Introduction to Rubber Technology

Short Course at Smithers Rapra, Shawbury, Shropshire, UK
8-9 March 2016
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Course Overview:
The course covers the fundamental aspects of rubber technology in a logical manner, from Material Selection, Compounding, Vulcanisation, Processing (conversion of raw materials into finished products), through to Mechanical Properties, Environmental Resistance, Testing and Specifications, Evaluation of product failure and finally interactive case study exercises.

Who will benefit:
This course is for anyone wishing to gain a better appreciation of rubber technology, no formal qualifications or prior knowledge of rubber technology is required to attend. It is pitched at a level suitable for technicians, engineers, technical sales personnel and senior managers within companies which may be material suppliers or processors and manufacturers of finished and semi-finished rubber products/components.

Course Objectives:
The objectives of the course are to increase the delegate’s awareness of the important aspects of the technology, to appreciate, for example, how the properties of the products are influenced by material selection, compounding and processing.
At the end of the training course the delegate will be better equipped to:
• Have an appreciation of the range of elastomers and their uses and limitations
• Ask the appropriate questions of suppliers, processors and end-users
• Assess material specifications for suitability to an application
• Estimate how differences in service environment may affect product performance

Course Content:
• History of Rubber - A brief synopsis of events in the history of rubber.
• Material Properties and Selection - How the molecular structure of natural and synthetic rubbers affect their properties and ultimate selection.
• Compounding and Vulcanisation - The role of additives. The importance of vulcanisation. Optimising properties, processability and costs. Getting the best from rubber.
• Conversion - The processes involved in converting the raw materials into finished products including mixing technology, extrusion, moulding and other processes. The processes are described and the important central parameters highlighted.
• Environmental and Chemical Resistance - The environmental factors that have the potential to cause degradation of rubber compounds and the effects that heat agency has on the network and finished properties. Methods of protection are described.
• Key Mechanical Properties - An appreciation of the static and dynamic behaviour of elastomers and the influence of service parameters such as temperature, strain rates and environment, viscoelasticity is described and its consequences on product performance examined.
• Recycling and Re-use of Waste Rubber - An overview of recycling rubber and the waste rubber market. A review of the various techniques and technologies that have been developed for recycling and re-using waste rubber. A summary of the many products that can be manufactured from recycled rubber, including new rubber compounds, thermoplastic rubbers, composites with thermosets, construction products, fuel oils and energy generation products, and recovered carbon black.
• Case Studies - Syndicate sessions on a range of problems designed to reinforce the core topics and give opportunity for discussion and debate.
• Further Notes - All of the lectures are covered by comprehensive notes and these also include additional notes on subjects such as physical testing.

Course Fee:
£640.00 + VAT - for two day course - to include course manual, lunches and refreshments.

This course has been recognised by the Institute of Materials for Professional Development Purposes.

Presenters:
Gary Grutchley, Principal Rubber Consultant, John Manley, Principal Rubber Consultant, Smithers Rapra, Dr. Martin Forrest, Principal Consultant, Smithers Rapra and Mark Bentham, Polymer Processing Development Engineer, Smithers Rapra

Venue:
Smithers Rapra, Shawbury, Shrewsbury, Shropshire, UK, SY4 4NR.

Conditions of Registration
Payment must be received prior to attending the event and can be paid in £ Sterling, € Euro or US $. NB: Credit card payments can only be taken in £ Sterling, unless payment is made online via our secure payment system.
The Course/Seminar Fee includes training course/seminar lecture notes, lunches and refreshments. Accommodation is not included in the fee.
Joining instructions i.e. a letter of confirmation, directions and hotel information will be sent upon receipt of your registration. Please contact the training administrator if you have not received these within 7 days of registration.

Cancellations
1. Cancellation terms for Courses/Seminars held at Shawbury:
   • Cancellations made up to 14 days or more before the requested course/seminar date will be refunded, less a 20% administration fee.
   • Cancellations made within 14 days of the course/seminar date will be subject to the FULL course fee and no refund will be given.
2. Smithers Rapra cannot be held responsible for delegate cancellations and ‘no-shows’ arising from situations beyond its control, e.g. failures to travel or attend owing to cancelled flights, missed connections, weather conditions, strikes etc., emergency or illness. Smithers Rapra may, at its discretion provide a substitute event, or alternative date, if available.
Delegate Substitutions can be made at any time without incurring extra charge.
Transfers to later Course/Seminar Dates - this option only applies when more than one date is offered for the same course/seminar.
   • Requests to transfer to a later course/seminar date made up to 14 days or more before the requested course date will be accommodated, subject to availability of places on the new course/seminar date.
   • Requests to transfer to a later course/seminar date made within 14 days of the course date will be regarded as a cancellation and subject to the FULL course fee and no refund will be given.
   • The option to transfer can be used only once, after which non-attendance will be treated as a cancellation and all outstanding invoices will be due.

Amendments to Programmes
Smithers Rapra reserves the right to cancel or modify any event in its programme. In the event of a cancellation where an alternative cannot be provided, payment received in respect of that course will be refunded in full. The liability of Smithers Rapra is limited to the reimbursement of the course/seminar fee.
Registration Form

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8-9 March 2016
(please use one form per delegate, photocopies are acceptable)

Surname...................................................................................................................
Forename ..................................................................................................................
Job Title/Position ....................................................................................................
Company .................................................................................................................

Contact Address
Address..................................................................................................................
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Telephone.............................................................................................................
Fax..........................................................................................................................
Email.......................................................................................................................

Invoice Address (if different)
Company.............................................................................................................
Address.................................................................................................................
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Telephone.............................................................................................................
Fax..........................................................................................................................
Email.......................................................................................................................

Payment Information
Please indicate in which currency you wish to pay. If no box has been ticked the default currency will be £Sterling.

- £ Sterling
- € Euro (This will be applicable at the prevailing rate)
- $ US (This will be applicable at the prevailing rate)

Please invoice my company - Purchase Order Number
Please enter your company Reg. no. :
Please enter your company VAT no. :

Cheque/Bank Transfer

Credit Card Payment:
- MasterCard
- Visa
- American Express (please indicate)

Expiry Date: __________ Signature: __________

Name on Credit Card (in CAPITALS)
Security Number (Visa/Mastercard - last 3 numbers in the signature box on reverse of card. Amex - 4 number code on the front of the card)

Cancellation Terms: By completing and returning this form delegates are agreeing to be bound by the cancellation terms and conditions of registration.

Return to:
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Enrol online at: www.rapra training.com