

Chemical Engineering and the Law Forum 2014

**Core Programming Area at the 2014 AIChE Spring Meeting and
10th Global Congress on Process Safety**

**New Orleans, Louisiana, USA
30 March - 5 April 2014**

ISBN: 978-1-63439-067-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2014) by AIChE
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact AIChE
at the address below.

AIChE
3 Park Avenue
New York, NY 10016-5991

Phone: (203) 702-7660
Fax: (203) 775-5177

www.aiche.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

(1a) Possible vs. Practical: Engineers Must Lead the Development of Practical Technologies	1
<i>William Banholzer</i>	
(5a) Hydrocarbons from Biogas Via Biogas Reforming, Syngas Cleaning and Catalytic Conversion	2
<i>Qiang Yan, Fei Yu, Jun Han</i>	
(5b) Research for an Energy Future	3
<i>Noah D. Meeks</i>	
(5c) Sustainability and Environmental Impacts of Biofuel	4
<i>Shijie Liu</i>	
(48a) Operator Errors and What Can be Done to Minimize	17
<i>Tom Nolan, Dustin Beebe</i>	
(48aa) When Sharing is not Enough... HUAA	32
<i>Mike Bearrow</i>	
(48ac) Autocad - Smart Grid – Agriculture - Architecture and the United States Government	36
<i>Ethenia Scott</i>	
(48ad) Production, Characterization and Catalytic Studies of Biobased Carbon Materials	37
<i>Qiang Yan, Jilei Zhang, Zhiyong Cai</i>	
(48ag) Uncertainty in Sour Gas Viscosities Estimation, What Is the Effect on Your Reservoir Inflow and Tubing Performance	38
<i>Adel Elsharkawy</i>	
(48ah) Chromonic Nanocarriers for Chemotherapeutics: Size Distribution and Control Release Studies	39
<i>Rahul Misra, Sanat Mohanty</i>	
(48ai) Double Containment Piping Systems: A Fail-Safe, Leak Free Solution	40
<i>Patrick Fedor, Darin Johnson</i>	
(48b) DTP Process - Now Ready to License	47
<i>Kazunori Honda, Atsushi Okita, Jumpei Takahashi, Koji Oyama, Nobuyasu Chikamatsu, Mitsuo Morita, Shuji Obayashi</i>	
(48d) Self-Cleaning "Bernoulli" Type Filters Used in Onshore and Offshore Applications	52
<i>Artur W. Krueger</i>	
(48f) Effects of Support on Sulfur Tolerance and Regeneration of Pt Catalysts Measured By Ethylene Hydrogenation and EXAFS	53
<i>Jorge Pazmino, Chuansheng Bai, Jeffrey T. Miller, Fabio H. Ribeiro, W. N. Delgass</i>	
(48h) Improved Operational Efficiency and Reliability through Insulation Materials Selection	54
<i>Steven Coppella</i>	
(48ij) Boiler MACT Compliance: Mercury in Fuel Gas	55
<i>Patrick Laine</i>	
(48k) Young Professional Simulation Tutorial	56
<i>Naomi Hua, Mike Donahue</i>	
(48m) Polymeric Sulfonic Acid Composites for Fuel Cell Applications: Effects of Casting Solvent and Sonication Time on Membrane Performance	60
<i>Jimoh Adewole, Abdullah S. Sultan, Amir Al-Ahmed, S. M. Javid Zaidi</i>	
(48o) Facility Siting for Major Projects – Implementation of Consequence Analysis/Quantitative Risk Analysis, a Project Development Lifecycle Framework	68
<i>Mohammad Faruq Haider</i>	
(48p) Global Energy and Transportation and Mobil Oil	81
<i>Ethenia Scott</i>	
(48r) Characterization of Iron Phthalocyanine As the Active Material for Lithium Batteries	82
<i>Sarwan S. Sandhu, Joseph P. Fellner, David Anneken</i>	
(48s) Design of a Free-Fall Reactor for Fast Pyrolysis of Waste Plastics	83
<i>Pravin Kannan, Ahmed Alshoaibi</i>	
(48t) Biosorptive Dehydration of Ethanol/Water Azeotropes Using Compound Starch-Based Adsorbent	84
<i>Wenping Wang, Jinsheng Sun, Xijia Cao, Guangxin Liu</i>	
(48u) Purification of 2-Amino-1-Phenylethanol Enantiomers By a New Technique Combining Distillation and Crystallization	86
<i>Lie-Ding Shiau, Hou-Guo Teng</i>	

(48w) Fabrication of Low Cost Insulating Material from Kaolin Clay for Construction Purposes	87
<i>Naim Faqir, Ma Al-Harhi, Hamad Abdulwahhab, Mazen Alshaaer, Reyad Shawabkeh</i>	
(48x) Thermodynamic Study of Binary PAH (Anthracene + Phenanthrene) Solid Mixtures	88
<i>James W. Rice, Jinxia Fu, Emma Sandström, Eric M. Suuberg</i>	
(48y) How Confident Are You That Your Major Accident Risks Are Under Control?	89
<i>Ellis Graeme, Robert Smith</i>	
(48z) Sil Determination: Shortcomings with the Use of LOPA	90
<i>Alan King</i>	
(52a) Shale Oil and Gas -Wellhead to Fuel	91
<i>Lawrence Kremer</i>	
(120a) Achieving Environmental Compliance through Proper Destruction Efficiency of Multi-Tip Low-Profile (MTLP) Flare Systems	103
<i>Joseph Smith, Scot Smith</i>	
(120b) A Multi-Period Process Integration to the Management of Process Flares with Consideration of Fuel Substitution and Cogeneration Systems	120
<i>Serveh Kamrava, Fadwa T. Eljack, Kerron Gabriel, Mahmoud El-Halwagi</i>	
(120c) Real Time Remote Monitoring of Flare Combustion Efficiency	121
<i>Yousheng Zeng, Jonathan Morris</i>	
(120d) Flameless Thermal Oxidation	132
<i>Gene Irrgang, Goutam Shahani</i>	
(120e) Modeling of the Dynamic Interaction in an LDPE Closed System Purge Bins-Regenerative Thermal Oxidizer (RTO) for Ethylene Emission Mitigation	133
<i>Teresa Leung, Kamal K. Botros, Andrea Stojcevski</i>	
(120f) Air Quality Impact of the Startup of a Single Olefin Plant	134
<i>Jian Zhang, Ziyuan Wang, Qiang Xu, Thomas C. Ho</i>	
(137a) Solid Fuel to Natural Gas Conversions for Existing Boiler Applications	135
<i>Bill Gurski, John Guarco, Nando Nunziant</i>	
(137b) Vapor Intrusion - Models and Their Value	149
<i>Eric M. Suuberg, Rui Shen, Yijun Yao, Kelly Pennell, Niklas Novoa</i>	
(137c) Synthesis, Fine Structural Characterization, and CO2 Adsorption Capacity of Cobalt and Nickel-Based Metal Organic Framework-74	150
<i>Abhijit Krishna Adhikari, Kuen-Song Lin</i>	
(137d) Treatment of Flowback Water from Hydraulic Fracturing with Biochar	154
<i>Maoqi Feng, Steven Cooks, Zhigang Feng</i>	
(137e) Hazards Management for Building Locations through Air Dispersion Modeling	167
<i>Morgan Reed, Tony Liu, Eric Peterson</i>	
(137f) H2S Removal from Biogas Using an Ionic Liquid as Physical Absorbent	168
<i>Ricardo Macias-Salinas, Isabel Luna</i>	
(144a) The Growth of Idea Ownership: Patent Infringement and Risk Management within the Chemical Process Industries	169
<i>Paul Lavanway Jr.</i>	
(144b) Chemical Engineering & the Law --Case Examples in Industrial Litigation	184
<i>Satish Almaula</i>	
(144e) Determining the Liability of a Fire Starting Product	191
<i>Carl Abraham</i>	
Author Index	