

Troubleshooting Extrusion Seminar, Nov 15-16, 2017

1. Requirements for efficient troubleshooting

- Instrumentation
- Understanding the process
- Collection of historical data.
- Condition of the equipment
- Information on the feedstock

2. Tools for troubleshooting

- Temperature measurement devices
- Data acquisition systems
- Microscopy
- Thermochromic materials
- Thermal analysis
 - * DTA and DSC
 - * TGA
 - * FTIR
 - * TMA
 - * Torque rheometer
 - * Other thermal characterization

3. Systematic troubleshooting

- Upsets versus development problems
- Troubleshooting techniques
 - * Brainstorming sessions
 - * Flow charts
 - * Fishbone diagrams
- Machine related problems
 - * The drive system
 - * The feed system
 - * The heating and cooling system
 - * Wear problems
- Screw binding
 - * Mechanism of screw binding
 - * Solving screw binding problems

4. Polymer degradation

- Thermal degradation
- Mechanical degradation
- Chemical degradation
- Effect temperature and residence time
- Melt temperatures in extrusion
- Residence times in extrusion
- Solving degradation problems

Location:

Sheraton Sand Key Resort
Clearwater Beach, FL
727-595-1611

5. Extrusion instabilities

- Frequency of instability
 - * High frequency instabilities
 - * Screw frequency instabilities
 - * Low frequency instabilities
 - * Very slow fluctuations
 - * Random fluctuations
- Functional instabilities
 - * Solids conveying problems
 - * Melting related problems
 - * Melt conveying problems
 - * Mixing related instabilities
- Solving extrusion instabilities

6. Air entrapment

- Mechanism of air entrapment
- Avoiding air entrapment
- Removing entrapped air

7. Gel problems

- How and where gels can be produced
- Gels created in polymerization
- Gels created in the extrusion process
- How to measure gels
- Solving gel problems

8. Die flow problems

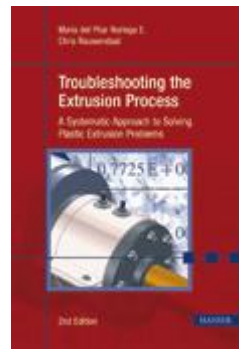
- Melt fracture
- Die lip buildup
- V- or W-patterns
- Specks and discoloration
- Die lines and weld lines
- Solving die flow problem

9. Various Extrusion Operations

- Troubleshooting blown film extrusion
- Troubleshooting sheet extrusion
- Troubleshooting tubing & pipe extrusion
- Troubleshooting profile extrusion

10. Case studies

Attendees are encourage d to bring actual extrusion problems to the seminar for a hands-on application of the material presented



The book "[Troubleshooting the Extrusion Process](#)" can be purchased from Hanser Publications www.hanserpublications.com and search for rauwendaal

The course fees are:	# of attendees	Through Oct 13	After Oct 13	Total
Und & Opt Extrusion:		\$850.00	\$950.00	
Troubleshooting Extr:		\$850.00	\$950.00	
If taking 2 courses per person:		-\$100.00	-\$100.00	
3 rd attendee discount (5%):				
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 \$150.00 cancellation fee, will be made if the registration is cancelled in writing by or on Oct 13, 2017. 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 take 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.

Scan & e-mail registration to: sietske@rauwendaal.com

or register on-line at www.rauwendaal.com

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Title:			
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Phone:			
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E-Mail:			
Additional Attendee Name:			
Additional Attendee Name:			
PO#			
Credit Card	If you use this form you can use the "custom payment box" on the front of our website to use a credit card. Be sure to check "not a PayPal member" put in your total and write me a note that you faxed your registration form.		



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