Understanding and Optimizing Extrusion Seminar, Nov 1-3, 2010

Introduction
- Basic components of an extruder
- Review of terminology

Hardware components of an extruder
- Screw, barrel, and feed system
- Grooved feed extruders
- Screw drive systems
- Breaker plate and screens
- Gear pumps
- Heating and cooling
- Instrumentation and control

Polymer properties important in extrusion
- Melt flow properties
- How to determine flow properties directly from the extruder
- Thermal properties
- Viscous heat generation
- How polymer properties can be used to set correct processing condition and improve the extrusion process

Functional aspects
- Solids conveying
  * Gravity induced conveying
  * Drag induced conveying
  * How to improve solids conveying
- Plasticating or melting
  * Contiguous solids melting
  * Dispersed solids melting
  * How to improve melting
- Melt conveying
  * Drag flow
  * Pressure flow
  * Leakage flow
- Devolatilization or degassing
- Mixing
  * Basic mechanism of mixing
  * Distributive mixing
  * Dispersive mixing
  * How to improve mixing

Screw design
- Standard extruder screw
- Variations on standard screw
- Mixing screws
- Barrier type screws
- Multi-stage screws for venting
- How to improve performance by optimizing screw geometry

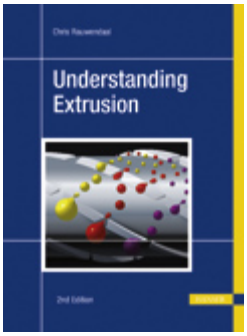
Die Design

- General rules and guidelines
- Analysis of dies
- Die flow instabilities
- Sheet and flat film dies
- Tubing and pipe dies
- Profile dies
- Coextrusion dies

Twin Screw Extruders
- Twin vs. single screw extruder
- Co-rotating twin screw extruders
- Counter-rotating twin screw extruders
- Co- versus counter-rotating extruders
- Non-intermeshing extruders

Troubleshooting Extruders (quick review, for detailed Troubleshooting see the Troubleshooting Extrusion Seminar)
- Methodology
- Machine & material related problems
- Functional problems & practical examples
- Details of troubleshooting discussed in the seminar following this one.

" *Understanding Extrusion* " (UE) by Chris Rauwendaal is available at a discounted price of $60.00 when signing up for one of these seminars.



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NRC
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http://www.nrc-cnrc.gc.ca/imi-imi/index.html

Contact us for nearby hotels.
530-269-1082

Our local sponsor is NRC as well as:
1- www.kwi-plm.com
2- www.xseedps.com

Books are offered at a discount only if ordered with a seminar and will be delivered at the seminar.

The course fees are:	Prior to Oct 16	Oct 16-29	After Oct 29
Und & Opt Extrusion:	$945.00	$995.00	$1095.00
Troubleshooting Extr:	$695.00	$750.00	$850.00
Foam Extrusion:	$945.00	$995.00	$1095.00
Sheet Extrusion:	$695.00	$750.00	$850.00
If taking 2 courses:	-$100.00	-$100.00	-$100.00
3rd attendee discount (5%):			
Understanding Book ($60.00)			
Troubleshooting Book ($75.00)			
Polymer Extrusion ($85.00)			
Thermoplastic Foam Extrusion ($60.00)			
Total:			

A 5% discount will be given for the 3rd and up attendees from the same company. The course fees include lunch for each day and the handout material.

Cancellations: A refund, less $100.00 cancellation fee, will be made if the registration is cancelled in writing by or on Oct 15, 2010. REE Inc. reserves the right to cancel one or more seminars or substitute instructors. Should this occur the attendees will be notified. We do not rake any responsibility for penalty fees or any other cost that may be incurred due to cancellation. We recommend that you book travel with refundable fares. Registrants who fail to attend are liable for the fees of the course registered for.

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