AIChE 2007
Spring National Meeting & 3rd Global Congress on Process Safety

Keep up to date on the latest technologies and trends in your field by joining this international gathering of chemical engineers and process safety professionals.

April 22-27, 2007

Hilton Americas Houston
Houston, Texas

Highlights of this meeting will include:

- The 3rd Global Congress on Process Safety featuring:
  - 22nd CCPS International Conference
  - 41st Loss Prevention Symposium
  - 9th Process Plant Safety Symposium
- The 19th Annual Ethylene Producers Conference
- 10th Topical Conference on Refinery Processing

Co-located with:

-2007 Management Conference
-2nd AIChE/SPE Workshop: Exploiting the Value of Heavy Oil

07 AIChE®
Spring National Meeting, Houston, TX

2007 AIChE Spring National Meeting/ PRELIMINARY PROGRAM

MONDAY, 23 APRIL 2007
8:00 AM - 9:00 AM
Opening Joint Keynote (CCPS, LPS and PPSS)
Hilton Americas-Houston, Grand Ballroom B & E

◆ Global Congress Keynote Address by James W. Bayer, Senior Vice President, Manufacturing and Health, Safety and Environment, Lyondell Chemical Company
◆ Safety and Health Division Awards

MONDAY, 23 APRIL 2007
8:00 AM - 11:00 AM
Advanced Oxidation and Separation Processes for Environmental & Energy Industries
Hilton Americas-Houston, Room 333

◆ Purification of Simulated Neptunium Filtrate Solution by Anion Exchange
◆ Cesium Removal Performance of Resorcinol-Formaldehyde Resin
◆ Appropriateness of Mechanistic and Non-Mechanistic Models for Ultrafiltration of Mixed Waste
◆ Yield Stress Reduction of Defense Waste Processing Facility (DWPF) Melter Feed Slurries
◆ Combining Advanced Oxidation Processes: Assessment of Process Additivity, Synergism, and Antagonism
◆ Filtration of Modified Monosodium Titanate Slurries

Advances in Hydroprocessing - I
George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Getting More with Less: ALON Big Spring Refinery ULSD Project
◆ Five Years Making ULSD with Albemarle Catalyst
◆ Thermochemistry of Catalyst Deactivation II: Competition between Hydrogenation, Condensation and Hydrocracking
◆ Improving Hydrotreating Operation Via Dynamic Simulation Modeling
◆ Molecular Weight and Its by-Boiling-Point Distribution of Middle Distillates for Hydroprocessing Modeling and Simulation

Carbon Dioxide Capture and Storage - I
George R. Brown Convention Center in Houston, Meeting Room 371 D

◆ Climate Change Science, the Climate Signal, and Responsive Actions within the Energy Industry to Capture and Sequester Carbon Dioxide
◆ Critical Review of Separation Technologies for CO_2 Capture from Post-Combustion Flue Gases
◆ Role of Geochemical Interactions in Assuring Permanence of Storage of CO_2 in Geologic Environments
◆ Hydrogen Selective Membranes by Assembly of Anisotropic Nanoparticles
◆ Carbon Dioxide Capture with Microporous Metal Organic Frameworks

Dr. Harry H. West Memorial: LNG Technology
Hilton Americas-Houston, Room 343 A

◆ Improving Design and Start-up Using a Virtual Plant
◆ Non-Ideal Carnot Model Provides Insights on LNG Liquefaction Processes
◆ Design Considerations for Offshore Liquefaction Processes
◆ Medium-Scale Liquefaction Technology
◆ Small Scale LNG Facility Developments
◆ Viability of Combined Cycle Drivers for LNG Plants

Energy Savings and Process Innovations: Continuing the Heritage of Kunesh, Sakata and Zuiderweg
Hilton Americas-Houston, Room 344 A & B

◆ Tribute to John Kunesh
◆ Energy-Saving Distillation through Internal Heat Exchange (HIDiC): Overview of a Japanese National Project
◆ Unfixed Wall: The Key to a Breakthrough in Dividing Wall Column Technology
◆ Inside-out Design Approach for Optimizing Distillation Design
◆ Guidelines for BTX Distillation Revamps
◆ Liquid Continuous Distillation
◆ New Energy-Efficient and Low-Cost Multicomponent Distillation Configurations
◆ Energy Savings by Integration of Refining and Petrochemical Plant
◆ Separation of p-Diethylbenzene from the Binary Diethylbenzene Mixture by Distillative Freezing

Environmental Solutions - I
George R. Brown Convention Center in Houston, Meeting Room 370 B & E

◆ Case Study on the Implementation of Iso 14001 at the Jordan Oil Refinery Co.
◆ Global Warming: Who Do You Believe?
◆ Impact of Ad Hoc Operability on GHG Emissions and Waste Heat Recovery
◆ Personalizing a Greenhouse Gas Protocol: Defining the Greenhouse Gas Inventory of Your Company

Exergy, Cost and Eco-Efficiency Analysis in Micro-Systems
Hilton Americas-Houston, Room 335 B

◆ Exergetic Efficient Distillation in Microchannel Architecture

Register today! www.aiche.org/Conferences/SpringMeeting/index.aspx; 800-242-3463 or 212-591-8100 (Outside the U.S.)

The following is the preliminary technical program and is subject to change. For the latest program, visit www.aiche.org/Conferences/SpringMeeting/MeetingProgram/TechnicalProgram.aspx

◆ High Energy Efficiency Micro Channel Reactor for Intermediate Temperature Fuel Cell Systems
◆ Silicon Carbide Microreactors with Catalyst Carrier Coatings
◆ Microreaction Technology and Its Route to Production Plant

Fine Chemicals and Pharmaceuticals Production in Micro-Systems - Part I
Hilton Americas-Houston, Room 335 A

◆ Microreactor Technology as an Integrated Method for Producing Fine Chemicals
◆ Modular Microchemical Engineering - A Tool for Process Intensification
◆ Scale-out Concept for Falling Film Microreactors
◆ Application of Microreactor Technology in Process Development
◆ Kinetic Study of Catalytic Hydrogenation of Aromatic Nitro Compound in a Microchannel Reactor

Integrated Gasification Combined Cycle (IGCC)
Hilton Americas-Houston, Room 339 A

◆ IGCC: Current Status and Future Potential
◆ Development of a Hydrogasification Process for Co-Production of Substitute Natural Gas (SNG) and Electric Power from Western Coal
◆ Syncrude and Syncoal Production by Mild-Temperature Pyrolysis Process of Low Rank Coals
◆ Novel Warm Synthesis Gas Cleanup for IGCC Systems
◆ Preliminary Study of the Gasification Process of Mexican Fuels at Atmospheric Pressure

Prediction and Correlation of Transport Properties
Hilton Americas-Houston, Room 342

◆ Marangoni Effect and "Chasing Drops"
◆ Emulsification Via Dynamic Interface Transport
◆ Interaction of Pressure Sensitive Adhesive Thin Films with Moisture
◆ Modeling the Surface Tension of Pure Fluids Using the Gradient Theory and a Simple CEOS
◆ Relating Contact Angles, Drop Size and Line Energy
◆ Nanoscale Fluid Flow - Molecular Dynamics Simulations with Solid-Liquid Interfaces
◆ Structure and Dynamics of Water within SWCNT and Cyclic Peptide Nanotubes
◆ Diffusion of Species in Nanostructures
◆ Prediction of Multicomponent Diffusion Coefficients in Liquids

Process Design Software and Case Studies
Hilton Americas-Houston, Room 336 A

◆ Combined Pre-Concentrator/Recovery Column Design for Ethanol Dehydration Process
◆ Modeling Fuel Desulfurization by Adsorption Via a Probability Method
◆ Optimum Design of Membrane Reactor that is Used for Hydroxylation of Benzene
◆ Singularities in Reactive Separation Process Problems
◆ Optimal Design of Heat-Integrated Separation and Refrigeration Systems
◆ A Dynamic Model for a Pump Hydraulic System

Recent Advances in Fuel Cell and Battery Technology
Hilton Americas-Houston, Room 339 B

◆ Factors Limiting the Electron Transfer in Methanol Dehydrogenase Enzymatic Fuel Cells
◆ Adsorptive Removal of Aromatic Compounds from Fuel Produced by Biomass Gasification for Fuel Cells
◆ Molten Carbonate Fuel Cell Hybrid Power System Simulation
◆ Study of Gas Diffusion Layers in Direct Methanol Fuel Cells
◆ Development of Direct Alkaline Fuel Cell for Liquid Fuels
◆ Electro-Oxidation Study of Ethanol in Direct Ethanol Fuel Cell on Pt Based Catalyst
◆ Lithium/Air Battery Model

Tools and Best Practices in Pilot Plants - I
Hilton Americas-Houston, Room 329

◆ Emission Profiler Calculation and Reporting Software Targets New Jersey Department of Environmental Protection Pilot Plant, R&D General Permit Compliance
◆ Best Practices in the Design and Fabrication of Pilot and Demonstration Plants
◆ Are You Feeling Lucky? Stop Relying on Luck to Optimize Your Pilot Plant Processes
◆ Pilot Plants: Best Practices Benchmarking and Open Forum Discussion

MONDAY, 23 APRIL 2007
8:30 AM - 11:30 AM
Ethylene Plant Process Control Applications Utilization and Systems Security
George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

◆ Align Olefin Operations to Economics - CLIFFTENT Optimizes Setpoints
◆ Some Key Issues on a Successful Application of Real Time Optimization System to an Ethylene Plant
◆ Maintaining Advanced Control& Online Optimization Applications, Sustaining the Gain
◆ Management of Open Systems in Process Control
◆ Analysis of a Propylene Refrigeration Compressor Trip with Dynamic Simulation
◆ Process Control Cyber Security Requirements of the ACC Responsible Care Security Code

Ethylene Plant Safety - Overview of Process Safety Issues in Ethylene Plants
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Furnace Transient Conditions
◆ Reactive Chemicals
◆ Exothermic Reactors
◆ Ethylene Decomposition
◆ Brittle Fracture
◆ EPC Safety Database

MONDAY, 23 APRIL 2007
9:15 AM - 11:00 AM
Chemical Safety Board Baker Recommendations
Hilton Americas-Houston, Grand Ballroom B & E

◆ Chemical Safety Board Recommendations
◆ Examining Organizational and Safety Culture Causes of the BP Texas City Refinery Explosion
◆ Baker Panel Recommendations
◆ Speaker from BP

Safety Culture - Key to Process Safety Performance
Hilton Americas-Houston, Grand Ballroom A & D

◆ Safety Culture for the 21st Century – Systems Approach with Applications
◆ Evaluating and Improving Operational Discipline
◆ Safety Climate from the Safety Experts: In Their Own Words
◆ Process Safety Concept in Indian Chemical Industries: Evolution and Socio-Economic-Legal Changes in the Aftermath of Bhopal Disaster

MONDAY, 23 APRIL 2007
9:15 AM - 11:15 AM
Facility Siting and Building Design for Explosion Protection
Hilton Americas-Houston, Grand Ballroom C & F

◆ A Practical (Semi Quantitative) Tool for the Determination of Dust Explosion Risks for Workers in Industry
◆ Employment of NFPA 59a in LNG Facility Siting
◆ Applying the Limitation of Effects Inherently Safer Process Strategy when Siting and Designing Facilities
◆ Management of Hazards Associated with Location of Process Plant Portable Buildings

MONDAY, 23 APRIL 2007
11:15 AM - 12:00 PM
Global Congress Pre-Lunch Talk
Hilton Americas-Houston, Grand Ballroom B & E

◆ Finding Potential Failures Deliberately

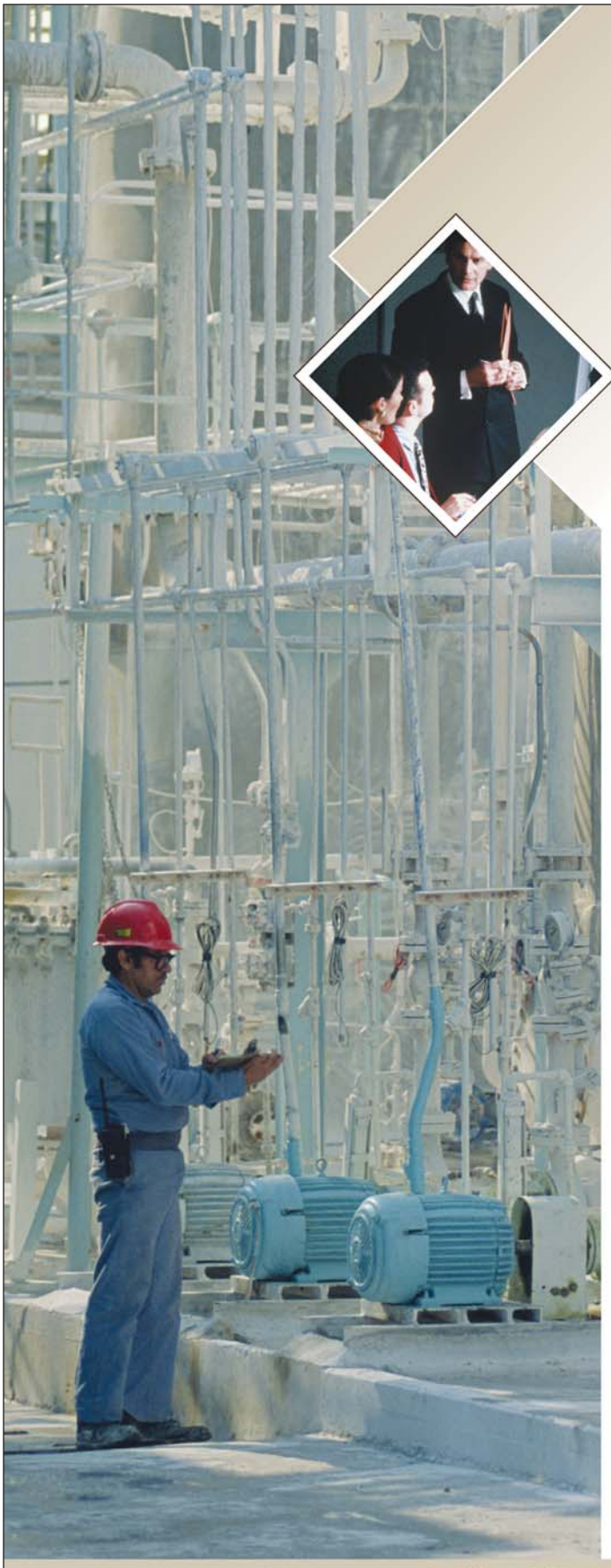
MONDAY, 23 APRIL 2007
11:15 AM - 12:30 PM
Fuels & Petrochemicals Division Plenary Session
Hilton Americas-Houston, Ballroom Americas A/B

◆ Our Energy Future and Fossil Energy

MONDAY, 23 APRIL 2007
1:00 PM - 4:00 PM
Communicating With Impact
Hilton Americas-Houston, Room 330

MONDAY, 23 APRIL 2007
1:30 PM - 2:15 PM
Issues and Challenges (Facing Olefins Industry) Session with Keynote Address
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ World Ethylene Industry - Technology/EPC Perspective



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◆ Outlook for Global Ethylene Markets and Impact on North America
◆ The Outlook for Ethylene Profitability – A Wall Street Perspective
◆ Global Outlook for Propylene and its Impact on the North American Industry

MONDAY, 23 APRIL 2007
1:30 PM - 3:00 PM
Process Safety Management Systems (Session 1)
Hilton Americas-Houston, Grand Ballroom B & E

◆ Quantification of Human Factors for Quantitative Risk Analysis
◆ Safety Culture: "Black Art" or "Paradigm Shift"?
◆ Six Sigma Analysis Applied to Process Safety Systems

Security, Vulnerability Assessments and Mitigation
Hilton Americas-Houston, Grand Ballroom A & D

◆ Development of a Miniature Calorimeter for Identification and Detection of Explosives and Other Energetic Compounds
◆ Chemical Process Security Performance Standards
◆ Optimum Route Selection for Hazardous Materials Transportation Incorporating Security and Cost-Effectiveness Considerations

MONDAY, 23 APRIL 2007
1:30 PM - 5:00 PM
Preparing for Natural Disasters and Lessons Learned
Hilton Americas-Houston, Grand Ballroom C & F

◆ Natural Hazards and Process Safety Management Elements: A Natural MIX
◆ Damage to Petrochemical Facilities during Earthquakes
◆ The Interaction of Earthquakes with Process Equipment in the Framework of Risk Assessment
◆ Observed Damage and Mitigation Options for Process Facilities
◆ Preparing for Self-Sufficiency
◆ Evaluating and Mitigating Hurricane Perils to Process Plants

MONDAY, 23 APRIL 2007
2:00 PM - 5:00 PM
Advances in Hydroprocessing - II
George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Selectivity of Ring-Contraction Products in the Hydroisomerization of Methylcyclohexane
◆ Green Diesel Production from Vegetable Oil
◆ Hylube Process Commercialization: Recovering Value from Used Motor Oil
◆ Start-up Experience for Value Recovery from Continuous Catalytic Regenerative (CCR) Net Gas at Yanbu Refinery

Advances in Optimization for Process Operations, Planning and Scheduling
Hilton Americas-Houston, Room 336 A

◆ Global Optimization Based on Modified Generalized Reduced Gradient and Its Application on Interval Analysis
◆ Investigation of Economic Penalty Due to Measurement Bias in Real Time Optimization
◆ Synergistic Approach to Real Time Optimization of Modern Industrial Processes
◆ Optimization Toolbox for Modeling of Multiple Runaway Reaction Systems
◆ Planning of an Olefins and Aromatics Plant
◆ Applying Attainable Regions to Scheduling

Advances in Refinery Distillation: Continuing the Heritage of Kunesh, Sakata and Zuiderweg
Hilton Americas-Houston, Room 344 A & B

◆ Crude Unit Overhead Corrosion at SINCOR
◆ Tower Internals Modifications Improve Performance of Atmospheric Crude Tower
◆ A CFD Study Comparing Different Feed Nozzle Arrangement within an Empty Spray Section in a Coker Fractionator
◆ Systematic Field Tests Turn Loss into Gain in High-Capacity Trays, Part 1: Excursion
◆ Preflash Drum When Processing Heavy Oils: Paradox or Reality?
◆ Aromatics Extraction in a Single Column to Meet the Demands for Aromatics Production and Benzene Reduction in the Gasoline Pool
◆ Debottlenecking a FCC Gas Plant with Ultra System Limit ConSep Trays
◆ Spray Section Performance Analysis: An Experimental Approach

Carbon Dioxide Capture and Storage - II
George R. Brown Convention Center in Houston, Meeting Room 371 D

◆ Evaluation of an Integrated Vacuum Carbonate Absorption Process for Post-Combustion CO_2 Capture
◆ Carbon Dioxide Separation with Supported Ionic Liquid Membranes
◆ Ionic Liquids for Post-Combustion Carbon Dioxide Capture
◆ Flue Gas CO_2 Capture by Means of a Biomimetic Facilitated Transport Membrane

Dr. Harry H. West Memorial: LNG Regasification
Hilton Americas-Houston, Room 343 A

◆ Transient Flow Analysis in LNG Regasification Terminal Design Safety
◆ Gas Interchangeability – Quality Issues and Solutions for U.S. LNG Terminals
◆ Floating Storage and Regasification Concepts Using the LNG Smart Air Vaporization Technology
◆ SIMAR Applications 1: Evaluating Expander-Based C2+ Recovery in Gas Processing
◆ SIMAR Application 2: Optimal Design of Expander-Based C2+ Recovery in Gas Processing
◆ LNG Expert: the Latest Evolution in LNG Storage Tank Management

Environmental Solutions - II
George R. Brown Convention Center in Houston, Meeting Room 370 B & E

◆ The Need for Environmental Management Systems in the Wood Preservation Industry
◆ Improving the Process of Certifying Title V Compliance at a Refinery Marketing Terminal
◆ Kinetic Modeling of Selective Non-Catalytic Reduction (SNCR) of Nitric Oxide Using Urea-Water Solution
◆ Refinery and Petrochemical Liability Protection – Audit Your Offsite Disposal, Regeneration, and Recycling Facilities

Fine Chemicals and Pharmaceuticals Production in Micro-Systems - Part II
Hilton Americas-Houston, Room 335 A

◆ Microchannel Reactor System for an Acid-Catalyzed Cycloaddition Reaction Involving Two Immiscible Liquid Phases
◆ The Synthesis of Isotopically Labeled Compounds in Microreactors
◆ Catalytic Hydrogenation of Aromatic Nitro Compound in a Microreactor
◆ Synthesis of Au Nanorings in the Soft Template of SDS-PEG Cluster under Mild Conditions
◆ Technical Experiences and Economic Aspects of Using Microreactors on the Production Scale

Hydrogen Production from Nuclear Energy
Hilton Americas-Houston, Room 333

◆ Novel Separation Process of Gaseous Mixture of SO_2 and O_2 with Ionic Liquid for Hydrogen Production in Thermochemical Sulfur-Iodine Water Splitting Cycle
◆ Melcor-H_2 Benchmarking of the SNL Sulfuric Acid Decomposition Experiments
◆ High Temperature Gas-Cooled Reactor Coupled with High Temperature Steam Electrolysis
◆ Molten-Phase Hydrolysis Stage Analysis and Experiments for the Calcium Bromine Thermochemical Cycle

Novel Reaction Technologies
Hilton Americas-Houston, Room 336 B

◆ Experimental Studies of Flow in Trickle Beds
◆ Finding New Catalysts and Processes for the Production of Acrylic Acid from Propane
◆ A New Approach to Nanotube Based Bulky and Thin Film Material: The Composites from Polyaniline and Derivatives
◆ Modular Microreaction System - A Powerful Platform for Product and Process Development
◆ High-Efficiency Nano-Catalyst Immobilization (HENCI) Dispersed-Particle Bed Technology and the Advent of High Mass- and Momentum- Transport Efficiency Nanocatalytic Reaction Processes

Polymerization in Microreactors
Hilton Americas-Houston, Room 335 B

◆ Consecutive Polymerization Reactions Conducted in Continuous Microfluidic Reactors
◆ Measurements Based on Polymerizations in Microfluidic Devices
◆ Microfluidic-Assisted Nitroxide-Mediated Copolymerizations: Influence of the Micromixer Geometry

◆ Synthesis of Polypeptides in Microfluidic Reactors
◆ Parallel Multiple Droplet Generators

Process Intensification for More Efficient Processes
Hilton Americas-Houston, Room 339 B

◆ The Effect of Heat and Thermal Storage Capacities of Photovoltaic Duct Walls on Co-Generation of Electric and Thermal Power
◆ Quick Melting of Tin Metal Using Thermite Charge
◆ Production-Data Based Energy Modeling and Support Tool for Optimization of the Energy Consumption in Chemical Multipurpose Batch Plants
◆ Phase Change Heat Transfer in Cylinders

Thermodynamics and Transport Fundamentals
Hilton Americas-Houston, Room 342

◆ Estimation of Activity Coefficients in Binary Systems Using Neural Networks
◆ Controlled Particle Deposition by Design of an Electrochemical Adsorption Cell
◆ The Effects of Confinement on Water Structure and Dynamics: a Molecular Simulation Study
◆ An Investigation of Protein Adsorption on Zinc Oxide
◆ Web Thermo Tables – An On-Line Database of Evaluated Thermochemical Properties for Pure Compounds
◆ Evaluating and Fine Tuning Cubic Equations of State for Supercritical Water Processes
◆ On the Derivation of Damped Wave Diffusion and Relaxation Equation from Stokes-Einstein Theory

Tools and Best Practices in Pilot Plants -II
Hilton Americas-Houston, Room 329

◆ In Situ Mid-Infrared Spectroscopy as a Tool in the Development of a Continuous Process for the Production of Cyclopropylcarbonitrile
◆ Real Time Measurement of Propylene Oxide in Polyether Polyols Via Calorimetry
◆ Ethylene Oxide Hydroformylation in Expanded Solvents
◆ Safe Use of Microwaves in Chemical Processing
◆ Design and Operation of a Pilot Plant for Studies on Scaleup, Liquid Distribution, Liquid Holdup, Hydraulics, Heat and Mass Transfer, and Carbon Dioxide Removal Using Chemical Solvents

MONDAY, 23 APRIL 2007
2:15 PM - 5:00 PM
Ethylene Plant Safety
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Fire at Formosa Plastics, Point Comfort, Texas
◆ Cold Box Pipe Leak Due to Erosion from Flashing Liquid
◆ Lightning Strike Incident at Sabic Europe Plant Naphthacracker 3 (NAK3)
◆ Furnace Quench Oil Fire
◆ Recognizing On-Line Oxygen Analyzers as an Ignition Source in Ethylene Furnaces
◆ Cracked Gas Compressor Balance Line Failures

MONDAY, 23 APRIL 2007
3:30 PM - 5:00 PM
Process Safety Management Systems (Session 2)
Hilton Americas-Houston, Grand Ballroom B & E

◆ Labor Accidents and the Relation with Human Error and Factors: Case: Braskem – Raw Material Unit – Bahia
◆ The Next Generation Approach to Operational Discipline at Dupont
◆ Management Review -- Be Sure Your Process Safety Systems Are Working
◆ OECD Guidance on Safety Performance Indicators

PSM and Risk Training in the 21st Century - Methods, Tools, and Innovations
Hilton Americas-Houston, Grand Ballroom A & D

◆ Development and Implementation of Process Safety Management, Risk Management, and Security Training Programs Using Online, Multimedia and Traditional Learning Environments
◆ Dynamic Simulation / Dynamic Training - Overcoming the Graying Workforce Dilemma
◆ The Case for Computer Based Training
◆ Conduct of Operations - The Glue between Training and Operational Performance

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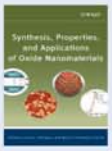

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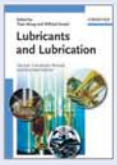

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TUESDAY, 24 APRIL 2007

8:30 AM - 11:30 AM

Advances in Petrochemical Production - I

George R. Brown Convention Center in Houston, Meeting Room 370 B & E

◆ Optimizing Cracker Operations — Selection of Downstream Configuration
◆ Condensing at Very Low Pressure with Low Allowable Pressure Drop, Low LMTD and Large Duty Requirements: A Successful Solution in Vacuum Distillation Columns for Petrochemical Production
◆ Investigation into a Novel, Green Technology for Aromatic Thiol Production
◆ New Catalyst and Process Innovations for Cumene Alkylation

Biodiesel Production Via Alternate Routes

Hilton Americas-Houston, Room 339 B

◆ Centrifuge or Filter -- Sterol Removal from Biodiesel
◆ Catalytic Conversion of Sugars and Glycerin to Biochemicals
◆ Glycerol to Gasoline Conversion
◆ Bio-Ethanol and BTL Diesel Fuel Production from Woody Biomass at Biomass Technology Research Center (BTRC) of AIST, Japan
◆ Hot Surface Ignition of Gasoline, E85, Diesel and E-Diesel
◆ Ion Exchange Resins for Biodiesel Purification
◆ The Use of a Controlled Cavitation Reactor for Bio-Diesel Production

Biological Conversion of Biomass to Fuels And Chemicals

Hilton Americas-Houston, Room 339 A

◆ Global View of Technical Aspects of Fuel Ethanol Production
◆ Emerging Technologies for the Production of Biofuels & Biochemicals from Renewables
◆ Ethanol Production from Mixed Sugars Derived from Lignocellulosic Biomass by the RITE-Bioprocess
◆ Broth Rheology and Ethanol Yield for a Zymomonas Mobilis Fermentation with High Substrate Loading
◆ Ethanol Production from Waste Sweet Potato Using Recombinant Zymomonas Mobilis
◆ Metabolic Engineering of Cyanobacteria for Bioenergy Production

Coal and Gas to Liquids I

Hilton Americas-Houston, Room 340 B

◆ A Graphical Approach to Assess Gasification: Novel Routes for Fischer-Tropsch Synthesis
◆ Characterization of Active Species in Rb Promoted Iron Catalyst during Fischer-Tropsch Synthesis: An EXAFS, XANES and Mossbauer Study
◆ Evaluation of a Long-Term Fischer-Tropsch Test and the Resulting Spent Iron Catalyst
◆ Fischer-Tropsch Synthesis: Investigation of the Metal-Support Interaction of Cobalt-Based Catalysts by Standard Tpr and Synchrotron-Based TPR-XANES/TPR-EXAFS Techniques
◆ Minimizing Carbon Dioxide Emissions from Fuel Plants by Integrating Processes
◆ Synchrotron Computed Microtomography (CMT) and Micro X-Ray Fluorescence as Tools to Map Fischer-Tropsch Catalysts

Commercialization of Micro Process Technology — Panel Discussion

Hilton Americas-Houston, Room 335 A & B

◆ Panel Discussion: Commercialization of Micro Process Technology

Dr. Harry H. West Memorial: LNG Equipment

Hilton Americas-Houston, Room 343 A

◆ Running Plant Strategy in Dealing with Shortage Gas Supply to Badak LNG Plant
◆ Transient Characteristics of Two-Phase LNG Expanders
◆ Improving the Profitability of LNG Plants Using Advanced Process Control
◆ A Novel Method for Testing the NPSHA Level of a Submerged Centrifugal LNG Pump
◆ Effect of Quadratic Fluid Damping in Two-Phase Liquefied Natural Gas
◆ Successful Resolution of Site Issues for Cryogenic Expanders at LNG Liquefaction Plants

Ethylene Feedstock - Oxides of Nitrogen, Oxygen and Ammonia as Contaminants in Ethylene Plants

George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

◆ Analysis of ppb Levels of H_2, O_2, N_2, CH_4, CO and CO_2 in Hydrocarbon Feed Streams with a Pulsed Discharge Detector (PDD)
◆ Advances and Applications of Comprehensive Two-Dimensional GC in the Chemical Industry
◆ War Stories on Feedstock Contaminants
◆ Best Practices for Dealing with Oxygen Contamination in the Ethylene Plant
◆ Ammonia - Contamination in the Ethylene Plant
◆ Feedstock Contaminant Paper

Ethylene Fundamentals and Technology

George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Revamp of Pygas Unit to Meet New Sulfur Regulation
◆ A Catalytic Cracking Process for Ethylene and Propylene from Paraffin Streams
◆ Petrochemicals from Bitumen
◆ Mathematical Models for Characterizing and Predicting Heat Flux Profiles in Ethylene Cracking Units
◆ Saving Energy with Space Age High Emissivity Ceramic Coatings
◆ Towards an Ideal Reactor Concept for the Production of Ethylene from Hydrocarbons

FCC Tutorial and Advances

George R. Brown Convention Center in Houston, Meeting Room 370 C & F

◆ FCC Operations
◆ Impact of Catalyst, Additives and Feedstock on FCC Unit Performance
◆ Effect of Vanadium Deposited Locations in FCC Catalyst on Naphtha Sulfur Content
◆ Dynamic Simulation of a Fluid Catalytic Cracking Unit. Predicting the Operation Using a Hydrotreated Feed

Microstructural Analysis of Proton Exchange Membrane Fuel Cells: Membrane and Catalyst Layer Degradation Mechanisms I

Hilton Americas-Houston, Room 335 C

◆ Characterization of the Durability of Nafion Membranes and Nafion/Inorganic Oxide Nanocomposite Membranes
◆ Microstructural Characterization of Life-Limiting Membrane-Electrode-Assembly Materials Degradation Phenomena
◆ Membrane Degradation of Proton Exchange Membrane Devices Operating in an Oxygen Deprived Environment
◆ Nanoscale Investigation of Morphologies in Polymer Electrolyte/PVDF Blend Membranes
◆ Microstructural Analysis of Proton Exchange Membrane Fuel Cells Paper 2

Modeling in Fire and Explosion Protection

Hilton Americas-Houston, Grand Ballroom C & F

◆ Why Use CFD for Explosion Studies?
◆ The Usefulness of Phenomenological Tools to Simulate the Consequences of Dust Explosions
◆ Simulation and Application of Blast Wave-Target Interactions
◆ The Design of Venting of Gas Explosions in the Presence of a Discharge Duct
◆ CFD-Based Risk Assessment for Hydrogen Applications
◆ Application of CFD Models for the Onshore Process Industry

New and Exciting Dynamics and Control Applications: Continuing the Heritage of Kunesh, Sakata and Zuiderweg

Hilton Americas-Houston, Room 344 A & B

◆ Smart Plants, Smart Distillation
◆ Column Instrumentation Basics: Understanding Accuracy and Sources of Error Part 1
◆ Improving the Efficiency and Reliability of Distillation Model-Predictive Control Projects
◆ Two-Phase-Flow and Stress on Internals during Pressure Relief Events on Distillation Columns: Experimental Investigation and Dynamic Simulation
◆ Improve Column Control by Modifications to Temperature Control Strategies
◆ Control of a Batch Distillation Column
◆ Column Instrumentation Basics: Understanding Accuracy and Sources of Error Part 2
◆ Energy Use in Distillation Operation: Nonlinear Economic Effects

Novel Separations Technologies

Hilton Americas-Houston, Room 336 B

◆ Ammonia by Pressure Swing Adsorption
◆ A Novel, Highly Efficient and Economic Purification Process Revolutionizing Purified Terephthalic Acid Production
◆ A New Separation Method - Distillative Freezing
◆ Mass Transfer Studies on a Novel Rotating Packed Bed (HIGEE)
◆ A Novel Technology for Virus Vaccine Purification: Modeling and Operation of Continuous Annular Chromatography Unit
◆ Estimation of Deuterium Recovery from the Separation of Water-Isotope Mixture by Thermal Diffusion

Oil Water Separation

George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Oil/Water Separation: A Review of the Historical Development and the Evolution of New Treatment Techniques
◆ In Situ Asphaltenic Film Characterization of W/O Emulsions by SANS: The Role of Film Thickness and Composition in Emulsion Stability
◆ The Benefits of Optimizing Your Desalter Operation
◆ Tutorial on Handling Slop Oil in the Refinery
◆ A New Concept for Simultaneous Reduction of Alkalinity, Oil and Undesirable Gases Such as CO_2 and H_2S
◆ Stabilizing Hydraulic Fluids with Membrane Drying
◆ Solidification Mechanism and Solidifier Effectiveness for Fuels and Oils

Process Control and Monitoring Applications

Hilton Americas-Houston, Room 336 A

◆ A Novel Mixed Product Run-to-Run Control Algorithm – Dynamic ANCOVA Approach
◆ A Practical Approach to Advanced Process Control of VCM Plants
◆ Direct Control of Chemical Processes with Multi-Rate Measurements
◆ Model Based Online Analysis and Monitoring of Tank Qualities
◆ Development of in-Situ Analysis for the Chemical Industry
◆ Process Monitoring Using Robust Chemometric Spectrum Models for Predicting Concentration Profiles

Process Intensification Topics I

Hilton Americas-Houston, Room 329

◆ Analysis of Distillation Differential Equations for Improved Operational Policies and Equipment Configurations
◆ Visualization of Mass Transfer Across an Electrically Charged Plane Interface
◆ Process Intensified Green Reaction Chemistries Performed in the Spinning Tube-in-Tube (STT) Reactor
◆ Prediction of Pressure Drop and Liquid Holdup in KATAPAK-SP Using a Particle Model
◆ Studies on Ionic Mass and Momentum Transfer with Coaxially Placed Twisted Tape-Disc Assembly as Turbulence Promoter in Circular Conduits

Safety Instrumented Systems (SIS) — Identification, Design and Application

Hilton Americas-Houston, Grand Ballroom A & D

◆ Identifying, Evaluating, and Selecting SIF
◆ Equipment Safety Manuals - A User's Expectations
◆ Sustainable SIS Technology in Dow
◆ Continuous Improvement of SIS
◆ Continuous Improvement of SIS - Panel

Synthetic Fuels and Chemicals from Unconventional Resources-I

George R. Brown Convention Center in Houston, Meeting Room 371 B

◆ Eastman Chemical Company's Chemicals from Coal Program: the First Quarter Century
◆ Evaluation of Fuels Produced Via the Fischer-Tropsch Process for Use in Aviation Applications
◆ Development of a Novel CTL Technology for Implementation in Peoples Republic of China
◆ Coal-Tar Chemicals from LRC by Mild-Temperature Pyrolysis
◆ Production of Coal-Based Fuels and Value-Added Products: Processes Reacting Coal and Coal Liquids with Petroleum Refining Solvents
◆ Recent Developments in Modularized Air-Blown Coal Gasification Systems for Chemical and Industrial Applications

The Engineer's Energy Toolbox

Hilton Americas-Houston, Room 338

◆ Energy Efficiency Activities in the Chemical Industry

◆ Four Energy Efficiency Case Studies

Thermodynamics and Phase Equilibria I
Hilton Americas-Houston, Room 342

◆ Eight Ensembles in Treatment of Statistical Thermodynamics Classical Systems
◆ Sublimation Pressure from Solubility Data of Solids in Supercritical Solvents
◆ Using the Solvation Model to Predict the Salt Effect on Vapor-Liquid Equilibrium
◆ Structural, Energetic and Thermodynamic Studies of Acrylic (PAA, PMA and PMMA) and Allylamine (PAH) Polymers for Self Assembly
◆ Carbon Nanotube Polymer Nanocomposites for Electromechanical System Applications
◆ Densities and Phase Loops for Four Natural Gas-like Mixtures
◆ New Technologies for Thermophysical Properties for on-Demand Product Development: the NIST Thermo Data Engine (TDE)
◆ Thermodynamic Prediction of the Chain Propagation Probability for the Fischer-Tropsch Reaction

TUESDAY, 24 APRIL 2007
11:15 AM - 12:00 PM
Global Congress Pre-Lunch Talk: Jack McCavit, Process Safety Management Systems
Hilton Americas-Houston, Grand Ballroom B & E

TUESDAY, 24 APRIL 2007
1:00 PM - 4:00 PM
You Can't Flow Chart Murphy's Law! from Obstacle to Opportunity
Hilton Americas-Houston, Room 330

TUESDAY, 24 APRIL 2007
1:30 PM - 3:00 PM
Risk Based Process Safety and Risk Tolerance Criteria
Hilton Americas-Houston, Grand Ballroom B & E

◆ Improve the Risk Ranking Process by Categorizing and Detailing Consequence and Probability Categories
◆ Implementing a Risk-Based Process Safety Management System Because It Makes (Dollars and) Sense
◆ How to Incorporate the Health, Safety and Environment Management System in Quantitative Risk Assessments

TUESDAY, 24 APRIL 2007
1:30 PM - 5:00 PM
Assuring Safety in the Design and Construction of Process Systems
Hilton Americas-Houston, Grand Ballroom A & D

◆ Safety and Regulatory Compliance of Reconditioned Equipment
◆ Acoustic Modeling and Noise Plans: Implementation on Capital Projects
◆ Right Sizing Fire Protection
◆ How Can Simplification Enhance Process Safety?
◆ Analyzing Hazards of Sour Water Spills
◆ Resilient Engineered Systems

Fire, Explosion and Reactive Hazards
Hilton Americas-Houston, Grand Ballroom C & F

◆ The Relationship between Flash Point and Lower Flammable Limit
◆ Fire Hazards at Power Generation Facilities
◆ Fire and Explosion Assessment on Oil and Gas Floating Production Storage Offloading (FPSO) : an Effective Screening and Comparison Tool
◆ Oleum Spill Tests - Field Data for Model Validation
◆ Estimating the Consequences of Deflagration to Detonation Transition (DDT) in Hydrogen Explosions
◆ Use of Adiabatic Calorimetry and Aging Test for Safe Storage Study of Hydroxylamine Nitrate

TUESDAY, 24 APRIL 2007
2:00 PM - 5:00 PM
Advances in Petrochemical Production -II
George R. Brown Convention Center in Houston, Meeting Room 370 B & E

◆ Optimization Approach for Production Planning in Olefins and Aromatic Plant, Cracking vs. Reforming
◆ Higher Productivity by Using the New Sandvik Grade Kanthal APMT
◆ Improvement of Ethylene Plant Performance Using High-Cr, High-Ni Weld Overlaid Furnace Tubes
◆ Multistage Cryogenic Expander Applications

Coal and Gas to Liquids II
Hilton Americas-Houston, Room 340 B

◆ An Overview of Rentech's Technology
◆ Rentech Process – Scale-up and Commercialization of a CTL Process
◆ GTL and CTL Commercialization: Status and Impact on Global and Regional Product Markets
◆ Fischer-Tropsch Fuel for Use by the Us Military as Battlefield Use Fuel of the Future
◆ Synthetic Fuels: past, Present and Future
◆ Fischer-Tropsch Synthesis: Impact of Sulfur on Iron Catalysts

Control and Optimization Tutorial and Advances
George R. Brown Convention Center in Houston, Meeting Room 370 C & F

◆ ADMC: Beyond Classical MPC
◆ MPC Fundamentals
◆ Operator Training System for Unicracking Unit: Real World Questions and Answers
◆ Integration of Complex Sequences Using Delta V
◆ Building a Grassroot Refinery in the 21st Century: Which Way to Go?

Dr. Harry H. West Memorial: LNG Safety Workshop (I)
Hilton Americas-Houston, Room 343 A

◆ High Expansion Foam Application for Controlling LNG Pool Fire -- Experiment Results and Analysis
◆ Bulk Temperature Profile of LNG Spill on Unconfined Water – Experiment Results and Analysis
◆ Safety Assessment and Code Development for Application of KOGAS Membrane Type LNG Storage Tank
◆ Understanding and Managing Business Interruption Risks
◆ On the Use of Quantitative Risk Assessments (QRA) for LNG Terminals
◆ Safety Design for LNG Receiving Terminal

Emulsions and Dispersions
Hilton Americas-Houston, Room 335 A

◆ Flow Rate Variation in Two Step Multi-Phase Microsynthesis of Nanomaterials Effecting Their Catalytic Activity of Oxidation
◆ Fabrication of Discotic Colloids through Electrospray
◆ Characterization Non-Newtonian Transport Character of Oil-in-Water Emulsions in Micro Tubes and Channels at High Content of Oil
◆ Enhanced Mass Transfer by Liquid-Liquid Slug Flow in Microchannels for Efficient Extraction
◆ Emulsification with Micro-Engineered Devices

Energy Efficiency in Refinery Petrochemical Plants-I
Hilton Americas-Houston, Room 338

◆ A Successful Approach to Reduce Energy Consumption in Chemical Plants
◆ Big Energy Savings on a Small Budget: Integrated Use of Process Simulation, Analysis and Synthesis
◆ R&D Opportunities for Energy Efficiency in the Chemical Industry
◆ Energy Storage by Modeling a Cooling System
◆ Decision Support Solution for the Operational Improvement of Refinery Pre-Heat Trains

Engineering And Analysis Of Biomass Conversion Technologies
Hilton Americas-Houston, Room 339 B

◆ Flow Pattern Simulation in a High Solids Cellulose-to-Ethanol Bioreactor Using Computational Fluid Dynamics
◆ Application of Plate Exchangers in Bio-Ethanol Plant
◆ The Production of Hydrogen from Partial Oxidation of Biomass in Subcritical and Supercritical Water - A Thermodynamic Equilibrium Analysis
◆ Energy and Cost Requirement to Produce Rice Husk Briquette Using Different Screws and Heating Systems
◆ Production of Synthesis Gas by Biomass Gasification

Ethylene Feedstock - NO_X in Cryogenic Equipment Technology Forum
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Chemistry of NO_X Formation in Cryogenic Sections
◆ Analytical Techniques for the Measurement of NO_X Compounds
◆ Ethylene Operators Experiences
◆ Incidents: Berre Ethylene Plant and Others
◆ Operations Responses to NO_X Accumulation

Ethylene Plant Environmental - Air Emissions Monitoring and Control

George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

◆ Houston Air Quality Chemistry
◆ State of the Ozone State Implementation Plan
◆ How Facilities in Harris County, Texas are Using Point Source Monitoring to Identify and Reduce Emissions of Highly Reactive Volatile Organic Compounds
◆ Design and Implementation of a Large Facility Perimeter Air Monitoring Network
◆ Burner NO_X from Ethylene Cracking Furnaces

Fluid Manipulation/Nanofluidics

Hilton Americas-Houston, Room 335 B

◆ Acoustically Driven Microfluidics to Mimic Blood Flow on a Chip
◆ Generation of Nanoliter Fluid Segment Patterns by Different Methods of Segment Sequence Merging
◆ DNA Thermal Migration in a Microchannel
◆ Specific Development of EWOD Lab-on-a-Chip for Chemical Processor
◆ Fluid Manipulation in Microengineered Environments – Creating and Delivering Novel Functional Ingredients, Formulations and Sensory Benefits in Foods and Home & Personal Care (HPC) Products

Microstructural Analysis of Proton Exchange Membrane Fuel Cells: Membrane and Catalyst Layer Degradation Mechanisms II

Hilton Americas-Houston, Room 335 C

◆ Analysis of the Physical and Chemical Stability of Cast Nafion Membranes with Respect to Methanol Solubility and Radical Attack
◆ Sulfonated Perfluorocyclobutyl Polymers and Fluorocarbon Functionalized Carbon for PEM Membranes
◆ Broadband Dielectric Spectroscopy Characterization of Chemical Degradation in Nafion/Silicate Nanocomposite Membranes
◆ Transport Properties of Supercritical Fluid Processed Proton Exchange Membranes: Methanol Permeability and Proton Conductivity

Novel Enabling Technologies

Hilton Americas-Houston, Room 336 B

◆ Development of Highly Selective Oxidation Catalysts by Atomic Layer Deposition
◆ Effect on Fluidization of Cold and Hot Jet Injection into Fluidized Beds
◆ Direct Ethoxylation of Butyl Acrylate with Narrow Adduct Distribution
◆ On the Use of Co-Solvent in Counter Current Multistage Continuous Liquid Extraction Operations
◆ Predicting Pressure Drop and Holdup in KATA-PAK-SP Using a Particle Model

Process and Control System Monitoring

Hilton Americas-Houston, Room 336 A

◆ Keeping Advanced Process Control (APC) Performance and Maintenance and Improvement of APC System
◆ Error Band Identification and Characterization for Advanced Process Controller (APC) Performance Assessment
◆ Process Monitoring and Parameter Estimation via Unscented Kalman Filtering
◆ Detecting Change in Complex Process Systems with Phase Space Methods
◆ Thermal Cracking Studies by Design of the Pilot Plant

Process Intensification Topics II

Hilton Americas-Houston, Room 329

◆ Process Intensification: New Understanding and Systematic Approach
◆ Experimental and Simulated Trajectories of Electrically Charged Drops in Non-Newtonian Liquid – Liquid Systems
◆ The Use of a Controlled Cavitation Reactor for Process Intensification
◆ Microfiber Adsorbents for Improving Packed Bed Adsorbers
◆ A Z-Step Cascade Procedure for Extraction of Styrene from a Mixture of Styrene and Ethylbenzene Using Diethylene Glycol as Solvent

Standard and High-Capacity Trays: Continuing the Heritage of Kunesh, Sakata and Zuiderweg

Hilton Americas-Houston, Room 344 A & B

◆ Tribute to Mich Sakata
◆ The Effect of Hole Size on Sieve Tray Performance
◆ High Capacity Tray Revamp of a C2 Splitter
◆ Increasing the Capacity and Lowering the Energy Consumption of a Paraffin Fractionation Tower
◆ The Effect of Open Area on Sieve Tray Performance
◆ Hydraulic Investigations for the Increase of Capacity of Distillation Trays
◆ Parallel Flow Trays
◆ Improving the Efficiency of Multiple Downcomer Tray Performance by Various Tray Structure Modifications
◆ Two-Phase Flows in Tray Downcomers - Backmixing and Chocking Tests

Synthetic Fuels and Chemicals from Unconventional Resources-II

George R. Brown Convention Center in Houston, Meeting Room 371 B

◆ Maguire Frac -- A Novel and Efficient Means for Oil Shale Recovery
◆ Technology Requirements for Sustainable Oil Sands Production
◆ Bitumen Production from Canadian Oil Sands Deposits
◆ Commercial and Novel Synthesis Gas Cleanup Technologies
◆ Hydromax: Not Your "Same Old" Coal Gasifier
◆ Reaction of Methyloctanoate over Supported Pt-Pd Catalysts

Thermochemical Conversion of Forest & Other Biomass To Fuels And Chemicals

Hilton Americas-Houston, Room 339 A

◆ Process Analysis and Optimization for Transportation Liquid Fuel Production by BTL (Biomass to Liquids) Process
◆ Production of Biogas Fuel from Wood Wastes for Use in Lime Kilns
◆ The Canadian University Biorefining Network: an R&D Power House
◆ Clean Gas from Biomass by Catalytic Filtration
◆ Gasification/Biocatalytic Process for the Co-Production of Electricity and Ethanol from Any Carbonaceous Materials
◆ Production and Separation of Fermentation-Derived Acetic Acid

Thermodynamics and Phase Equilibria II

Hilton Americas-Houston, Room 342

◆ Classical Molecular Dynamics on Composite Systems of Clathrate-Methane-Water-Kinetic Inhibitor
◆ Thermodynamic Consistency of High Pressure Phase Equilibrium Data of Ternary Gas-Solid-Solid Mixtures
◆ Density Collection Technique for Gas Mixtures Using an Automated Isochoric Apparatus and a Magnetic Suspension Densitometer
◆ A Critical Comparison of Manual and Automated Equation of State Production
◆ A New Mixing Rule to Model the Solubility of Solids in Supercritical Fluids
◆ Quantitative Measurements of Colloid-Surface Interactions from Microscopic Imaging and Inverse Density Functional Theory
◆ Phase Behavior of Polydisperse Branched Polyolefins Using the PC-SAFT Equation of State
◆ Interfacial Properties and Structure of Polymeric Blends and Solutions from Interfacial-SAFT (ISAFT) Density Functional Theory

Upgrading and Processing of Opportunity Crudes

George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Opportunity Crude Oil Contaminants Affecting Salt Hydrolysis
◆ Taking Some of the Challenge out of Challenge Crudes
◆ Effect of Toluene, Resins to Asphaltene Ratio and Surfactant on the Stability of Water-in-Crude Oil Emulsions
◆ Flocculation Test for Oils without Asphaltenes

TUESDAY, 24 APRIL 2007

3:30 PM - 5:00 PM

Reliability and Process Safety

Hilton Americas-Houston, Grand Ballroom B & E

◆ Excellence in Stationary Equipment Inspection and Reliability
◆ From PSM to Operational Excellence: Safety Critical Variables and Equipment
◆ Field-Based Evaluation of PFD Values for Safety-Related Loop Typicals

TUESDAY, 24 APRIL 2007

4:30 PM - 6:15 PM

Poster Session on Risk and Process Design

Hilton Americas-Houston, Grand Ballroom Foyer

◆ Beyond 2003 - Multi-Sensor Architecture in SIF Design
◆ Safety Contributions of RAMCAP Plus Risk Management Software
◆ Pressure Relief of Non-Reactive Three-Phase Systems
◆ Minimum Ignition Energy of Sprayed Liquid Due to an Electrostatic Spark (II)
◆ Why QRA for Emergency Planning?
◆ Simplified Pressure Relief Requirements for Indirectly Heated Equipment Containing a Homogeneous Fluid
◆ Ethylene Decomposition Relief Sizing
◆ Using Industrial Wireless Instrumentation to Monitor Safety Showers in Chemical Plants
◆ Tips for Successful Modeling of Relief Valve and Vent Emissions
◆ An Effective Emergency Response System
◆ Realistic Human Error Rates for Process Hazard Analyses
◆ Connecting Process Safety Performance to Organizational Culture - A Root Cause Approach
◆ Explosion Protection by Using the Database Chemsafe

WEDNESDAY, 25 APRIL 2007
8:00 AM - 9:30 AM
Standards, Codes, and Regulations
Hilton Americas-Houston, Grand Ballroom B & E

◆ Legal Considerations for Complying with Changing Regulations or Consensus Standards
◆ The ATEX Directives - Explosion Safety and Regulation: The European Approach
◆ Retrofitting New Standards into Existing Facilities Is Not Always as Easy as It Seems

WEDNESDAY, 25 APRIL 2007
8:30 AM - 11:15 AM
Communicating Expert Knowledge to Technical Communities
Hilton Americas-Houston, Grand Ballroom C & F

◆ Industry-Government Alliances Share Information to Help Prevent Workplace Injuries, Illnesses and Fatalities
◆ Communicating RAGAGEP Responsibility Beyond PSM and RMP Coverage
◆ Education Materials for Universities and Industry
◆ CSB Safety Videos: A New and Effective Communication Tool for Accident Investigation Findings
◆ New Tools and Approaches to Expand Global Process Safety Capabilities

Risk Assessment and Risk Management - New Directions
Hilton Americas-Houston, Grand Ballroom A & D

◆ Cumulative Benefit Analysis for Ranking Risk Reduction Actions
◆ Making HAZOP the Method of Choice for Identification of Process Plant Hazards
◆ Design Optimization Using Automated FTA Tools
◆ QRA and ERS: An Integrated Approach
◆ A Case Study of Safety Integrity Level (SIL) Assessment and Verification at Air Products and Chemicals: Electronics Division Product Line Evaluation and Analysis
◆ The Evaluation of Risks of Ethoxylation Processes

WEDNESDAY, 25 APRIL 2007
8:30 AM - 11:30 AM
Bottom of the Barrel Tutorial
George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Chemical Structure of Petroleum Asphaltenes and Implications for Processing
◆ The Processing of Resids and Heavy Oils Residue Upgrading by Solvent Deasphalting and Pitch Gasification — A Review

Dr. Harry H. West Memorial: LNG Safety Workshop (II)
Hilton Americas-Houston, Room 343 A

◆ Vapor Cloud Exclusion Zone Issues for Spills into Impoundments
◆ Vapor Dispersion Exclusion Zones for Pressurized LNG Releases
◆ CFD-Modeling of LNG Dispersion Experiments
◆ Validation of a CFD Model for Vapor Dispersion from LNG Spills into an Impoundment
◆ Spill Containment for Liquid Hydrogen Storage Located at Public Fueling Stations
◆ Comparison of U.S. Risk-Based Approach with the Rest of the World for LNG

Energy Efficiency in Refinery Petrochemical Plants-II
Hilton Americas-Houston, Room 338

◆ Improving the Design and Operation of Combined Heat and Power Systems in Refining Plants
◆ Port Arthur Steam Energy: Bringing a Major Energy Recovery Plant Back to Life
◆ A Holistic Approach to Capturing and Sustaining Energy Savings
◆ Rotary Kiln Design Based on the Hypothetical Kiln

Ethylene Plant Operations
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Ethylene Fractionator Auto-Refrigeration Incident
◆ Operational Experience with Low NO_X Burners in Steamcracking Service at OMV Schwechat Refinery
◆ Operating Experience with Chevron Phillips' Back End *E-Series* Acetylene Converter Catalyst
◆ Process Stabilization by Utilization of Reactivated Catalyst
◆ Olefins Industry Energy Trends and Outlook
◆ A Successful Approach to Improve Energy Utilization in Ethylene Crackers
◆ Start-up Planning & Support Following a Plant Revamp

Ethylene Plant Rotating Equipment
George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

◆ New Technique for On Line Washing of Large Condensing Steam Turbines
◆ Operator Surveillance of Critical Machinery in Ethylene Plants
◆ Ethylene Plant Cold Service Pump Startup Procedures
◆ Compressor Fouling Caused by Capacity Increase without Knockout Pot Redesign
◆ Design Considerations for Effective Liquid Removal in Suction Drums
◆ Antifouling and Corrosion Resistant Coatings for Cracked Gas Compressors
◆ Consider Piping Dynamics in Conjunction with Compressor Rerates

Gas Conversion and Separations
Hilton Americas-Houston, Room 340 B

◆ Direct Methane to Methanol Conversion
◆ Oxidative Coupling of Methane to C2 Plus Hydrocarbons
◆ An Improved and Energy Efficient Natural Gas Liquids (NGL) Removal Process
◆ Development of Membranes for Natural Gas Dehydration
◆ Monetizing Options for Small Reserves of Low-Quality Natural Gas with High Carbon Dioxide Content
◆ Natural Gas Industry in Iran

Heat Exchanger Fouling: A Messy Business
Hilton Americas-Houston, Room 330

◆ Heat Exchanger Fouling Due to Catalysis
◆ Furnace Tube Temperature and Monitoring
◆ Challenging the Way Design Margins Are Added to Heat Exchangers
◆ Fouling Factors: What Are They? How to Cope with Them
◆ Polymer Fluid Properties and Heat Exchanger Performance
◆ An Integral Technique of Monitoring Localized Coking in Refinery Fired Heaters

Hydrogen Production from Renewable Energy
Hilton Americas-Houston, Room 339 B

◆ Thermodynamic and Kinetic Study on Dimethyl Ether Steam Reforming
◆ Hydrogen Production via Gasification of Solid Carbon Fuels
◆ Autothermal Partial Oxidation of Methyl Acetate in a Catalytic Bed Reactor
◆ Thermodynamic Analysis of a Microbial Cell: A Process Synthesis Approach
◆ Technical and Economic Analysis of Hydrogen Production by Ocean Thermal Energy Conversion
◆ PEM Water Electrolyzers in Renewable Energy Capture to Hydrogen

Micro Technology in Catalyzed Reaction Systems - Part I
Hilton Americas-Houston, Room 335 A

◆ Olefins by High-Intensity Oxidation in Microchannel Reactors
◆ Advanced Catalytic Microstructured Reactor

for Continuous Chemical Synthesis Integrated with a Separation Step
◆ Membrane Microreactors for Heterogeneously Catalyzed Gas-Liquid Reactions
◆ Kinetics of Hydrogen Peroxide Synthesis in a Microreactor by Direct Combination of Oxygen and Hydrogen
◆ Production of H_2O_2 by Controlled H_2/O_2 Reaction in a Microchannel Reactor

Miscellaneous Novel Technologies
Hilton Americas-Houston, Room 336 B

◆ Hybrid Microwave Heating of Palladium for Helium Release
◆ Enzymatic Synthesis of Medium-Chain Partial Glycerides in Solvent-Free Media Using Up-Flow Reactor
◆ Improving Mercury Removal Efficiency of a Plasma Enhanced Electrostatic Precipitator
◆ Fast and Non-Invasive Measurement of Cross-Link Density in Polymers by TD- NMR

Mixing and Heat Exchange in Microreactors
Hilton Americas-Houston, Room 335 B

◆ A Propane-Air Micro Jet Premixer
◆ Microstructured Mixing Devices: An Efficient Tool for the Determination of Chemical Kinetic Data?
◆ Theoretical and Experimental Studies of Mixing Enhancement in Micromixers
◆ Re-Dispersion Microreactor to Achieve Staged Liquid-Liquid Dispersion for Use in Polycondensation
◆ Stable Disrupted Flow in Microchannels for Multiphase Reactions

New and Exciting Packing Applications: Continuing the Heritage of Kunesh, Sakata and Zuiderweg
Hilton Americas-Houston, Room 344 A & B

◆ Tribute to Frits Zuiderweg
◆ The Performance of Random Packing for High Pressure Distillation Systems
◆ Reaching New Performance Levels with Surface Enhanced Raschig Super-Pak Structured Packings
◆ Experimental Characterization of High Performance Montz Structured Packings
◆ Experiences with the Quality Rating and Evaluation of Liquid Distributors
◆ Performance of Liquids Recovery Plant Demethanizer
◆ A Novel Kind of HIGEE – Rotating Zigzag Bed
◆ A New Approach to Intensify the Structured Packing

New Approaches to Project Management
Hilton Americas-Houston, Room 337 B

◆ Tutorial: Project Management Fundamentals
◆ Driving Capital Projects to Success
◆ Data Based Project Identification Beyond Six Sigma and Lean
◆ Aligning Organizations to Manage Large Capital Projects
◆ Attracting and Developing the New Generation of Project Managers

Sustainable Optimization and Troubleshooting of Chemical Processes
Hilton Americas-Houston, Room 329

◆ Optimal Operation of Azeotropic Distillation Columns
◆ Study of Treating Ammonium-Nitrogen Wastewater
◆ Redesign of Commercial Process Ion Exchange Purification to Eliminate Hazardous Byproduct Formation
◆ Feed Contamination: We Have Met the Enemy — It Are Us
◆ Analyzing Ruptured Pipe Failures

WEDNESDAY, 25 APRIL 2007
9:45 AM - 11:15 AM

Inherent Safety
Hilton Americas-Houston, Grand Ballroom B & E

◆ Reactivity Issues in Storage: A Simplified Approach
◆ How to Simulate Examples of Successful Inherent Safer Solutions to Other Companies
◆ Regulating Inherent Safety
◆ Inherently Safer Chemical Processes

WEDNESDAY, 25 APRIL 2007
11:15 AM - 12:00 PM

Global Congress Pre-Lunch Talk
Hilton Americas-Houston, Grand Ballroom A & D

◆ Legal Considerations of Risk Tolerance

WEDNESDAY, 25 APRIL 2007
1:00 PM - 4:00 PM

Intellectual Property, Including Patents
Hilton Americas-Houston, Room 327

WEDNESDAY, 25 APRIL 2007
1:30 PM - 5:15 PM

Case Histories and Lessons Learned
Hilton Americas-Houston, Grand Ballroom A & D

◆ Recognizing On-Line Zirconium Oxide Oxygen Analyzers as an Ignition Source in Fired Equipment
◆ What I Learned as an Investigator with the Csb
◆ Explosion Hazards during Fuel Transition in Combustion Equipment
◆ Case Study: Aluminum-Dust Explosion
◆ Lessons Learned from an Unusual Hydrogen Reformer Furnace Failure
◆ Vinyl Chloride Monomer Explosion

WEDNESDAY, 25 APRIL 2007
2:00 PM - 5:00 PM

Bottom of the Barrel Processing
George R. Brown Convention Center in Houston, Meeting Room 370 A & D

◆ Joint Ebullated Bed Catalyst Development Program Results in Over 30% Reduction in Catalyst Usage
◆ Catalytic Aqua and Hydro Processing of Athabasca Bitumen Heaviest Fractions
◆ Natural Hydrogen Donors in Petroleum Resids
◆ Adsorption, Diffusion and Reaction in FCC Catalyst for Enhanced Selectivity Towards Environmentally Friendly Gasoline
◆ Hydrocracker Experience in a Gulf Refinery

Business Case for Sustainability
Hilton Americas-Houston, Room 343 B

◆ Carbon Neutrality for Oil & Gas Companies: A Feasibility Study

Distillation Troubleshooting: Continuing the Heritage of Kunesh, Sakata and Zuiderweg
Hilton Americas-Houston, Room 344 A & B

◆ Thermodynamics Insights: Solving Distillation Mysteries Using a Simulation Lens
◆ The Final Step to Success – Tower Internals Inspection Part 1
◆ Debottlenecking of Hexane Distillation
◆ The Art of Using Simulator Testing and Data for Design of Pressured Industrial Applications
◆ Effects of a Trapped Trace Component on Operation of a Wastewater Stripper/Organic Recovery Tower
◆ Guidelines for Ethylene Quench Towers
◆ Methods for Obtaining Detailed Process Knowledge about Distillation Operations
◆ The Final Step to Success – Tower Internals Inspection Part 2

Dr. Harry H. West Memorial: LNG Safety Workshop (III)
Hilton Americas-Houston, Room 343 A

◆ Flare Systems Design for LNG Facilities
◆ How Big Is the Area Required for LNG Receiving Terminal and Their Design Considerations
◆ Understand LNG Fire Hazards
◆ BLEVE Potential in Marine LNG Accidents
◆ Fully Integrated GIS Based LNG Consequence Model for Spills on Water

Energy Efficiency and Reliability Improvements in Refining and Petrochemical Plants - III
Hilton Americas-Houston, Room 338

◆ Energy Optimization Studies to Enhance Both New Projects and Return on Existing Assets
◆ Energy Reduction Investment Analysis: Price Volatility Effects
◆ Energy Targeting under Varying Driving Force Distribution Conditions in Heat Recovery Systems
◆ New Technology in Yr Platformer Conversion
◆ Optimization of Preventive Maintenance Frequency in Process Industry
◆ Penex Isomerization Unit Enhances Yr Gasoline Pool
◆ Using Compact Welded Heat Exchangers to Optimize Heat Recovery in Refineries

Ethylene Plant Operation Round Table - Hurricane Lessons Learned

George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Hurricane Preparation (I Hope It Goes Somewhere Else)
◆ Hurricane Operation (I Hope We Got It Right)
◆ Hurricane Recovery (It Did That)
◆ Hurricane Recovery (Supporting the Employees)
◆ Hurricane Recovery Lessons Learned, Questions and Miscellaneous Thoughts

Ethylene Rotating Equipment Round Table
George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

Frontiers in Hydrogen Technologies
Hilton Americas-Houston, Room 340 B

◆ Simulation of Pt/Ni Stratified Bed Catalysts for the Production of Hydrogen by Catalytic Partial Oxidation of Methane
◆ Near-Term Approaches to Nuclear Hydrogen Production
◆ Kinetics of Zinc Oxide Sulfidation for Packed Bed Desulfurizer Modeling
◆ Effect of Dopants in the Hydrogen Kinetics and Storage Capacities of Metal Hydrides
◆ New Synthesis Route for Complex Hydride Hydrogen Storage Materials
◆ Panel Discussion

Micro Technology in Catalyzed Reaction Systems - Part II
Hilton Americas-Houston, Room 335 A & B

◆ The Use of Immobilized Catalysts for Organic Synthesis in Flow Reactors
◆ Enzyme Immobilization in Chemical Microsystems at Louisiana Tech
◆ Development of Enzyme-Immobilized Microreactor for Optical Resolution of Chiral Compounds
◆ Methanol Oxidation Mechanism by Ion-Modified Methanol Dehydrogenase Enzymes for Fuel Cell Applications

Portfolio and Alliance Management
Hilton Americas-Houston, Room 337 B

◆ Advancing Technologies through Industrial Partnerships
◆ Open Innovation: A Structured Approach to Managing Technology Alliances
◆ Building a New Change Management Culture
◆ The Geometry of Experience Curves

To Toll or Not to Toll: That Is the Question
Hilton Americas-Houston, Room 329

◆ To Toll or Not to Toll: That Is the Question
◆ Waste Management: Ignorance Is Not a Winning Defense
◆ Using Tollers for Chemical Product Manufacture: The Details of Success
◆ Essentials for Success with Contract and Toll Manufacturing
◆ Pilot Plant Design and Construction: Benefits of Outsourcing to a Pilot Plant Specialist
◆ Methodology for Evaluating Toll Manufacturers
◆ Toll Manufacturing: a Perspective from the Tollers View

THURSDAY, 26 APRIL 2007
8:30 AM - 11:30 AM

Ethylene Plant Maintenance - Furnace Maintenance Technology Forum
George R. Brown Convention Center in Houston, Meeting Room 382 A/B/C

◆ Water Treatment for TLE's - Most Effective Technology
◆ Ethylene Plant Precommissioning
◆ Radiant Coil Life Prediction – A Statistical Method to Support Cracker Plant Maintenance Management

New Processes and Enhanced Distillation: Continuing the Heritage of Kunesh, Sakata and Zuiderweg
Hilton Americas-Houston, Room 344 A & B

◆ A Design Review of Steam Stripping Columns for Wastewater Service
◆ Ethyl Lactate Production Using Semicontinuous Distillation with Reaction in an Auxiliary Vessel and Pervaporation
◆ A Fresh Look at Underwood's Method
◆ Mass Transfer – Thinking Beyond Theoretical Stages
◆ Using the Analysis of the Asymptotic Behavior of Column Profiles to Define the Overall Distillation Behavior in Transformed Residue Curves and Column Profiles
◆ Un-Predictables in Distillation Towers - Fouling and Foaming
◆ Effect of Recycle Streams on the Closed-Loop Dynamics of Thermally Coupled Distillation Sequences

Olefins Energy Management Review
George R. Brown Convention Center in Houston, Meeting Room 381 A/B/C

◆ Energy Improvements – Past, Present, Future
◆ Energy Efficiency Improvement and Cost Reduction in Olefins Plants
◆ New Furnace Sections - Upgrade of 1960's and 1970's Era Steam Crackers
◆ Energy Efficiency of Hybrid Processes for Olefin/Paraffin Separation
◆ Plant Energy Assessments - The Six Sigma Way

Particles and Beads
Hilton Americas-Houston, Room 335 A & B

◆ Synthesis and Assembly of Size-Controlled Polymer Beads and Capsules in an Axisymmetric Co-Flowing Microsystem
◆ Synthesis and Production of Polyimide Fine Beads by the Use of Micro-Flow-Mixing Technique
◆ Fluorescence-Labeled Polymer Beads for Chemical Monitoring of Nanoliter Fluid Segments
◆ Synthesis of Nickel Crystals in Sodium Dodecyl Sulfate-Polyvinylpyrrolidone Clusters by Hydrazine Reduction
◆ Mechanical Oscillation of PNIPAM Gel Particles Induced by Belousov-Zhabotinski Reaction

Sustainability & Management Systems
Hilton Americas-Houston, Room 338

◆ GHS Overview
◆ Marathon Oil Case Study on Sustainability Reporting
◆ Reach Overview

THURSDAY, 26 APRIL 2007
2:00 PM - 3:30 PM

Social Responsibility and Community Outreach
Hilton Americas-Houston, Room 338

◆ Communication Strategies for Stakeholder Engagement
◆ The Ecological Footprint: Communicating Impact and Influencing Actions

THURSDAY, 26 APRIL 2007
2:00 PM - 5:00 PM

Green Engineering Approaches to Sustainability
Hilton Americas-Houston, Room 340 A

◆ Nitration of Aromatic Compounds Without Using Sulfuric Acid
◆ Industrial Academic Green Engineering Partnerships in Pharmaceutical Production
◆ Carbon Dioxide Removal Using a Foam-Bed Reactor
◆ Development and Prediction of a New Fuel Property to Estimate Particulate Matter Emissions

Microtechnology and Process Analytics
Hilton Americas-Houston, Room 335 A & B

◆ An Overview of Microtechnology in Process Analytics
◆ Optical and Electrochemical Residence Time Characterization of LTCC-Flow-Through Microreactors
◆ Application of Fundamental Measurements to Modeling and Process Development
◆ Real Time Characterization of Micro Scale Processes
◆ On-Line Sampling and Gas-Chromatographic Method for a Micro-Scale Gas-Liquid Oxidation Reactor
◆ Sensor Testing System for Environmental and Process Applications

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