



Department of Materials and Metallurgical Engineering

Faculty of Engineering

Rajamangala University of Technology Thanyaburi

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Rajamangala University of Technology



Rajamangala University of Technology was established in 1975 in named “**Rajamangala Institute of Technology**” as an educational institute and a department in the Ministry of Education, with a commitment to provide technological education, undertakes research and extends services to society.

Until 2005, **Rajamangala University of Technology** was change name to **Rajamangala University of Technology Thanyaburi**.

Vision:

- ❖ Leadership in the multi-disciplinary educational management of international standard.
- ❖ Aims to produce qualified graduates and upgrade the quality of the national workforce to be well-equipped with professional and technological skills. While gearing towards excellence, it will also build good values in society.



Our Staffs

- Asst.Prof.Dr. Sommai Pivsa-Art
- Asst.Prof.Dr.Somkiat Thitipoomeja
- Mr.Amnuay Larpkasemsuk*
- Asst.Prof.Ratchada Teparak
- Mr.Anothai Pholsuwan
- Dr.Chatchai Veranitisakul
- Asst.Prof.. Waroonsiri Jakrabutr
- Asst.Prof.Dr.Warunee Klinklai
- Dr.Chantip Khamnuantip
- Dr.Narongchai O-Charoen
- Dr.Sorapong Pavasupree
- Dr.Monthip Lawsuriyonta
- Dr.Sumonman Niamlang
- Dr. .Kullawadee Sungsanit*

* Studying in Ph.D.



Department of Materials and Metallurgical Engineering



Bachelor Degree

- Plastic Engineering
- Polymer Engineering

Master Degree

- Materials Engineering



Department of Materials and Metallurgical Engineering

Manufacturing

Machines:

- Plastic Process
- Rubber Process

Analytical Instruments:

- Chemical & Thermal Analysis
- Mechanical Properties Testing





Manufacturing Machines: Plastic Process





Manufacturing Machines: Plastic Process



Thermofforming



Torque Rheometer



Compression molding



Two –rolls mill



Analytical Instrument: Mechanical Properties



Universal Tester



Pendulum
Impact Tester



Rockwell Hardness



Haze meter



Analytical Instrument: Mechanical Properties



Universal Tester



Pendulum
Impact Tester



Rockwell Hardness



Haze meter



Analytical Instrument: Mechanical Properties



Melt flow Index



Mooney Machine



MDR



Abrasion Testing



Analytical Instrument: Mechanical Properties



Melt flow Index



Mooney Machine



MDR



Abrasion Testing



Analytical Instrument: Chemical Analysis



FT-IR & TGA



DSC & TMA



GPC

XRD/SEM



XRD & SEM





Polymer Research Laboratory





Chemical Laboratory





Corporations:

Kyoto University, Kyoto Institute of Technology, Osaka University,
Nagaoka University, Hokkaido University, Hokkaido Information University,
National Institute of Advanced Industrial Science and Technology (AIST)
Toshiba, Hitachi, Mitsubishi



RMUTT-Japan Cooperative Works



Fig. 1 RMUTT-Kyoto Univ. international conference (www.emses.org)



Fig. 3 RMUTT-Japan cultural exchange.



Fig. 2 RMUTT-Japan cooperative researches and exchange students.



Contact Person for RMUTT-Japan Projects:

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Biodegradable Polymer and Plastics Waste to Oil Projects



Fig. 1 Direct polymerization and pilot plant for PLA preparation (made in RMUTT).



Fig. 2 RMUTT-KIT-AIST-Hitachi biodegradable polymer research group.



Fig. 3 Plastics waste to oil project.



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Applications of Low Cost Protein free-Natural Rubber



Fig. 1 Hevea brasiliensis Tree (Rubber Tree).

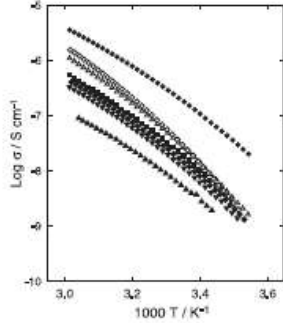
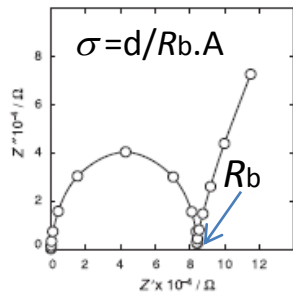
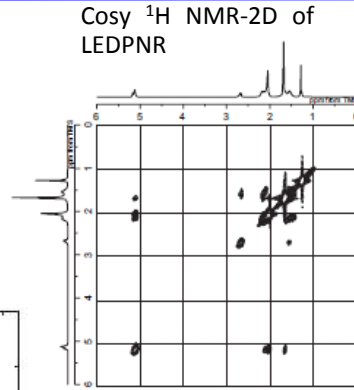


Fig. 3 Ionic conductivity of EDPNR33/LiTFSI film and its applications for polymer battery.



Temp. dependence of LEDPNR/LiTFSI.

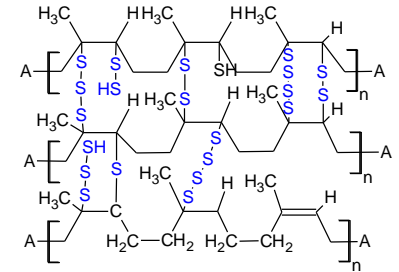
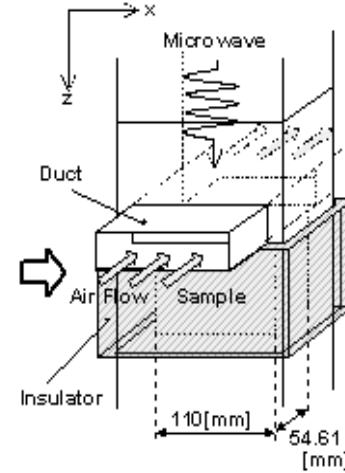


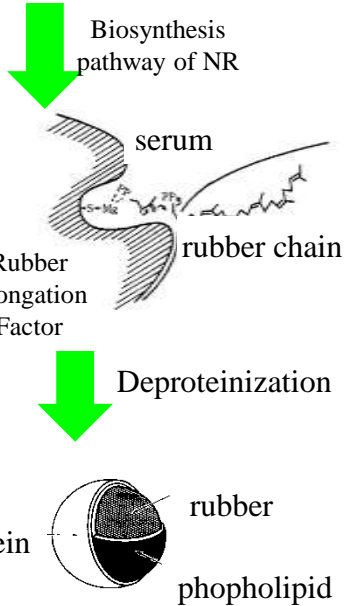
Fig. 4 Vulcanization of NR using Microwave Heating Rectangular Wave Guide (MODE: TE10).



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Fig.2 DPNR Production Co-project with TOYOTA Company, Japan and production plant at Wongbundit Company, Thailand



DPNR Rubber

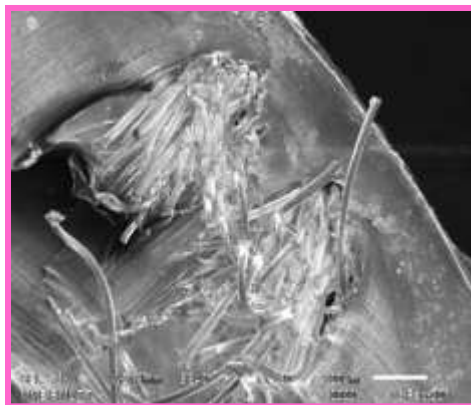


Fig.1 SEM micrograph (100x) from textile insert MDPE rotomolded

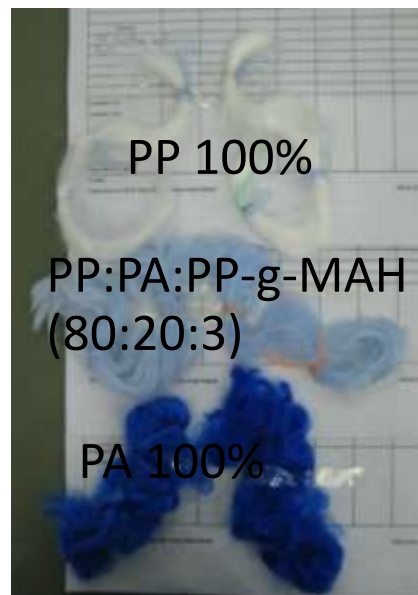


Fig.2 Dye ability of PP/PA blend fiber compared with PP and PA neat fiber



Fig.3 (left and right) Monofilament force test machine



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Low-cost Nanomaterials from Thai Resources for Energy Applications

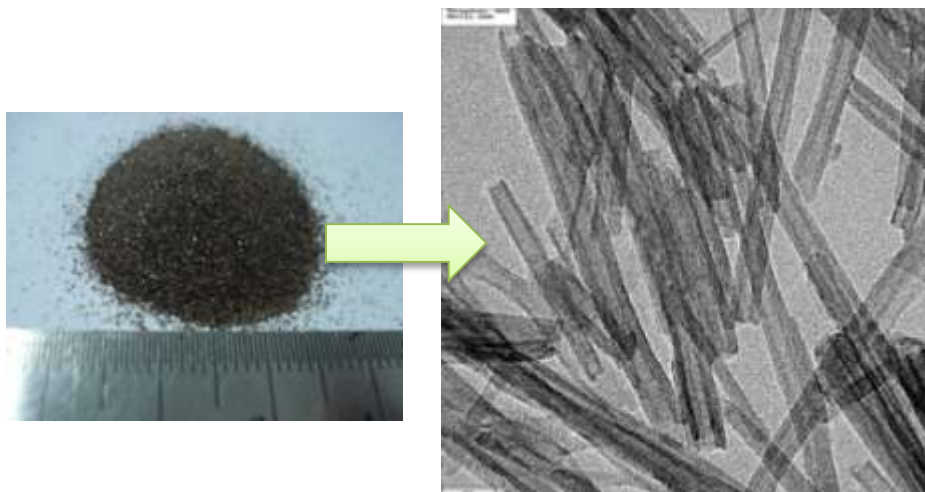


Fig. 1 Low-cost nanomaterials from Thai mineral.



Fig. 2 Autoclave (made in RMUTT) for nanomaterials preparation.

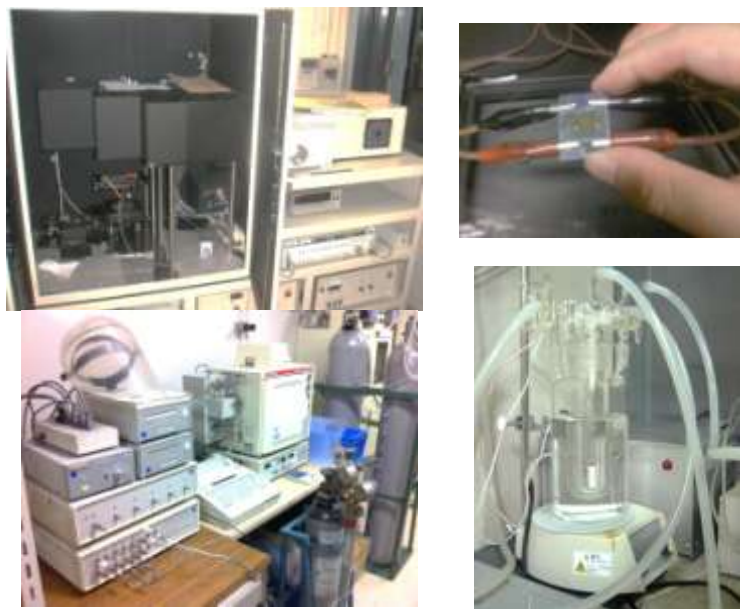


Fig. 2 Applications in solar cells and H₂ production.



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Modification of PLA for Packaging Applications (RMUTT-AIST)

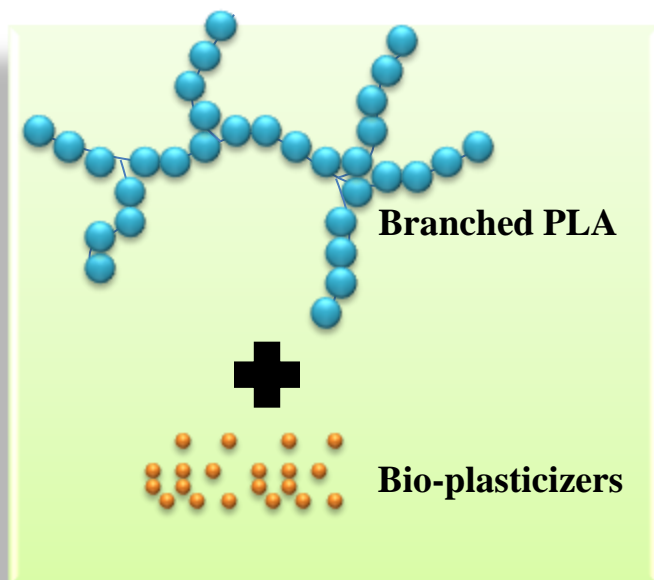


Fig. 1 Concept Idea for PLA Modification.

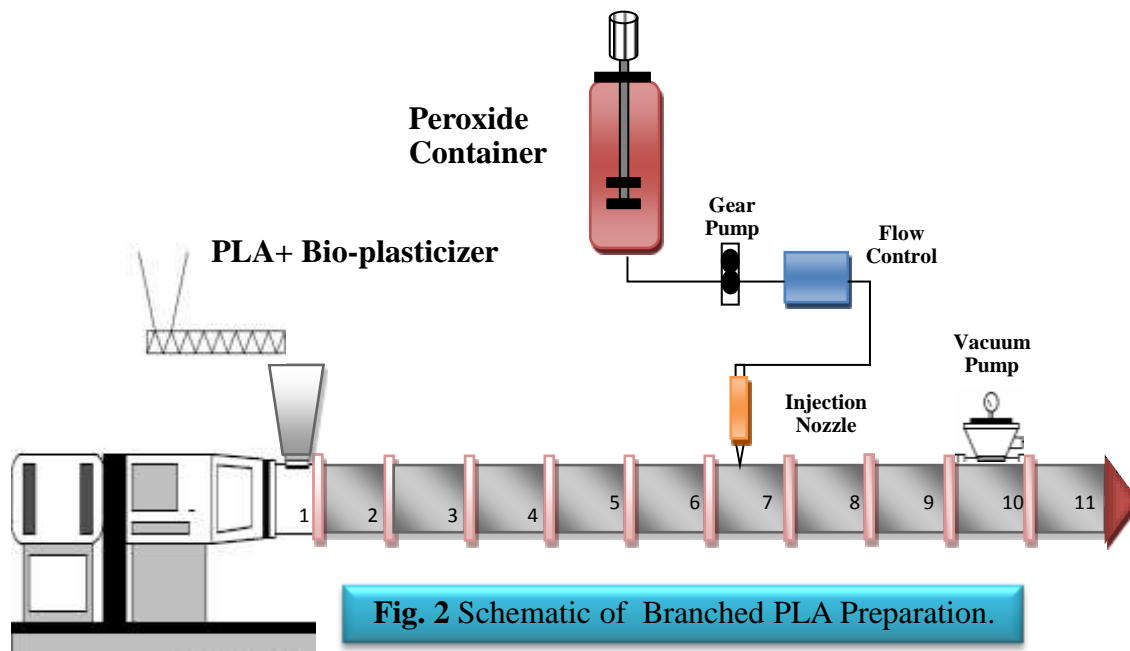


Fig. 2 Schematic of Branched PLA Preparation.



Fig. 3 Flexible PLA Films

Excellent outcomes of modified PLA :

- Branching \Rightarrow Increased Melt Strength
- Bio-plasticizers \Rightarrow Improved flexibility & Extensibility



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RMUTT Cooperative works for Energy and Materials Research

University

- ✚ Kyoto U.
- ✚ Osaka U.
- ✚ KIT
- ✚ Hokkaido U.
- ✚ HIU
- ✚ Tokyo U.
- ✚ AIST

Company

- ✚ Toshiba Corporation
- ✚ Mitsubishi Engineering
Plastics Co., Ltd.
- ✚ Komai Co., Ltd.
- ✚ Sapporo Plastics
Recycle Co., Ltd.



✚ *COE-RMUTT-Kyoto Univ.*

---Students from MME, IE, EE, ME

✚ *Prof. S. Yoshikawa ---Kyoto University*

✚ *Prof. H. Hamada ---Kyoto Institute of Technology*

✚ *Prof. Kimura and Dr. Aiba*

---Kyoto Institute of Technology ---AIST

✚ *JSPS (Japan), TRF , NRCT
EGAT , NANOTEC*

