The Answers
to Polyolefin’s Characterization.

3rd International Conference on Polyolefin Characterization
& Short Course in Polyolefin Characterization techniques. November 7 - 10, 2010, Shanghai, China.

Shanghai welcomes world experts in Polyolefin Characterization. After the successful editions in Houston and in Valencia, the 3rd ICPC Conference will be held in China, as one of the main emerging markets in polyolefin industry. Concretely in Shanghai, as one of the most influential financial, science and technology centers in Asia. Scientists both from the industry and academy from all around the world are expected to attend it.

www.icpc-conference.org
Welcome to the Polyolefin Characterization Meeting Point par excellence.

Thank you very much for joining this 3rd edition of the International Conference on Polyolefin Characterization, which will be held in Shanghai (China), one of the fastest growing and most exciting cities in the world.

This edition complements the series of ICPC Conference cities together with Houston (USA) and Valencia (Spain), covering the whole world map to become the truly unique international conference on the field of polyolefin characterization, and unifying the participation of researchers from both industry and academia throughout all the continents.

ICPC 2010 Conference and Short Course will focus on the latest developments and innovative research in this field. The Conference topics are grouped into sessions for Separation, Morphology, Rheology, Spectroscopy and Modelling, and include 35 oral and 45 poster presentations by invited speakers and by contributions selected from the abstract submissions. In addition, the ICPC Short Course, to be held on November 7th, complements the meeting by providing new researchers an opportunity to engage the world’s experts to share their knowledge and experiences of polyolefin characterization.

On the behalf of the ICPC Technical Committee and Organization, we trust this edition of the conference will be a fruitful and enriching experience for all the participants and will pave the way for future research on Polyolefin Characterization.

We wish you all a warm welcome to Shanghai and to the 3rd edition of ICPC.

Sincerely,

Raquel Úbeda
ICPC Conference Coordinator

On behalf of the ICPC 2010 Technical Program Chairs:

Dr. Benjamin Monrabal
Polymer Char

Dr. Colin Li Pi Shan
The Dow Chemical Company

Prof. João Soares
University of Waterloo

Prof. Minoru Terano
Japan Advanced Institute of Science and Technology

Prof. Dujin Wang
Institute of Chemistry
Chinese Academy of Science
3rd ICPC Conference at-a-glance.

**Technical Committee**

Dr. Benjamín Monrabal  
Polymer Char  
Spain

Dr. Colin Li Pi Shan  
The Dow Chemical Company  
U.S.A.

Prof. João Soares  
University of Waterloo  
Canada

Prof. Minoru Terano  
Japan Advanced Institute of Science and Technology (JAIST)  
Japan

Prof. Dujin Wang  
Institute of Chemistry of the Chinese Academy of Sciences (ICCAS)  
China

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**3rd ICPC Invited Speakers**

Following are listed the Invited Speakers that have been selected for the 3rd edition of ICPC Conference:

**Keynote Speaker:**

Charles Han  
Institute of Chemistry, Chinese Academy of Sciences, China

**Invited Speakers:**

Siripon Anantawaraskul  
Kasetsart University, Thailand

Robert Brüll  
Deutsches Kunststoff-Institut (DKI), Germany

Phillip Choi  
University of Alberta, Canada

Willem deGroot  
The Dow Chemical Company, U.S.A.

Said Fellahi  
Saudi Basic Industries Corporation (SABIC), Saudi Arabia

Yongfeng Men  
Changchun Institute of Applied Chemistry, China

Koh-hei Nitta  
Kanazawa University, Japan

Harald Pasch  
University of Stellenbosch, South Africa

Katsuhisa Tokumitsu  
University of Shiga Prefecture, Japan

Wallace Yau  
The Dow Chemical Company, U.S.A.

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**Facts and Figures**

**Venue**  
Hyatt on the Bund Hotel  
The Bund Ballroom  
199 Huang Pu Road, Shanghai, China

**Date**  
Short Course: November 7, 2010  
Conference: November 8 - 10, 2010

**Attendees**  
120

**Presentations**  
Oral: 35  
Poster: 45

**Countries represented**  
18
Represented Institutions

- Agilent Technologies
- Anhui University of Science and Technology
- Beijing National Laboratory for Molecular Sciences, ICCAS
- Beijing Research Institute of Chemical Industry
- Beijing Yansan Petrochemical Branch of Sinopec
- Beijing Yiluda Electromech. Equipment Co.
- Borealis Polyolefine GmbH
- Borouge
- Changchun Institute of Applied Chemistry, CAS
- Chonbuk National University
- Culgi
- Daelim Industrial
- Daging Chemical Engineering Research Center
- Daging Oil Field Company
- Department of Science Service of Thailand
- Deutsches Kunststoff-Institut, DKI (German Institute for Polymer)
- Dutch Polymer Institute, DPI
- DSM Elastomers
- DSM Resolve
- East China University of Science and Technology
- Erlangen University
- ExxonMobil
- Florida Agricultural and Mechanical University
- Florida State University
- Freiburg Materials Research Center
- Friedrich-Alexander University of Erlangen-Nürnberg
- GE Global Research
- Graduate University of Chinese Academy of Sciences
- HI Corporation
- Honam Petrochemical Corp.
- Indian Institute of Technology (IIT)
- Indian Oil Corporation
- Industrial Chemistry Research Institute of Warsaw
- Institute for Macromolecular Chemistry of Freiburg
- Institute for Macromolecular Studies (CNR-ISMAC)
- Institute of Chemistry, Chinese Academy of Sciences
- Institute of Chemistry and Engineering Sciences of Singapore (ICES)
- Instituto de Estructura de la Materia, CSIC
- Innotech
- INTEX Industries
- IRPC Company
- Japan Advanced Institute of Science and Technology (JAIST)
- Japan Polychem Corporation
- Kanazawa University
- Kasetsart University
- Kitami Institute of Technology
- LCPP - CNRS (French National Center for Scientific Research)
- Leiden University
- LG Chem
- LyondellBasell
- Malvern Instruments
- Mitsui Chemicals
- Nanjing Hydraulic Research Institute
- Nanjing University of Science and Technology
- Ningbo Dacheng Advanced Material
- Ningbo Professional and Technical College
- Northeast Petroleum University
- Novolen Technology
- Osaka Gas Chemicals
- PetroChina Company
- PetroChina Petrochemical Research Institute
- Poland Industrial Chemistry Research Institute
- Polymer Char
- Polymer Technology Services Centre (PTSC)
- Postnova Analytics
- PSS Polymer Standards Service
- PTT Chem
- S.A.S. Corporation
- Samsung Total Petrochemicals
- Sasol Polymers
- Saudi Basic Industries Corporation (SABIC)
- SCG Chemicals
- Sekisui Chemical
- Senoplast Klepsch & Co.
- Shenhua Group
- Sinopec
- SKZ
- Spectra Analysis Instruments
- Tallinn University of Technology (TUT)
- Technical University of Eindhoven
- Thai Polyethylene
- The Dow Chemical Company
- Universidad Carlos III de Madrid
- University of Alberta
- University of Lyon
- University of Memphis
- University of Navarra
- University of Shiga Prefecture of Japan
- University of Stellenbosch
- University of Thailand
- University of Waterloo
- Utrecht University
- Warsaw University of Technology
- Wyatt Technology
- Zhejiang University
The beginning. When Polyolefin Characterization Researchers started having a place to meet.

### 1st ICPC Conference

**Venue:** Houston, TX, U.S.A. 2006

**Attendees:** 112

**Oral Presentations:** 31

**Poster Presentations:** 29

**Major Sponsors:** The Dow Chemical Company

**Sponsors:** ExxonMobil

**Vendors:** Polymer Char, Polymer Laboratories, Postnova Analytics, PSS, Polymer Standards Service, Viscotec, Waters

**Technical Literature published:** Macromolecular Symposia Vol. 257, ‘Polyolefin Characterization’

**Countries represented:** 18

### 2nd ICPC Conference

**Venue:** Valencia, Spain. 2008

**Attendees:** 120

**Oral Presentations:** 35

**Poster Presentations:** 38

**Major Sponsors:** The Dow Chemical Company, Borealis Group, Lyondellbasell

**Sponsors:** DPI, Dutch Polymer Institute, ExxonMobil

**Vendors:** Agilent Technologies, Anton Paar, Polymer Char, Polymer Laboratories, now a part of Varian Progression


**Countries represented:** 24
Short Course on Polyolefin Characterization techniques.

A Short Course on Analytical and Preparative Separation techniques is scheduled on November 7th, at the same venue:

Introduction to Polyolefin Microstructure
João Soares
- Molecular Weight Distribution.
- Chemical Composition Distribution.
- Bivariate Distribution (Long Chain Branching, Block co-polymers…).

GPC - Basics
Wallace Yau
- Molecular Weight average concept.
- Basic GPC mechanism.
- GPC retention.
- Band broadening.
- Different ways to do calibrations.
- Basics on IV concept.
- Universal calibration.
- Basic LS.
- Mark Houwink Plot.

GPC - Practical Considerations
Wallace Yau
- System Considerations:
  - Choosing an Appropriate Column Set.
  - Pump Degradation.
  - Thermal Stability.
  - Data Acquisition.
- Sample Considerations:
  - Solvent and Solvent Preparation.
  - Polymer Degradation.
- Calculation Considerations:
  - Flow rate analysis.

Cross Fractionation
Alberto Ortín
- Importance of the Bivariate Distribution.
- Hyphenated techniques.
- Preparative fractionation followed by analytical techniques.
- Analytical Cross Fractionation.
  - Cross Fractionation modes:
    - GPC-TREF and TREF-GPC.
    - TREF-GPC technique description.
    - Calibration and data processing.
    - Application examples: blends, copolymers, HDPE, EP.

High Temperature HPLC of Polyolefins
Willem deGroot
- Solvent gradient applications.
- Thermal gradient / Interaction Chromatography.

Preparative Fractionation
Benjamín Monrabal
- Solvent–Non solvent (Molecular Weight Fractionation).
- Dissolution Fractionation (Composition Fractionation TREF).
- Crystallization Fractionation (Composition Fractionation CRYSTAF).

GPC - Applications in Polyolefins
Willem deGroot
- Commercial Polymers:
  - HDPE/LDPE/LLDPE/Metallocenes.
  - iPP/ICP/RCP.
- System Set Up:
  - Detector Alignment - Peak position.
  - Hamielec Band Broadening method.
  - Systematic method.
- Detector Calibration.
- LCB analysis.
- Relationship between MW and Rheology.
- Practical examples and applications.

GPC - Applications in Polyolefins
Willem deGroot
- Mass analysis.
- Viscosity analysis.
- MW analysis.
- Copolymer analysis.
- Band broadening corrections.

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What the Researchers say about Separation, Morphology, Rheology, Spectroscopy & Modelling.

The technical program consists of oral and poster presentations in the following polyolefin characterization areas: Separation-Fractionation, Molecular Structure and Properties, Morphology-Thermal Analysis, Rheology, Properties and Spectroscopy.

**SUNDAY NOVEMBER 7th**

17:30 - 19:30  Registration
19:30  Welcome Cocktail

**MONDAY NOVEMBER 8th**

7:00 - 8:00  Registration
8:00 - 8:15  Opening Marks

Sessions Moderator: Prof. Dujin Wang

**General**

8:15 - 9:00  Structure and Morphology Characterization of an In-reactor Alloy of iPP/PEOc
C. Han (Keynote Speaker)
Chinese Academy of Sciences, China

9:00 - 9:30  Next Generation Separation Technologies for Elastomers’ Characterization
C. Li Pi Shan 1, M. Miller 2, D. Lee 2
The Dow Chemical Company
1 Elastomers R&D, U.S.A.
2 Corporate Analytical Sciences, U.S.A.

9:30 - 10:00  Effect of Process and Catalyst on Microstructure of Linear Low Density Polyethylene (LLDPEs)
V. Goel, G. S. Kapur, Shashikant K.
Indian Oil Corporation Ltd, R&D Division, India

10:00 - 10:30  Coffee Break

Sessions Moderator: Prof. Minoru Terano

**Separation - Fractionation (I)**

10:30 - 11:00  High Temperature Liquid Chromatography and HT 2D-LC of Polyolefins
R. Brüll 1 (Invited Speaker), R. Chitta 1, A. Ginzburg 1, T. Macko 2, A. de Groot 2
1 German Institute for Polymers (DKI), Germany
2 Dutch Polymer Institute (DPI), The Netherlands

11:00 - 11:30  Relations between Retention Volume in Liquid Chromatography of Polyolefins and their Average Chemical Composition
T. Macko 1, R. G. Alamo 2, Y. Wang 1, R. Brüll 1
1 German Institute for Polymers (DKI), Germany
2 FAMU/FSU College of Engineering, U.S.A.

11:30 - 12:00  Thermal Gradient Interaction Chromatography for Microstructure Analysis of Polyolefins
R. Cong 1, W. deGroot 1, W. W. Yau 1, L. Hazlitt 1, A. Parrott 1, Z. Zhou 2
The Dow Chemical Company, U.S.A.
1 Basic Plastics Characterization
2 Analytical Sciences

12:00 - 12:30  Crystallization Elution Fractionation and Thermal Gradient Interaction Chromatography. Techniques comparison
B. Monrabal, N. Mayo
Polymer Char, Spain

12:30 - 13:30  Lunch

**Separation - Fractionation (II)**

13:30 - 14:00  A Generalized Long Chain Branch Index (LCBI) Method with SCB and MW Polydispersity Corrections
W. W. Yau 1 (Invited Speaker), R. Cong 1, J. Wang 1, Z. Zhou 2, D. Gillespie 3
The Dow Chemical Company, U.S.A.
1 Basic Polymer Characterization
2 Analytical Sciences
3 Information Research-Robotics

14:00 - 14:30  Characterization of Microstructure for two kinds of Impact Polypropylenes
Y. Fan, Y. Xue, C. Zhang, X. Zhang, X. Ji, S. Bo
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China
14:30 - 15:00  Some Like it Hot! HT-SEC from Contract Service Lab View
P. Montag
PSS, Polymer Standards Service, Germany

1500 - 15:30  Coffee Break

Rheology (I)

15:30 - 16:00  Rheo-Optical Studies of Polypropylene-based Materials: iPP/clay Nanocomposites
K. Nitta 1 (Invited Speaker), T. Seko 1, K. Iwasa 2, H. Yoshida 2
1 Graduate School of Natural Science and Technology, Kanazawa, Japan
2 Sekisui Chemical Co. Ltd, Japan

16:00 - 16:30  Gel Characterization for LLDPE Films
X. Yu 1, C. Qin 1, T. Ahmed 2
1 SABIC (Saudi Basic Industries Corporation)
2 Saudi Arabia

16:30 - 17:00  Influence of LCB-Concentration on Rheological Properties of Metallocene Linear Low Density Polyethylenes
J. Kaschta 1, M. Kothmann 1, J. A. Resch 1, H. Münstedt 1
1 Institute of Polymer Materials, Friedrich Alexander University, Germany
2 Senoplast Klepsch & Co. GmbH, Austria

17:15  Poster Session
19:00  Poster Session Cocktail

TUESDAY NOVEMBER 9th

Sessions Moderator: Prof. João Soares

Morphology (I)

8:00 - 8:30  The Effect of adding Polysilane into Polyolefins
K. Tokumitsu 1 (Invited Speaker), Y. Kitagawa 1, M. Yamada 2, K. Kobori 2
1 The University of Shiga Prefecture, Japan
2 Osaka Gas Chemicals Co. Ltd, Japan

8:30 - 9:00  Effect of Ethylene-Propylene Copolymer Structure on the Physical Properties and Morphology of Impact Polypropylene Copolymer
S. Kim 1, W. Choi 1, Y. Chun 2
1 Samsung Total Petrochemicals, South Korea
2 Analysis & Testing Team, PP Development Team, R&D Center

9:00 - 9:30  Studies on Crystallization Kinetics of Isotactic Polypropylene in the Presence of Different Nanofillers
S. Bandypadhyay 1, R. Kamalakaran 1, S. Bhattacharjee 2, A. K. Ghosh 2
1 GE India Technology Centre Pvt. Ltd, India
2 Indian Institute of Technology (IIT), India

9:30 - 10:00  Morphology and Phase Separation of Olefin Block Copolymers (OBCs)
G. Liu 1, H. Guan 1, T. Wen 1, J. H. Chen 1, X. Zhang 1, D. Wang 1
1 Chinese Academy of Sciences, China
2 The Dow Chemical Company, China
3 Graduate University of Chinese Academy of Sciences, China

10:00 - 10:30  Coffee Break

Modelling

10:30 - 11:00  Intra and Intermolecular Branch Distribution Dependence of the Solid-State Structure of Polyethylene: Insights from Molecular Dynamics Simulation
P. Choi (Invited Speaker)
University of Alberta, Canada
11:00 - 11:30  A Criterion for Bimodality of Chemical Composition Distribution: Application as a Benchmark for Cocrystallization Study of CRYSTAF and CEF
S. Anantawaraskul 1 (Invited Speaker), Kanyanut Narkchamnan 1, Kanokpong Surya 1, João B.P. Soares 2
1 Kasetsart University, Thailand
2 University of Waterloo, Canada

11:30 - 12:00  Polyolefin Glass Transition Temperature Prediction from Microstructure
X. Qiu 1, Gian Gobbi 1, Ling Yuan 1, Yong Chen 2
1 The Dow Chemical Company, U.S.A.
2 The Dow Chemical Company, China

12:00 - 12:30  Phase Evolution Theory for Polymer Blends with Extreme Chemical Dispersity. Parameterization of Dynamical Density Functional Simulations and Application to Polypropylene Impact Copolymers.
J. G.E.M. Fraaije 1, S. Nath 1, K. Remerie 1, J. Groenewold 4
1 Leiden University, The Netherlands
2 Culti Inc., U.S.A.
3 SABIC T & T, STC Geleen, The Netherlands
4 Utrecht University, The Netherlands

12:30 - 13:30  Lunch

13:30 - 14:00  The Use of Statistical Modeling and Chromatography to Characterize both Long Chain and Short Chain Branching Distributions in Polyolefins
W. deGroot (Invited Speaker)
The Dow Chemical Company, U.S.A.

14:00 - 14:30  Effect of Hydrogen, Electron Donor, and Polymerization Temperature on Polypropylene Microstructure
A. Alshaiban, João B. P. Soares
University of Waterloo, Canada

14:30 - 15:00  Microstructural Analysis of Poly(ethylene-co-propylene-co-butene) terpolymer by Multidimensional NMR Spectroscopy
A. Nuamthanom 1, P. Kreunin 1, P. Sandee 2
1 Chemistry Program, Department of Science Service, Thailand
2 Thai Polyethylene Co. Ltd., Thailand

15:00 - 15:30  Coffee Break

15:30 - 16:00  Study of the Effect of Catalyst Type on the Rheological Properties of some PE's Resins
S. Fellahi 1 (Invited Speaker), I. A. Al-Alush 2
1 SABIC STC, Saudi Arabia
2 Polymer Laboratory

16:00 - 16:30  Structure-Property relationships of Olefin Block Copolymers (OBCs)

16:30 - 17:00  Technische Universiteit Eindhoven, The Netherlands Preparation of Photo-degradable Polypropylene by an addition of Poly(ethylene oxide) Microcapsule containing TiO₂
H. Nakatani, K. Miyazaki
Kitami Institute of Technology, Japan

17:15  Vendor Session

19:00  Vendor Session Cocktail
### Wednesday November 10th

#### Separation - Fractionation (IV)

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<th>Time</th>
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| 8:00 - 9:00| Multidimensional Analytical Techniques for Studying the Thermo-Oxidative Degradation of Impact Polypropylene  
**H. Pasch** (Invited Speaker), E. de Goede, P. Mallon  
University of Stellenbosch, South Africa |
| 9:00 - 10:00| Crystallization Elution Fractionation of LLDPE made by Ziegler-Natta and Metallocene Catalysts  
**A. A. Alghyamah**, J. B. P. Soares  
University of Waterloo, Canada |
| 10:00 - 11:00| Novel Approach for Determination of Precise Crystallinity Distribution by TREF  
**K. Iiba**, Y. Kusano, K. Sakata  
Japan Polychem Corp., Japan |
| 11:00 - 12:00| Advanced Characterization of Ultrahigh Molar Mass and highly branched Polyolefins by High Temperature Asymmetrical Flow Field Flow Fractionation  
**T. Otte** 1, T. Klein 1, R. Brull 1, H. Pasch 1  
1 Postnova Analytics GmbH, Germany  
2 German Institute for Polymers (DKI), Germany  
3 University of Stellenbosch, South Africa |
| 12:00 - 12:30| Composites of Polyolefin with Lignin - Cellulose Filler  
**E. Kowalska** 1, M. Kijenska 1, S. Pasynkiewicz 2  
1 Industrial Chemistry Research Institute, Poland  
2 Warsaw University of Technology, Poland |
| 12:30 - 13:30| Lunch |
| 13:30 - 14:30| Adjournment and Goodbye |

#### Coffee Break (10:30 - 10:45)

<table>
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<th>Time</th>
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| 13:30 - 14:00| Morphological Characterization of Tensile Deformed High Density Polyethylene via Synchrotron SAXS  
**Y. Men** (Invited Speaker)  
Changchun Institute of Applied Chemistry, China |
| 14:00 - 15:00| Following the Crystallization Process of Polyethylene Single Chain by Molecular Dynamics: The Role of Lateral Chain Defects  
**J. Martinez-Salazar**, S. San Martin, J. Ramos  
Instituto de Estructura de la Materia, CSIC, Spain |
Poster Presentations list.

1. Studies on Thermal Decomposition Kinetics of C5 Petroleum Resin
   L. Ai-Yuan 1, S. Xiang-dong 1, Z. Hu-bo 1, X. Guo-cai 2
   1 Ningbo Professional and Technical College, China
   2 Anhui university of science and technology, China

2. Effects of CEF Run Parameters on the CCDs of Metallocene LLDPE Blends
   A. A. Alghyamah, J. B. P Soares
   University of Waterloo, Canada

3. Theoretical Analysis on Chain Microstructures of Olefin Block Copolymers
   S. Buaparungsri 1, S. Anantawaraskul 1, J. B. P. Soares 2
   1 Kasetsart University, Thailand
   2 University of Waterloo, Canada

4. TREF Calibration with Homogeneous Ethylene/α-Olefin Copolymers
   E. Cossoul 1, J. Broyer 1, F. Boisson 2, C. Boisson 1, O. Boyron 1
   1 Université de Lyon, France
   2 IMP/CNRS, France

5. Imaging Techniques as Tools for Studying the Ageing Behaviour of PP-Pipes
   R. Maria 1, R. Brüll 1, K. Rode 1, G. Geertz 1, J. Wüst 2, K. Engelsing 2, M. Wenzel 2, R. Kleppinger 3
   1 German Institute for Polymers (DKI), Germany
   2 SKZ, Germany
   3 DSM Resolve, The Netherlands

6. Separation of High Impact Polypropylene using Interactive Liquid Chromatography
   R. Brüll 1, T. Macko 1,2, K. Remeie 3, L. Heinz 4
   1 German Institute for Polymers (DKI), Germany
   2 Dutch Polymer Institute (DPI), The Netherlands
   3 SABIC T&I Geleen, The Netherlands
   4 DSM Resolve, The Netherlands

7. The First Interactive Liquid Chromatography of EPDM polymers
   R. Chitta 1, R. Brüll 1, T. Macko 1, G. van Dooremalle 1, L. Heinz 4
   1 German Institute for Polymers (DKI), Germany
   2 Dutch Polymer Institute (DPI), The Netherlands
   3 DSM Elastomers B.V., The Netherlands
   4 DSM Resolve, The Netherlands

8. Monitoring the Behaviour of Polyethylene in Diluted Solutions with Solution Differential Scanning Calorimetry
   R. Brüll, T. Macko
   German Institute for Polymers (DKI), Germany

9. Unsaturation Analysis of Polyolefins by Thermal Gradient NMR with High Temperature Cryoprobe
   R. Cong 1, Z. Zhou 2, Y. He 1, M. Cheatham 1, M. Paradkar 2, W. deGroot 1
   1 Basic Plastics Characterization, The Dow Chemical Company, U.S.A.
   2 Analytical Sciences, The Dow Chemical Company, U.S.A.

10. Design Criteria for Creating Columns for the Analysis of Polyolefins by Gel Permeation Chromatography
    L. Creaser
    Agilent Technologies, United Kingdom

11. Influences of Ionic Environment on Self-assembly Behavior of Hyperbranched Polymers
    G. González-Gaitano 1, D. Olmos 1, J. González-Beníto 2
    1 University of Navarra, Spain
    2 Universidad Carlos III de Madrid, Spain

12. Nanocomposites of LDPE and Silica by High Energy Ball Milling: Structure and Thermostability
    G. González-Gaitano 1, D. Olmos 1, J. González-Beníto 2
    1 University of Navarra, Spain
    2 Universidad Carlos III de Madrid, Spain

13. The Effect of Cyclodextrins on the Crystallinity of Isotactic Polypropylene
    L. X. García-Zubiri 1, J. R. Isasi 1, G. González-Gaitano 1, R. Alamo 2
    1 University of Navarra, Spain
    2 FAMU and Florida State University College of Engineering, U.S.A.

14. The use of Nanoindentation to investigate the Structure-property relationships of Ziegler-Natta catalysed Isotactic Polypropylene
    G. W. Harding, A. J. Van Reenen
    University of Stellenbosch, South Africa

15. “True” Concentration Determination using a Composition Sensitive Detector for MW/MWD Characterization of Polyolefins
    T. Huang, R. Brown, R. Cong, W. W. Yau, L. Hadjitt, A. W. deGroot
    The Dow Chemical Company, U.S.A.
16. The Dynamic Rheological Study of Biaxially Oriented Polypropylene (BOPP)
K. Jiang, F. Zu, L. Wang, X. Lu, J. Yi
PetroChina Company Limited, China

17. Composites of Polyolefin with comminuted Straws from Annual Crops
E. Spasowka, E. Kowalska, M. Kijenska
Industrial Chemistry Research Institute, Poland

18. Effect of Alkali on Rheological behavior of Polymer Solution
X. Li
Research Institute of Daqing Oil Field Company, China

19. Degraded High Density Polyethylene Grafted Carbon Black Technique and its Reinforcement on the Pipeline Materials
X. He, Y. Chai, Y. Wang, X. Qi, B. Liu
East China University of Science and Technology, China

20. Comparison of Crystallization Behaviors between Unimodal and Bimodal High Density Polyethylene for High Grade Plastic Pipe Materials
X. Qi, X. He, B. Liu
East China University of Science and Technology, China

21. Additional Effects of Homo-Polyethylene with Different Molecular Weights on the Mechanical Properties and Crystallization Behavior of a Unimodal PE100
Y. Wang, X. He, B. Liu
East China University of Science and Technology, China

22. Analysis of Short Chain Branches Distribution in Pipe Grade Polyethylenes from a Hybrid Chromium-Based Catalyst System
S. Zhang, R. Cheng, Q. Dong, B. Liu
East China University of Science and Technology, China

23. TREF and SSA Characterization of Ethylene and 1-Hexene Copolymers from SiO2-Supported Silyl Chromate Catalyst with Different Al-Alkyl Cocatalysts
N. Zhao, Q. Dong, R. Cheng, B. Liu
East China University of Science and Technology, China

24. Stress-whitening of High-impact Polypropylene: Characterization and Analysis
X. Liu, W. Wei
Beijing Research Institute of Chemical Industry, China

25. Repeatability and Reproducibility of Sample Preparation and Analysis in High-Temperature SEC: IUPAC SEC/GPC Round Robin Project Report (Phase 1)
N. Luruli 1, C. Piel 2, H. Pasch 3
1 Sasol Polymers, South Africa
2 Borealis Polyolefine GmbH, Austria
3 University of Stellenbosch, South Africa

26. New Sorbent/Solvent systems for Separation of Polyethylene and Polypropylene with Interactive Liquid Chromatography
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27. Separation of Propene/Alkene and Ethylene/Alkene Copolymers by Interactive HPLC
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28. High-Temperature Two-Dimensional Liquid Chromatography (HT HPLC×SEC) Of Polyolefins Versus TREF×SEC
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29. Influence of Molar Masses on Separation of Polyolefins with Gradient Adsorption Liquid Chromatography in system Hypercarb/1-decanol/1,2,4-trichlorobenzene
T. Macko 1, R. Brüll 1, R. G. Alamo 3, S. Losio 2, F. J. Stadler 4, K. Kvistak 3, T. Poltinsae 3, Y. Thomann 5
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30. Comparison of Elution profiles obtained with CRYSTAF and with high-temperature HPLC for Ethylene/1-Butene and Ethylene/1-Octene Copolymers

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31. A Complete Solution for the High Temperature Characterization of Polyolefins by Gel Permeation Chromatography

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32. Full Automation of Preparative Fractionation of Polyolefins on packed column technology

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33. Dynamical Density Functional Simulation of phase formation in Polypropylene Impact Copolymers

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34. Advantages of Infrared detection in GPC of Polyolefins

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35. New Calibration method for accurate Determination of Ethylene content in EP copolymers by CRYSTEX - IR

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37. Phase Separation in the Bimodal Polyethylene for Pipes

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38. The Investigations on Morphological Changes of Linear, Branched Polyethylenes and their Blends during Crystallization and Subsequent Melting by Synchrotron SAXS and DSC

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40. Long-term Stabilization of Polypropylene Based on the Interaction of Hyperbranched Polymer and Stabilizer

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41. Effects of Spherulites for the Mobility of Stabilizer in Polypropylene

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42. Preparation of Polypropylene-based Nanocomposites using SiO2 with grafted Matrix Polymer Chain

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43. Molecular Rheology of model Ethylene/Styrene Copolymers

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44. Study on High Impact Polypropylene Prepared with Ziegler-Natta/Metallocene Hybrid Catalyst

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45. Characterization of Short Chain Branching in Polyolefin Copolymers by Full Scan GPC-FTIR using the Infrared Fingerprint Region

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Spectra Analysis Instruments, U.S.A.

46. Study of Cocrystallization Effects on PE/PP Blends

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เอสซีจี เคมิคอลส์
มุ่งมั่นด้านการสุขภาพอย่างเป็นมิตรต่อสิ่งแวดล้อม

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