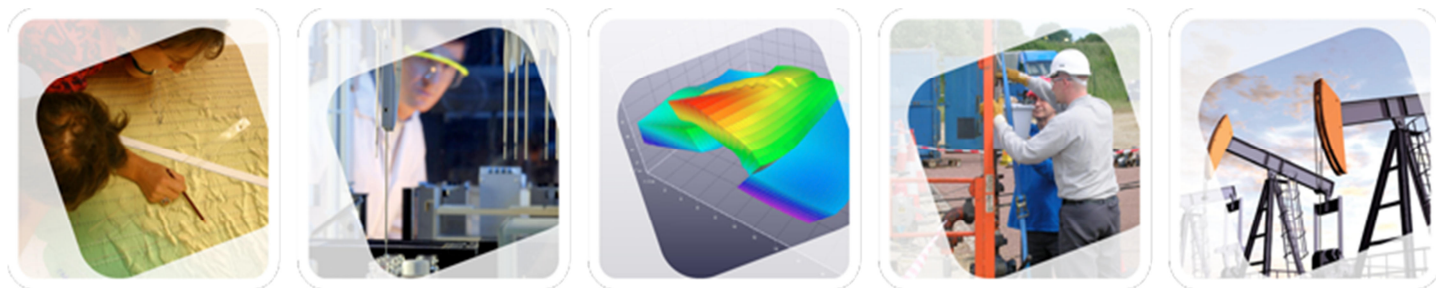


CHEMICAL EOR WORKSHOP KEY SUCCESS FACTORS

27-29 May 2013 – Château de Vert-Mont, Rueil-Malmaison (close to Paris), France

WORKSHOP FOCUS AND OBJECTIVES

Next edition: <http://www.eorworkshop.com> Novotel La Défense, 9-11 June 2015



Considering that there is an escalating energy demand led by major consuming countries and that approximately only 1/3rd of the hydrocarbon resources in known reservoirs is economically recoverable with established technology (including water flooding), the need for improved processes to increase overall recovery is becoming more than ever a real challenge.

It is noteworthy that much of the remaining oil is recoverable by chemical methods using polymers, surfactants, alkaline agents and combinations of such chemicals. Chemical processes are not new, but have been tentatively applied at the pilot level in the past with more or less success. The main reasons for failure in the past can be attributed to poor economics, unavailability of chemicals on a large scale, insufficient description of reservoir geology, partial understanding of process mechanisms, as well as issues related to the scaling-up of lab experiments.

Lessons learned from past experience combined with recent R&D advances, improved technical knowledge, better risk assessment and implementation techniques in the chemical EOR field now open up major opportunities for the successful development of future projects under current economic conditions.

The “Chemical EOR Workshop” is a forum for sharing and discussing ideas, focused on chemical EOR and the integrated approach that is essential for the success of project implementation.

Technical sessions will address the following topics:

- Speeding up EOR projects: from high throughput lab screening experiments to reservoir modeling and upscaling
- Risk minimization: reservoir risk analysis, chemical constraints, water management and environmental aspects
- Case studies: lessons learned
- Future challenges: heavy oil, hybrid processes and offshore CO₂

For better interaction between attendees, the Workshop will be through invitation only with a limited number of 60 participants having a key role in EOR within their company.

PROGRAM COMMITTEE

Pauziyah Bt A. Hamid (Petronas, Malaysia)
Emmanuel Manceau (IFPEN, France)
Arild Moen (Statoil, Norway)
Danielle Morel (Total, France)
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Abdullah Sultan (KFUPM, Saudi Arabia)

ORGANIZATION COMMITTEE

Christine Dalmazzone (IFPEN, France)
Lahcen Nabzar (IFPEN, France)

PROGRAM

SESSIONS

SCHEDULE

Poster sessions

Posters are an integral part of the workshop.

They will be displayed throughout the duration of the workshop.

Posters should be set up on Monday 27 May between 8.30 and 8.45, before the beginning of the workshop.

If you wish to submit a poster, please send your proposal EORworkshop2013@ifpen.fr before 7 March 2013.

OFFICIAL LANGUAGE

English will be the official language.

Simultaneous interpretation will not be provided.

SESSIONS

The program will be divided into four main sessions:

Session 1: Speeding up EOR projects

This session will address and question current practices for designing chemical EOR projects. Opportunities to speed up the chemical EOR workflow and end up with a robust and sustainable solution will be reviewed. The following topics will then be considered:

- The design of optimized and cost-effective formulation
 - How to speed up chemical selection and formulation design?
 - Which coreflood tests are required to validate formulation in reservoir conditions?
- Reservoir simulation
 - How to capture the behavior of complex formulations in dynamic reservoir modeling?
 - How to draw the best from laboratory data for model physics validation?
- Up-scaling issues: from core to pilot/field
 - Which coreflood experiments are required to gather reliable laboratory data for simulation?
 - Single well tracer tests versus small pilot?

Session 2: Risk minimization

The minimization of risks associated with chemical EOR remains a question of prime importance when developing new projects. This session will focus on two main aspects that are expected to have a strong impact on the large scale implementation of chemical EOR operations:

- Which chemicals for EOR: How to handle supply chain issues and regulatory constraints?
- Environmental aspects and water management: How to reduce impact on production fluids and handle environmental aspects?

Session 3: Case studies

This session will be dedicated to analyzing different case studies. It will be a practical review including a summary of the key results and lessons learned from real field case experience shared between participants. The objective is to identify the issues that need to be addressed when moving from a pilot to a continuous large scale operation, while maintaining the economics of the project (reservoir characterization, simulation modeling, monitoring, pattern conformance, well integrity, flow assurance, separation, metering, etc.).

Session 4: Future challenges

This session is viewed as a panel session to open discussions on future challenges in chemical EOR. Presentations by speakers from the industry and discussions will address new developments required both on technical and operational aspects. This will include chemical EOR deployment in challenging environments such as Offshore, high salinity, high (P,T) conditions, heavy oils, etc. The future role of hybrid processes (thermal & chemical, low salt & chemicals) will also be discussed. This session is also expected to take benefit from the previous discussions and address as much as possible the challenges related to how EOR processes can be speeded up, how the associated risk and uncertainty can be mitigated by taking advantage of the lessons learned.

PROGRAM SCHEDULE

Monday 27 May

8.30 Registration

9.15 Welcome address by *M. Boutéca (IFPEN, France)*

Session 1: Speeding up EOR projects (1)

9.30 Keynote lecture: How to select an appropriate lab-to-simulation workflow for an efficient chemical EOR design by *D. Morel (Total)*

10.15 Coffee Break

Session 1.1: High speed lab experiments

Chairpersons: P.A. Hamid (Petronas) and L. Nabzar (IFPEN)

10.45 How to improve performance by adjusting formulation in EOR
(J.-L. Salager, ULA)

11.30 Speeding up EOR projects: An integrated approach to surfactant-polymer flooding projects
(C.A. Prieto, CEPESA)

12.15 High throughput screening tests for the design of chemical EOR formulations
(M. Morvan, Chemical EOR Alliance)

13.00 Lunch

Session 1.2: Upscaling-modeling-simulation

Chairpersons: F.Rodriguez de la Garza (PEMEX) and C. Dalmazzone (IFPEN)

14.30 Drawing the best from simulation models for reliable design and optimization of chemical EOR projects
(B. Bourbiaux, IFPEN)

15.15 Coffee Break

15.45 Single Well Tracer Test for chemical EOR design
(D.Morel, Total)

16.30 End of the day

Tuesday 28 May

Session 2: Risk Minimization

Chairpersons: J.L. Salager (ULA) and D. Morel (Total)

8.30 Keynote lecture: EOR in Europe: Technical and non-technical challenges
by *D. van Batenburg (Shell)*

Session 2.1: Which chemicals for EOR?

9.15 Review on polymers used in EOR: limitations and future challenges
(*A. Thomas, SNF Floerger*)

10.00 Surfactant chemistry for EOR: from lab to large scale industrialization
(*P. Moreau, Solvay*)

10.45 Coffee Break

Session 2.2: Water management/Environmental aspects/public acceptance

11.00 Environmental issues related to using EOR chemicals
(*N. Aas, Statoil*)

11.45 Impact of EOR chemicals on water management
(*JF. Argillier, IFPEN*)

12.30 Lunch

Session 3: Case Studies - Lessons learned

Chairpersons: N. Naili (Sonatrach) and E. Manceau (IFPEN)

13.45 Lessons learned on chemical EOR processes at laboratory and field scales
(*M. Rondon, Ecopetrol*)

14.30 Key Lessons Learned from Recent Polymer-Flood and Surfactant-Polymer-Flood Projects
(*S. Thach and V. Dwarakanath, Chevron Energy Technology Company*)

15.15 Field testing the biopolymer Schizophyllan in a mature oil field: challenges and lessons learned
(*F. Visser, Wintershall*)

16.00 Coffee Break

16.30 Lab visit at IFPEN

18.45 Bus departure from IFPEN to the gala Dinner

19.15 Gala dinner at the restaurant "*Les Chevaux de Marly*"

22.00 Bus departure from "*Les Chevaux de Marly*" to the hotels in Rueil-Malmaison and the RER station

Wednesday 29 May

Session 4: Future challenges

Chairpersons: A. Moen (Statoil) and D. Sorin (Solvay)

- 8.30 Welcome Coffee
- 8.45 Keynote lecture: Future challenges for chemical EOR by *B. O'Brien*
(*ConocoPhillips*)
- 9.30 Foam Assisted Immiscible Water Alternating Gas (iWAG) in a mature, high temperature reservoir
(*P. A. Hamid, Petronas*)
- 10.15 Chemical EOR: from onshore experience to offshore challenges
(*R. Reksidler, Petrobras*)
- 11.00 Challenges of chemical EOR for heavy oil applications
(*to be confirmed - Canada*)
- 11.45 Closing address
- 12.00 Lunch
- 13.30 End of the workshop

SPONSORING

Become a sponsor of the CHEMICAL EOR Workshop!

IFP Energies nouvelles (IFPEN) is organizing the CHEMICAL EOR Workshop and would like to invite your company to sponsor this event. The workshop will be held from 27 to 29 May 2013, in Rueil-Malmaison, near Paris (France).

The CHEMICAL EOR Workshop is a forum for sharing and discussing ideas, focused on chemical EOR and the integrated approach that is essential for the success of project implementation.

The organizing committee ensures that internationally renowned speakers attend the workshop. In this perspective, **we encourage you to seize this excellent opportunity to promote your organization, demonstrate your active support and maintain a high profile in this field.**

Two levels of Sponsoring are proposed:

Silver sponsoring : € 10,000 (VAT excl.)

- Your company logo will be displayed on the workshop web page, the program and all other documents handed out to participants.
- Sponsoring of all lunches and coffee breaks explicitly indicated on the program distributed to the participants.

Gold sponsoring : € 13,500 (VAT excl.)

- Your company's brochure distributed to the participants addition to the above proposal.
- Sponsoring of the gala dinner on Tuesday 28 May explicitly indicated on the program distributed to the participants.

We look forward to your active participation in this event.

To sign up for workshop sponsorship or for more information, please contact us: EORworkshop2013@ifpen.fr

On behalf of the Program Committee,

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WHAT IS IFPEN?

IFP Energies nouvelles is a public-sector research, innovation and training center active in the fields of energy, transport and the environment. Its mission is to provide public players and industry with efficient, economical, clean and sustainable technologies to take up the three major challenges facing society in the 21st century: climate change and environmental impacts, energy diversification and water resource management. It boasts world-class expertise.

IFP Energies nouvelles sets out 5 complementary, inextricably-linked strategic priorities that are central to its public-interest mission:

- **renewable energies:** producing fuels, chemical intermediates and energy from renewable sources,
- **eco-friendly production:** producing energy while mitigating the environmental footprint,
- **innovative transport:** developing fuel-efficient, environmentally-friendly transport,
- **eco-efficient processes:** producing environmentally-friendly fuels and chemical intermediates from fossil resources,
- **sustainable resources:** providing environmentally-friendly technologies and pushing back the current boundaries of oil and gas reserves.

An integral part of IFP Energies nouvelles, its graduate engineering school prepares future generations to take up these challenges.

For more information, www.ifpenergiesnouvelles.com

