

**Century Extrusion presents**  
**“HIGH PERFORMANCE COMPOUNDING”**  
**Twin-Screw Extrusion Training Seminar**  
**February 25-26, 2009**

Seminar Leader: Adam Dreiblatt  
Houston Marriott North at Greenspoint  
Houston, TX

**Program Overview**

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This informative two-day seminar focuses on the application and optimization of intermeshing co-rotating extruders in polymer compounding applications. The presentation is suitable for machine operators, process engineers and supervisors as well as product development scientists in both research and manufacturing environments. The purpose of this seminar is to explain how twin-screw extruders can be configured and operated to produce the desired physical properties at the highest production efficiency.

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

The training includes optional ‘brainstorming’ sessions at the end of each day; participants are encouraged to bring their current processing problems, screw designs, etc. to discuss privately with the seminar instructor.

**Adam Dreiblatt**

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Adam has been involved with the practical aspects of twin-screw extrusion for over 25 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.

Having conducted training classes for thousands of operators and engineers over the past 15 years, he has developed and refined teaching methods to effectively explain the complex interactions within twin-screw extruders to all audiences. An accomplished instructor, Adam offers a unique insight into twin-screw extrusion technology as well as a money-back guarantee to anyone who is not completely satisfied after attending one of his seminars.

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.

**Century Extrusion**

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As part of the CPM global network, Century Extrusion provides twin-screw extrusion equipment, replacement parts and services in the Americas, Europe and Asia from its corporate headquarters in Traverse City, Michigan. Century Extrusion supports the food, chemical and polymer processing industries with high-performance wear solutions for more than 27 different brands of twin-screw extruders.

## Seminar Program

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**Wednesday, February 25, 2009, 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 the optimum extruder configuration for my application?

### ***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

**5:00 PM - Problem Solving Session I** (optional one-on-one discussions with instructor)

**Thursday, February 26, 2009, 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
- Examination and analysis of typical compounding screw configurations
  - Masterbatch, concentrates
  - Non-reinforcing fillers
  - Fiber compounding
  - Liquid additives

### ***Lunch break***

### **Best Practices**

- Learn how ‘World-Class’ companies get the highest productivity from their equipment

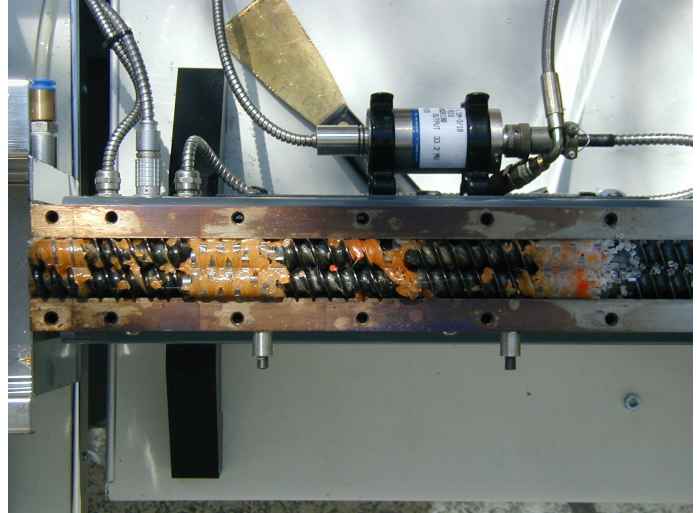
### **Process Troubleshooting**

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

**5:00 PM - Problem Solving Session II** (optional one-on-one discussions with instructor)

*Bring your current processing problems or screw configuration questions to discuss privately with the instructor...getting your current problems solved 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**

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**Location:** The seminar will be held at the Houston Marriott North at Greenspoint, 255 North Sam Houston Parkway East, Houston, TX 77060, (281) 875-4000.

**Hotel Reservations:** Attendees are responsible for making their own lodging arrangements. Discounted room rates (\$159.00) are available until February 4, 2009; you must call (800) 228-9290 and identify yourself as a “*Century Extrusion*” seminar attendee when making reservations to receive the group rate. It is strongly recommended to reserve your hotel room as soon as possible, as the Polyolefins Conference runs concurrently with this seminar. The hotel is conveniently located within walking distance from the Polyolefins Conference 2009 (February 22-25) at the Wyndham Hotel Greenspoint.

**Time:** Workshop hours are from 8:00 a.m. to 5:00 p.m. on February 25<sup>th</sup> and 26<sup>th</sup>. The optional problem solving sessions start at 5:00 on both days. The hotel will provide continental breakfast in the morning, lunch and refreshments each day.

**Cancellations:** If you must cancel, call Century Extrusion at (231) 947-6400 to obtain a cancellation code number. You will need this number for verification and to receive a refund or to transfer to another seminar. You may cancel your registration for a full refund up to February 1, 2009. **REGISTRANTS WHO FAIL TO ATTEND ARE LIABLE FOR THE ENTIRE FEE UNLESS THEY CONTACT CENTURY EXTRUSION PRIOR TO THE SEMINAR TO CANCEL.**

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

## Registration Information

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All registrations must be guaranteed by a purchase order number or a credit card. Checks should be made payable to **Century Extrusion** 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 by mail prior to the workshop, please call Century Extrusion to verify your registration.

Seminar fee includes classroom instruction, seminar manual, continental breakfast, lunches and refreshment breaks. It does not include hotel accommodations.

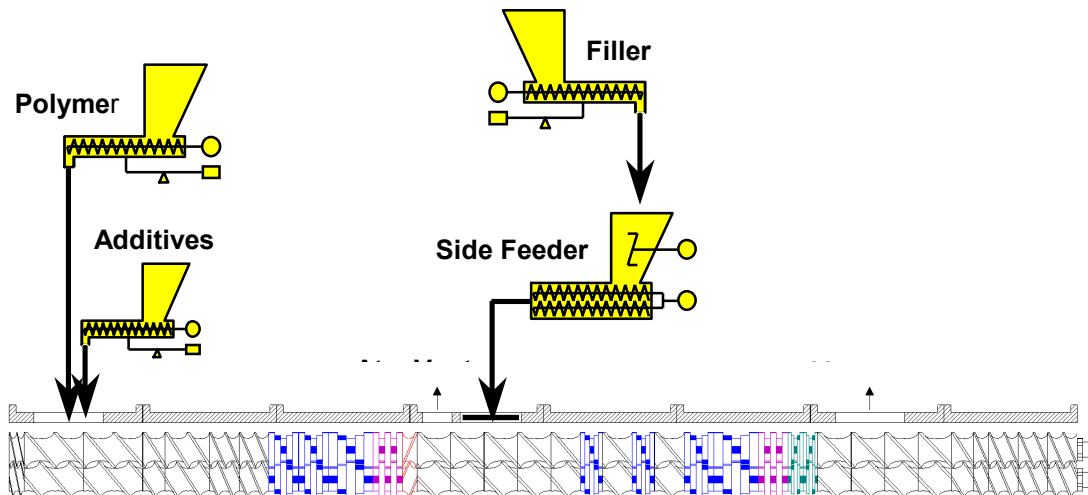
**To register by phone or email:** Contact Tom Urban at (231) 947-6400, [urbant@centuryextrusion.com](mailto:urbant@centuryextrusion.com)

**To register by fax:** Send copy of Purchase Order by fax to (231) 947-8400. All registrations must include credit card information, check, or a purchase order number.

**To register by mail:** Send completed registration form to Century Extrusion, Attn: Tom Urban, 2412 W. Aero Park Court, Traverse City, MI 49686 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!**



**REGISTRATION FORM**  
**Twin Screw Compounding Seminar**  
**February 25-26, 2009**  
**Houston, TX**

**All forms of registration must be guaranteed to a credit card or a purchase order number.**

To register: contact Tom Urban at Century Extrusion (231) 947-6400, or fax the completed registration form to (231) 947-8400, or mail the form below with payment to:

**Century Extrusion**  
**2412 W. Aero Park Court**  
**Traverse City, MI 49686**  
**Attn: Tom Urban**

Name \_\_\_\_\_

Company \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail \_\_\_\_\_

**SEMINAR FEES**

**Seminar registration fee is \$ 875.00 per person**

*If you require special accommodations to fully participate, attach a description of needs.*

**SAVE! Company registrations of three (3) or more save 10% each**

**PAYMENT INSTRUCTIONS**

**SEMINAR FEES ARE DUE PRIOR TO ATTENDING.** Please indicate method of guarantee or payment. Make checks (in U.S. dollars) payable to Century Extrusion and send with registration.

Check Amount \$ \_\_\_\_\_ Check # \_\_\_\_\_

P O # \_\_\_\_\_ Amount \$ \_\_\_\_\_

VISA       MC       AMEX       To guarantee       To charge

Account # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Cardholder's name \_\_\_\_\_ Today's date \_\_\_\_\_