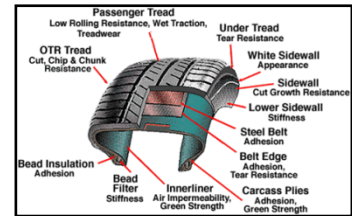


A Comprehensive Training Course on RUBBER TECHNOLOGY



This course focuses on the history, development, applications and technology of natural and synthetic rubbers. It offers a comprehensive coverage of the main aspects of rubbers – both natural and synthetic – as well as the major fabrication processes, (with emphasis on compounding), along with additives, specific applications, properties and testing. Latex technology will also be covered.

Organised by



CHATSWORTH ASSOCIATES



“Strategies for the Continuous Pursuit of Knowledge”

in association with, and conducted by, enys international pte ltd

DAY 1:

I. Introduction

- Short History of the industry
- Global Supply/Demand
- Major Tyre and Rubber Goods Companies
- General Definitions: Polymer, polymerization and types of polymer etc
- Petrochemicals
- Types of Rubber
- Introduction to Compounding & Processing
- Rubber Products: Giant tyres to micro-mouldings and rocket propellant binders
- The Future: Guayule instead of Hevea Brasiliensis, **“Tweels instead of Tyres”**

II Natural Rubber (NR)

- Origins and Sources
- Producing Countries and Supply/Demand
- Demand by Applications
- Types of NR, production and properties:
 - Ribbed Smoke Sheet; (RSS), Technically Specified Rubbers (TSR), Superior Processing Rubbers (PA80), Epoxy Modified Rubbers (ENR) and Deproteinized Natural Rubber (DPNR) etc
- Properties of NR Grades
- Linatex & Plastics from NR
- Other Rubber Plants

DAY 1: (cont)

III Synthetic Rubber (SR)

- History especially developments in World War II
- Supply/Demand
- Comparison of SR with NR
- SR Production, Grades, Properties, and Applications:
 - Styrene Butadiene Rubber, Butadiene Rubber (BR), Ethylene Propylene Diene Monomer Rubber (EPDM), Isoprene Isobutylene Rubber (IIR), Acrylonitrile Butadiene Rubber (NBR), Isoprene Rubber (IR) (synthetic NR), Chloroprene Rubber (CR), Silicone Rubbers, Fluoroelastomers,
 - Thermoplastic Elastomers and Specialties: e.g. Chlorosulphonated Polyethylene (CSM) and Epichlorohydrin Rubber, Polysulphides etc

IV Compounding & Rubber Compounding Ingredients

- Rubber Compound Composition
- Compounding Ingredients:
 - Vulcanizing Agents, Accelerators, Anti-Degradants (Antioxidants and Antiozonants), Activators, Retarders, Reinforcing and Extending Fillers (including Calcium Carbonate, Carbon Black and Silica), Processing Aids, Extender Oils, Blowing Agents and Mould Release Agents etc

Examples of Typical Rubber Compounds illustrating the effects of the rubber and ingredients

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DAY 2

V Rubber Machinery and Processing Part 1:

Machinery and Equipment

Stages in Rubber Processing

Equipment and Function: Bale Cutters, Roll Mills, Internal Mixers, Hot and Cold Feed Extruders, Pin Extruders, Stock Blenders & Formers, Gear Pumps, Co-Extruders, Calenders, Spreaders, Compression and Injection Moulding, Liquid Injection Moulding, Continuous Vulcanization Systems and Cryogenic Deflashing, etc.

VI Rubber Machinery and Processing Part 2:

Rubber Goods Manufacture (Non-Tyre)

Processes for Applications: Aerospace, Automotive, Construction, Defence, Heavy Trucks, Helicopters, Marine, Health Care & Protection, Footwear & Sports (Balls)

Specifications:

Processes for Rubber/Fabric and Rubber/Metal Bonding

Other Applications including Ebonite, Playground & Sports Field Surfaces, Non-vulcanized Tapes

Compound examples for the various Applications

VII Rubber Machinery and Processing Part 3:

Tyres, Tubes & Retreading Technology

History & Major Tyre Companies

Tyre Construction and Definitions: Radial and Cross-Ply

Tyre Types: Winter, Summer, All Seasons, Truck & Bus, Aeroplane, Motor Cycle, Scooter, Bicycle, Run Flat and Off Road etc

Tyre Markings

Tyre Making Equipment and Process:

Components (Tread, Sidewall, Inner Liner, Carcass etc), Building, Shaping, Vulcanization and Mould Cleaning etc

Inner Tube Process

Retreading: Cold Process (Bandag) and Conventional Processes

Typical Compounds for Tyre Components

The Future: Tyre or Tweel or?

DAY 2 (cont)

VIII Rubber Properties & Testing

Testing Raw Rubber & Compounds: Specific Gravity, Wallace Rapid Plastimeter, Mooney Viscometer and Rheometer etc

Rubber Laboratory Mixing & Vulcanization

Testing Vulcanized Rubber:

Specimen Preparation and Conditioning, Hardness, Tensile Properties, Tear Strength, Tension Set, Stress Relaxation, Compression Set, Resilience, Abrasion Resistance, Flex Testing, Electrical Testing, Ageing, Ozone Resistance, Environmental Testing, Dynamic Mechanical Analysis (DMA); Differential Scanning Calorimeter (DSC) and Capillary Extrusion Rheometry etc

IX Latex Technology

Introduction & Definitions

Types of Latices (Natural & Synthetic)

Latex Compounding Ingredients (Specific to Latex)

Preparation of Compounding Ingredients

Latex Applications: Foam

Dipped Goods

Paper Coating

Carpet Backing

Adhesives

Latex Testing

AUG 30th & 31st, 2011

**Bangkok International Trade
& Exhibition Centre (BITEC)
Bangkok, Thailand**

[See attached Registration Form:](#)

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A Comprehensive Training Course on Rubber Technology

August 30th & 31st, 2011

Bangkok International Trade & Exhibition Centre, (BITEC), Thailand

REGISTRATION FORM (RT8) – Please photocopy if more registrants

Please print/type your personal particulars clearly:

(1) Name (Mr/Ms/Dr):	Position:	
(2) Name (Mr/Ms/Dr):	Position:	
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Attn: Dr Phil Adams on Tel: +65 6743 6149 / Fax : +65 6743 6158

e-mail: padams@chatsworth-group.com

Delegates are encouraged to register and pay early to secure their seats and numbers can be confirmed for venue, printing, F & B, logistics arrangements. On confirmation of registration, all payments must be received by Aug 12th, otherwise the organisers reserve the right to withdraw registrant. Full refund will be given (less 20% handling charge) if requests for cancellation are received, in writing, by August 19th. Thereafter, fees paid are not refundable although the person registered can send a substitute. However the organisers must be informed of such substitution by August 19th. The organisers reserve the right to alter published programme, and of cancellation. Full refund will be given to the registrant if the course is cancelled.