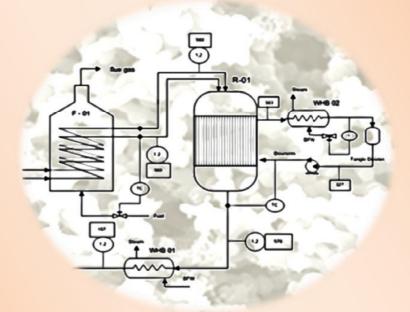




# PROCEEDING of ICCME 2012

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#### PREFACE



This abstract book contains abstracts of research papers presented on International Conference on Chemical and Material Engineering (ICCME) 2012. The ICCME 2012 is organized by Department of Chemical Engineering Diponegoro University along with the opening of the doctoral program in the Department of Chemical Engineering. The conference took place at Grand Candi Hotel, Semarang Indonesia in September 12-13, 2012. It is designed as an international forum on fundamental and application of Chemical and Material Engineering among the researchers, students, industries and government. The ICCME offers a platform for extensive sharing and exchange of ideas, thoughts and discussions on all aspects of Chemical and Material Engineering.

The ICCME 2012 invited 65 keynote speakers from 84 and accepted 70 research papers. There are 4 (four) parallel sessions comprising 4 categories: Bioprocess and Renewable Energy (BRE), Material and Science Development (MSD), Separation and Process Engineering (SPE) and Process System Engineering (PSE). The full research papers can be obtained on the enclosed CD Proceeding with ISBN of 978-602-097-281-7

The organizing committee express our gratitude to the distinguished keynote speakers: Prof. M Ulbrict, Prof Hadi Nur, Prof Purwanto, Ir. Gunung Sardjono, Ir. Hardiono and Ichsan, MSc, PDEng for their participation to this conference. We thank to all participants for their contributions to the Conference Programme, abstract book and conference proceedings. We also express our sincere thanks to the scientific committee for reviewing and evaluating the abstracts.

It is very pleased to acknowledge to the conference sponsors: IKPT, Pertamina Gas, BP Migas, Pura Grup, C-BIORE, MER-C, D-WaRE, BCREC for their financial support to enable this conference to be accomplished.

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# MSD – 23 **EFFECT OF SOIL BURIAL ON THE MECHANICAL PROPERTIES OF HEAT TREATED AND UNTREATED**RED BALAU SAW DUST FILLED LDPE COMPOSITES.

Ruth Anayimi Lafia-Araga, Aziz Hassan, Rosiyah Yahya, Normasmira Abd. Rahma Chemistry Department, Faculty of Science, University of Malaya, Malaysia

# MSD – 24 IMPACT AND DSC PROPERTIES OF HEAT TREATED AND UNTREATED RED BALAU (SHOREA DIPTEROCARPACEAE)/LDPE COMPOSITES

Aziz Hassan, R.A. Lafia-Araga, R. Yahaya and N.A. Rahman

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# MSD – 25 COMPUTATION OF INTERFACIAL SHEAR STRENGTH AND OTHER TENSILE RELATED PROPERTIES OF INJECTION MOULDED CARBON FIBRE/POLYAMIDE 6,6

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Department of Chemistry, University of Malaya, 50603 Kuala Lumpur, MALAYSIA.

### MSD – 26 IMPACT PROPERTIES OF INJECTION MOULDED ARAMID/CARBON HYBRID FIBRE REINFORCED POLYPROPYLENE COMPOSITES

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### MSD – 27 HARDNESS OF CONTINOUS HARD ANODIZING OF ALUMINIUM 6061 AFFECTED BY VOLTAGE AND TIME PROCESS USING TITANIUM CATHODE

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#### MSD – 28 SURFACE CHARACTERISTICS OF ALUMINIUM HARD ANODIZING USING TITANIUM CATHODE

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#### PSE - PROCESS AND SYSTEM ENGINEERING

#### PSE - 01 THE PROCESS TRANSPORT OF DRYING CORN WITH MIXED-ADSORPTION DRYING

Mohamad Djaeni, Luqman Buchori

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# PSE – 02 SIMULATION OF DUPLEX HEAT TREATMENT NB3SN COMPOUNDS IN CU-NB-SN SUPERCONDUCTING MULTIFILAMENTARY WIRE

Andini Nur Vania Swari, Arimaz Hangga, Doty Dewi Risanti

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# PSE – 03 INVENTORY ANALYSIS OF RADIOLOGICAL FOR GRAPHITE THERMAL COLUMN FROM TRIGA MARK II REACTOR. BANDUNG

Mulyono Daryoko

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PSE – 04 DYNAMIC SIMULATION AND COMPOSITION CONTROL IN A 10 L MIXING TANK

Yulius Deddy Hermawan

Chemical Engineering Department, Faculty of Industrial Technology, UPN "Veteran" Yogyakarta, INDONESIA

# PSE – 05 THE EFFECT OF LOADING ON THE CONTACT STRESS OF UHMWPE MATERIAL FOR ARTIFICIAL HIP JOINT BEARING

Eko Saputra<sup>a</sup>, Rifky Ismail<sup>a</sup>, Jamari<sup>a</sup> and Iwan Budiwan Anwar<sup>b</sup>

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<sup>b</sup> Orthopaedic Hospital dr. Soeharso, Solo, INDONESIA

#### PSE - 06 SIMULATION OF COUNTER BLOW PROCESS OF PBL QUARTZ BOTTLE FABRICATION

Arimaz Hangga, Lizda Johar Mawarani, Doty Dewi Risanti

Department of Engineering Physics, Faculty of Industrial Technology, Institut Teknologi Sepuluh Nopember, INDONESIA

# PSE – 07 CADMIUM METALS PARTICLES-COVERED POLYSTYRENE NANOSPHERES THIN FILM MATERIAL:FABRICATION, ANALYSIS AND MODEL

Pratama Jujur Wibawa<sup>a,b,c</sup>, Hashim Saim<sup>d</sup>, Moh<sup>d</sup>. Arif Agam<sup>d</sup> and Hadi Nur<sup>e</sup>

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# PSE - 08 DISTRIBUTION TEMPERATURE OF ANALYSIS ON CH4-CO2 GAS MIXED IN DOUBLE PIPE HEAT EXCHANGER BY CONTROLLED FEEZE OUT AREA METHODE

Fatma Y. Hasyim, Novi E. Mayangsari, and Sumarno

Material of Laboratory

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# PSE – 09 SIMULATION ON THE ACTIVITY OF BIOMASS IN ACTIVATED SLUDGE IN THE PERFORMANCE OF NON IDEAL FLOW MEMBRANE BIOREACTOR SUBMERGED

Aisyah Endah Palupi

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# PSE – 11 EFFICACY AND HEAT TRANSFER EFFECTS OF ARTOCARPUS ALTILIS MALE INFLORESCENSE AS MOSQUITO VAPORIZING MATS

Muhammad Khamim Asy'Ari<sup>a</sup>, Nadhifa Maulida<sup>a</sup>, Wilujeng Fitri Alfiah<sup>a</sup>, Aisyiah Nur Isaneni<sup>a</sup> Titin Yulia Riska<sup>a</sup>, and Doty Risanti<sup>b</sup>

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# $\frac{\text{PSE}-12}{\text{MESOPOROUS TIO}_2} \quad \begin{array}{l} \text{SELECTION OF NATURAL DYE PHOTOSENSITIZER FOR QUASI-SOLID STATE DYE-SENSITIZED} \\ \text{MESOPOROUS TIO}_2 \, \text{SOLAR CELL (DSC) FABRICATION} \end{array}$

Ruri Agung Wahyuono, Doty Dewi Risanti

Department of Engineering Physics, Institut Teknologi Sepuluh Nopember Surabaya, INDONESIA

# PSE – 13 AN INVESTIGATION OF CHAR FORMATION AND SHRINKING VOLUME BY VISUALIZATION TECHNIQUE INDUCED BY PYROLYSIS

Widya Wijayanti

University, INDONESIA

Mechanical Engineering Department, Brawijaya University, INDONESIA

#### SPE - SEPARATION PROCESS ENGINEERING

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<u>SPE – 01</u>	UTILIZATION OF COAL FLY ASH AS CO GAS ADSORBENT
	Ayu Lasryza, Dyah Sawitri
	Department of Engineering Physics, Faculty of Industrial Technology,ITS, INDONESIA
<u>SPE – 02</u>	PHENOL REMOVAL FROM AQUEOUS SOLUTIONS BY ELECTROCOAGULATION TECHNOLOGY USING
	IRON ELECTRODES: EFFECT OF SOME VARIABLES
	Mohammad Ali Zazouli <sup>a</sup> , Mahmoud Taghavi <sup>b</sup>
	Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, IRAN
	<sup>b</sup> Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, IRAN
SPE - 03	THE OFF GAS TREATMENT IN THE PROCESS OF VITRIFICATION AND INCINERATION OF NUCLEAR
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	Herlan Martono, Aisyah
	Radioactive Waste Technology Centre, BATAN, INDONESIA
SPE - 04	ESSENTIAL OIL EXTRACTION OF FENNEL SEED (FOENICULUM VULGARE) USING STEAM
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<u>SPE – 05</u>	PREPARATION AND CHARACTERIZATION OF NANOFILTRATION MEMBRANE FOR WATER
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<u>SPE – 06</u>	THE APPLICATION OF NITROGEN LASER ON EXTRACTION OF URANIUM IN THE LONG LIFE OF
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	Andri Cahyo Kumoro, Beatricx L. M. Tanjung, Fadilla H. Utami, Diah Susetyo Retnowati and Catarina
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	Department of Chemical Engineering, Diponegoro University, INDONESIA
<u>SPE – 08</u>	DRYING OF CURCUMA (CURCUMA XANTHORRHIZA ROXB) USING DOUBLE PLATE COLLECTOR
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	Tjukup Marnoto, Mahreni, Wasir Nuri, Bayu Ardinanto , Ratna E. Puspitasari
	Chemical Engineering Department, Faculty of Industrial Technology, UPN "Veteran" Yogyakarta

# SPE − 09 SOLUBILITY EXAMINATION OF PALM KERNEL OIL IN SUPERCRITICAL CO<sub>2</sub> AND ITS CORRELATION WITH SOLVENT DENSITY BASED MODEL

Wahyu Bahari Setianto<sup>a</sup>, Priyo Atmaji<sup>b</sup> and Didi Dwi Anggoro<sup>b</sup>

<sup>a</sup> Center for Agroindustrial Technology, Agency for the Assessment and Application of Technology, INDONESIA

<sup>b</sup> Department of Chernical Engineering, Diponegoro University, INDONESIA

# SPE – 10 Oil Extraction Process From Solid Waste Rubber Seed By Soxhletation and Extraction Solvent by Stirring Methods

Achmad Wildan, Devina Ingrid A, Indah Hartati

Sekolah Tinggi Ilmu Farmasi "Yayasan Pharmasi" Semarang

Jl. Sarwo Edhie Wibowo Km. 1 Plamongansari, Pucanggading Semarang INDONESIA

# SPE – 11 FOULING AND REJECTION BEHAVIOUR OF ULTRAFILTRATION FOR OIL IN WATER EMULSION SEPARATION

Nita Aryanti<sup>a</sup>, Agus Hadiyarto<sup>a</sup>, Wiharyanto Oktiawan<sup>b</sup>

<sup>a</sup> Chemical Engineering Department, Diponegoro University, INDONESIA

<sup>b</sup> Environmental Engineering Department, Diponegoro University, INDONESIA

#### SPE - 12 THE EFFECT OF CHEMICAL ADDITIVES ON MOBILITY OF HEAVY METALS (PB, CD AND ZN) IN SOIL

Abdoliman Amouei<sup>a</sup>, Amirhossein Mahvi<sup>b</sup>, Masoumeh Tahmasbizadeh<sup>b</sup>, Mohammad Ali Zazouli<sup>c</sup>

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<sup>b</sup> Department of Environmental Health Engineering, Tehran University of Medical Sciences, IRAN

<sup>c</sup> Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, Mazandaran University of Medical Sciences, IRAN

# SPE – 13 CHARACTERISTICS OF HOSPITAL WASTEWATER IN BABOL UNIVERSITY OF MEDICAL SCIENCES AND EFFECTS ON THE ENVIRONMENT

Abdoliman Amouei<sup>a</sup>, Hosseinali Asgharnia<sup>a</sup>, Hourieh Fallah<sup>a</sup>, Aliakbar Mohammadi<sup>a</sup>, Mohammad Ali Zazouli<sup>b</sup>

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<sup>b</sup> Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, Mazandaran University of Medical Sciences, Sari, IRAN

# SPE – 14 QUANTITY AND QUALITY OF SOLIDWASTES IN THE HOSPITALS OF BABOL UNIVERSITY OF MEDICAL SCIENCES, NORTH OF IRAN

Abdoliman Amouei<sup>a</sup>, Masoumeh Tahmasbizadeh<sup>b</sup>, Hosseinali Asgharnia<sup>a</sup>, Hourieh Fallah<sup>a</sup>, Aliakbar Mohammadi<sup>a</sup>, Mohammad Ali Zazouli<sup>c</sup>

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<sup>c</sup> Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, Mazandaran University of Medical Sciences, IRAN

#### $\mathsf{SPE-15} \qquad \textbf{EVALUATION OF PHENOL REMOVAL FROM AQUEOUS SOLUTIONS BY AZZOLA}$

Davaud Balarak<sup>a</sup>, Mohammad Ali Zazouli<sup>b</sup>

<sup>a</sup> University Mazandaran – Sari, IRAN

<sup>b</sup> Department of Environmental Health Engineering, Faculty of Health and Health Sciences Research Center, Mazandaran University of Medical Sciences, IRAN

#### SPE – 16 SILICA EXTRACTION FROM BAGGASE FLY ASH WITH ALKALI FUSION METHOD

Galuh Pinayungan, Arif Hidayat, Chandra Wahyu Purnomo, Arief Budiman

Process System Engineering Research Group, Chemical Engineering Department, Gadjah Mada University, INDONESIA