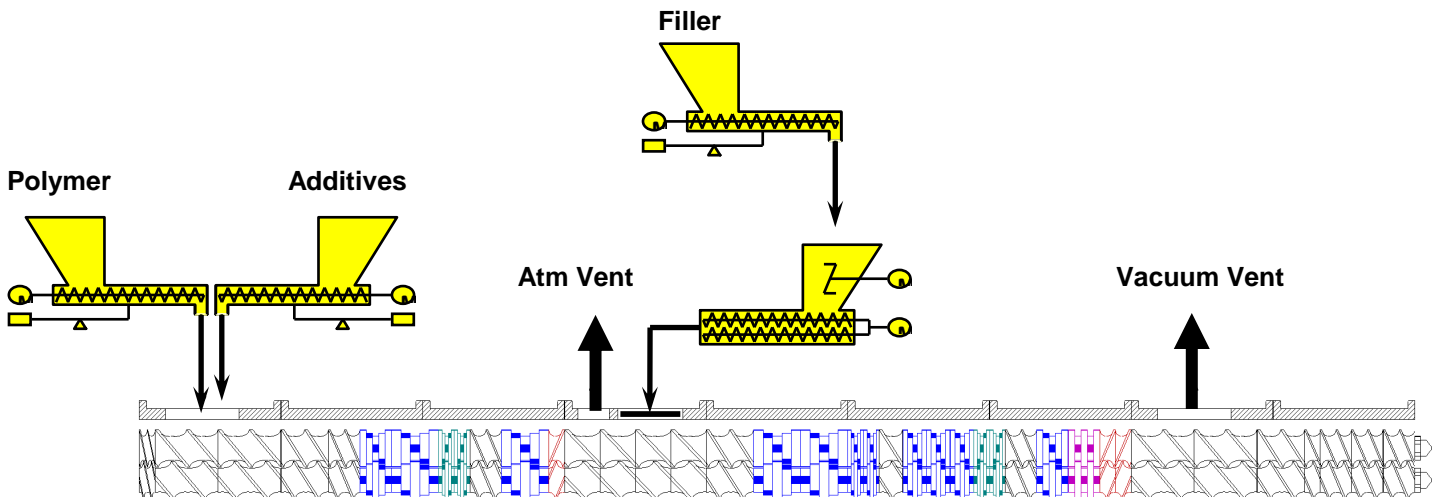
**To register online:** <http://www.uakron.edu/aps/>

**To register by fax:** Send attached Registration Form by fax to (330) 972-8141. All registrations must include credit card information, check, or a purchase order number.

**To register by mail:** Send completed registration form to APTS Training Division, The University of Akron, 225 East Mill Street, Akron, OH 44325-5404 with a purchase order number, check, or credit card information.

**ENROLLMENT IS LIMITED AND ON A FIRST-COME, FIRST-SERVE BASIS**

**EARLY REGISTRATION IS STRONGLY RECOMMENDED!**





The University of Akron  
Akron Polymer Technology Services

**Polymer Industry Services**  
**TESTING | TRAINING | PROCESSING**  
*Advancement at Your Fingertips*

## REGISTRATION FORM

REGISTRATION INFORMATION			
<p><b>To register by mail:</b> Send this completed registration form with payment information to  <b>APTS Training Division</b>  <b>The University of Akron</b>  <b>225 E. Mill Street</b>  <b>Akron, OH 44325-5404, U.S.A.</b></p> <p><b>To register by fax:</b> Fax this completed registration form with payment information to <b>(330) 972-8141.</b></p> <p><b>To register by email:</b> Email this completed registration form with payment information to <b>aptc@uakron.edu.</b></p> <p><b>To register by phone:</b> Call The APTS Training Division at <b>(330) 972-8303</b> or <b>(330)972-8625.</b></p>			
PARTICIPANT INFORMATION			
First Name:		Last Name:	
Company:			
Job Title:			
Address:			
City:		State:	Zip:
Work Phone Number:		Fax:	
Email Address:			
Supervisor's name and contact information:			
<input type="checkbox"/> Please keep me informed of future APTS Training Division course offerings and programs.			
COURSE INFORMATION			
Course Name:		Course Number:	Cost:
Course Name:		Course Number:	Cost:
Course Name:		Course Number:	Cost:
PAYMENT INFORMATION			
<b>Check or Money Order:</b> Payable to APTS Training Division			
<b>Credit Card:</b>	<input type="checkbox"/> Discover	<input type="checkbox"/> Visa	<input type="checkbox"/> MasterCard
Credit Card Number:		Expiration Date:	
<i>For security, fax form, or if emailing, do not enter credit card #, please call APTS at phone num. above to provide CC# <input type="checkbox"/> or ask APTS to call you. <input type="checkbox"/></i>			
Cardholder's Signature/Name:			
Cardholder's E-mail Address:		Phone Number:	
<b>Purchase Order:</b>	Purchase Order Number:		
Accounts Payable Department Information (if different than above):		Phone:	
Address:		City:	State: Zip:
CANCELLATION AND WITHDRAWAL INFORMATION			
<p>Akron Polymer Technology Services (APTS) Training Division reserves the right to cancel or reschedule a course because of insufficient enrollment or other unforeseen circumstances. If a course is cancelled or rescheduled, APTS will refund course registration fees but cannot be held responsible for any other related expenses or charges incurred by the registrant. Withdrawal requests received up to three (3) business days before a class will result in a full refund less a \$30 processing charge. Thereafter, you may send a colleague in your place, transfer to another seminar, or receive credit toward a future event. Refunds will be credited to the same form of payment used for registration. Registrants who fail to attend without contacting APTS are liable for the entire course fee.</p>			
IN CASE OF EMERGENCY CONTACT INFORMATION			
Contact name:		Phone number:	