



Centre for
Management
Technology®
Into our 24th year

Biodegradable Plastics & Bio-based Products

11-12 October 2007 ■ Sheraton Grande Sukhumvit Hotel, Bangkok, Thailand

“Business Value Creation & Technology Road Map”

*Practical Workshop led by International Bioplastics “Guru”.
Limited Attendance. Register Early.*

promotion partners



bioplastics24.com
...how plastics are made from plants!



v i s i t u s a t w w w . c m t e v e n t s . c o m

Workshop Leader Dr. Ramani Narayan



Dr. Narayan serves on the Board of Directors of Northern Technologies International – a \$100 million publicly traded micro cap company, and on the Technical Advisory board of Tate & Lyle. He is currently developing and commercializing technology for manufacturing new vegetable oil based polyesters and polyols that find application in polyurethanes and unsaturated polyester resins (UPR's) products.

A successful entrepreneur, Dr. Narayan has been responsible for commercializing several technologies & won several awards. He has **115 referenced publications** in leading journals to his credit, **18 patents**, edited **three books** and one expert dossier in the area of bio-based polymeric materials.

He is a University Distinguished Professor of Chemical Engineering and Materials Science at Michigan State University. His research encompasses design and engineering of sustainable, biobased products, biodegradable plastics and polymers, reactive extrusion polymerization and processing, studies in polymer biodegradation and composting, LCA (Life Cycle Assessment) protocols for assessing a product's environmental footprint, and biofiber -reinforced composites.

MESSAGE FROM COURSE LEADER

There is increasing awareness on the part of companies in looking for **biobased plastics and biodegradable plastics** for their own use in the manufacture of their products (**Eg., in electronic, industrial, consumer, automotive parts**) or **packaging** of their products (wherein both biobased and biodegradability are important criteria). This allows a company to contribute to reducing their carbon footprint and ensuring that the disposal of their product after use is environmentally responsible.

Biobased plastics are materials in which the carbon is from **renewable/bio feedstock** instead of petroleum carbon feedstock. The use of bio/renewable carbon as opposed to petroleum carbon allows us to have a reduced (more positive) carbon footprint (carbon neutral); companies could potentially claim carbon credits as well.

Biodegradability in single use short lived packaging and consumer goods allows one to ensure that these become food for microorganisms present in the disposal environment, thereby entering the food chain of the microbial system

and completing the cycle – as opposed to nondegradable or partially degradable plastics which creates a negative environmental footprint and many times toxic to the ecosystem.

Thus bioplastics and biodegradable plastics and products are finding increasing attention as materials of choice for industrial and consumer applications.

This workshop teaches the principles and concepts of this new and emerging technology, its rationale and drivers, and the value proposition it offers to businesses. Senior Executives who want a share of this emerging industry should attend. Researchers in Universities and Institutes, and Government officials implementing or creating environmental policy would greatly benefit from the workshop as it will help in learning and understanding the fundamental principles, and value proposition of biobased and biodegradable plastics and products for carbon management and environmental responsibility and compliance.

WHO SHOULD ATTEND

- CEO/Presidents • MD • GM • Business Development Directors • Sales & Marketing Manager
- Commercial Director • Technology Managers • Product Managers • R&D Directors from plastics, bioplastics & biodegradable plastics producers/suppliers, additives producers/suppliers, brandowners & retailers, processors/converters, financial & academic institutions, machinery suppliers & all who want to understand and tap into the potential of an emerging bioplastics and products industry.

CUSTOMISED SPONSORSHIP PACKAGES AVAILABLE

This event is an excellent platform to promote your organisation to influential players and investors in the industry. Sponsorship opportunities available include Corporate, Exclusive Luncheon, Cocktail & Documentation sponsor. Exhibition / catalogue display can be arranged upon request. Contact cynthia@cmtsp.com.sg or (65) 6346 9132.

DAY 1 – 11 October - Thursday
Afternoon Session (1:30pm - 5:30pm)

Bioplastics -- Principles & Concepts

- How incorporating biocontent into your product in total or partially helps in becoming more sustainable
- How the biocontent of your product help in the vexing and difficult question of carbon management, and reducing your products carbon footprint.
- How to identify, and quantify the biocontent of your product; test methods and standards for measuring biocontent
- How to document and profile the reduced carbon footprint, and compute potential carbon credits arising from it

Biodegradability Principles and Concepts

- Basics and fundamentals of biodegradability --- what is it (the biochemical aspects), how does engineering biodegradability into a product provide for a positive environmental profile
- Relationship between biobased (biocontent) and biodegradability -- when to engineer only biocontent in a product and when it is essential to also have biodegradability (note that all biobased materials are not biodegradable and not all biodegradable materials are biobased)
- Degradability vs biodegradability – what and why the importance for ensuing complete biodegradation in defined time frame and disposal environment, and the consequences to the ecosystem if one fails to ensure complete biodegradation.
- Test methods and the related national and international standards for measuring and specifying biodegradability in different disposal environments.

DAY 2 – 12 October - Friday
(9:00am - 5:00pm)

Using LCA for developing environmental profile

- How to use Life Cycle Assessment (LCA) protocols and methodology to develop an environmental score card for bioproducts

Technology Road Map

- Understand and evaluate all the biofeedstocks available for manufacture and the related biological and chemical technology platforms for manufacture.
- Fundamental understanding of the technology platforms (both chemical and biological) for manufacturing bio monomers and bioresins using carbohydrates, vegetable oil and other biosubstrates.
 - a. Poly(lactic acid) technology platform
 - b. Polyhydroxy alkanates technology platform
 - c. Other biodegradable and biopolyester technology platforms
 - d. Vegetable oils technology platform
 - e. Starch, cellulose, and other polysaccharide based technology platforms
 - f. Biofiber composites
 - g. Biopolyethylene and other biopolyolefin technology platforms
 - h. Blends and alloys of the above

Markets & Product Specifications

- Markets for bioplastics and biodegradable plastics
- Potential for bioplastics in packaging, consumer engineering, and electronic, automotive and industrial product applications.

- Review down stream processing options like film extrusion, injection molding, and thermoforming for processing bioresins into value products.
- Performance properties and comparative analysis map for the new bioresins.

Practical Assignment

- Workshop participants will :
 - a. Develop “Value Proposition” for using bioplastics and biodegradable plastics and products for your company, or organization based on what you have learnt.
 - b. Design an environmental report card/ profile for a bioplastics applying LCA methodology

COURSE TIMING

Day 1, 11 October - Thursday

Registration : 12:00pm

Lunch : 12:30pm – 1:30pm

Seminar Proper : 1:30pm – 5:30pm

Tea Break : 15 mins

Day 2, 12 October – Friday

Seminar Proper : 9:00am – 5:00pm

Lunch : 12:30pm – 1:30pm

Tea Break : 15 mins morning & afternoon

CERTIFICATE OF COMPLETION

A Certificate of Completion will be awarded upon successful completion of each course. This serves as evidence of your personal and professional commitment to your career.

Program topics, speakers and schedules published herein are confirmed as at printing time. Please refer to the event's timetable page at www.cmtevents.com for the most up-to-date information.

REGISTRATION

Biodegradable Plastics & Bio-based Products

11-12 October 2007 • Bangkok

Fees: The full Registration Fee includes cost of all sessions, luncheon, coffee/tea & documentation.

	1 Person	Group fee for 3 or more* (from the same company)
Regular Fee	USD1,495	USD1,195 (MIN SAVINGS OF USD900)

* Terms and conditions apply.

TO REGISTER

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TELEGRAPHIC TRANSFER

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TT must include additional USD21 for Beneficiary's Bank charges. **Delegates must bear all bank charges and local taxes (if applicable). Fees must be NETT of ALL charges.**

Cancellations, Refunds & Transfers: A full refund will be promptly made for all written cancellations 3 weeks before the meeting. Thereafter, cancellations are not refundable. A substitute may be made at any time.

Photocopy Registration Form to Preserve Brochure Copy, October 2007

CONFERENCE VENUE

CMT has arranged special discounted room rate at **THB 7416 nett (Deluxe Single) per room per night and THB 7945 nett (Deluxe Double) per room per night (subject to room & rate availability)** for delegates at **Sheraton Grande Sukhumvit**. Rates inclusive of daily buffet breakfast, applicable VAT and service charge. Please reserve your room with the hotel directly, providing full credit card number and expiry date to: Pichaya Hannarong (Poupee), Convention Services Manager
Sheraton Grande Sukhumvit
250 Sukhumvit Road, Bangkok 10110, Thailand
Phone: **662 6498632** Fax: **662 6498811**
Email: pichaya.hannarong@luxurycollection.com
Cut off Date for Room Booking: 19 September 2007



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~ CMT'S 2007 UPCOMING EVENTS ~

4th Asia ETP* Markets & Tech

* *Engineering thermoplastics*
12-13 November • Shanghai, China

"Sustainability & product innovations to meet China's booming ETP demand"

4th Specialty Elastomers/TPEs

14-15 November • Shanghai, China

"TPEs continue to expand with the latest technology & applications"

5th Mideast Olefins & Polyolefins

20-21 November • Dubai

"How will the Gulf Olefins & PP/PE markets evolve next?"

3rd Chlor Vinyls MENA Markets

4-5 December • Dubai

"Changing PVC Trade Flows"

2nd Asia Polymer Outlook

5-6 December • HCM City, Vietnam

"Asia polymer growth – is it sustainable with rising energy cost?"