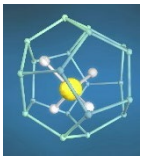
GAS HYDRATES

OVERVIEW

Whenever oil, gas and water are mixed there is the potential to form natural gas hydrates if the prevailing conditions are suitable for their formation.

Hydrates can rapidly block wells, flowlines and processing equipment and this can cause unscheduled downtime and unnecessary loss of productivity.

The one-day course includes case studies from actual field experiences, these are used to explain how to manage production systems and avoid costly shutdowns.




At the end of the course you will appreciate what's needed to predict gas hydrate formation, learn how to implement monitoring programmes and set up mitigation strategies.

OBJECTIVES

By reviewing actual field case studies and working interactively on exercises to identify best practices, at the end of the course you will know how:

- To identify a hydrate and the conditions under which they will form.
- To determine if, when and where in the process they are likely to form.
- Mitigation strategies can be implemented.
- To remove hydrate plugs if they have formed.

TRAINERS

Oil Plus's trainers have over 30 years' production chemistry problem solving experience gained from working with operators worldwide. We have a similar number of years presenting training courses in North America, Europe, the Middle East, Africa, India, South East Asia and Australia.

WHO SHOULD ATTEND

Process engineers, reservoir engineers, production chemists, corrosion engineers, chemical specialists and laboratory personnel with little or no chemistry background, will also benefit.

Anyone wishing to improve their understanding of flow assurance issues in the oil industry.

CONTENT

- **Introduction** – An overview of hydrate properties.
- **Hydrate formation** – How process conditions can affect the potential for hydrates to form and where they are likely to occur in the system.
- **Prediction** – The module looks at using the gas gravity chart method and thermodynamic models with water, pressure and temperature data to understand how to predict hydrate formation.
- **Prevention** – This section provides a summary of the types, applications and selection of hydrate inhibitors.
- **Laboratory testing** – The different types of analysis used to determine the presence of gas hydrates.
- **Hydrate mitigation strategies** – Design philosophies, recommendations and current ideas on how to control their formation
- **Plug remediation strategies** – Recommendations and current ideas on how to control their formation.

REQUIRED TOOLS

Laptop computer and calculator

COURSE DURATION

1–Day

CONTENT DELIVERY

English

COURSE COST & DATES

Available upon request – contact mail@oilplusltd.com

GAS HYDRATE TRAINING COURSE

DAY 1 – Morning		DAY 1 – Afternoon	
Time	**Subject**	**Time**	**Subject**
08.30	Delegate registration and coffee	13:20	End of lunchbreak
09:00	**SESSION 1** **Introduction** • Hydrate properties • Hydrate structures **Hydrate Formation** • Introduction • Water content • Formation and dissociation • How hydrates form in oil systems, gas dominated systems and during gas expansion **Predicting Hydrate Formation** • Gas gravity • K-factor • Accuracy of methods • Gas expansion • Thermodynamic models • Monitoring	**13:30**	**SESSION 3** **Hydrate Plug Remediation** • Introduction • Options • Plug location • Pipelines / flowlines operational strategies • Wells operational strategy recommendations • Risers recommendations **References** **Case Studies** **Hydrate Management Guidelines**
10:00	Coffee break	15:00	Coffee break
10:30	**SESSION 2** **Hydrate Prevention** • Introduction • Dehydration • Heat, pressure • Hydrate inhibition **Laboratory Testing** • Stirred autoclave tests • Rocking cell tests • Large scale flow loop tests **Hydrate Mitigation Strategies** • Introduction • Developing a hydrate mitigation strategy • Hydrate design philosophies • Some suggested best practices • Generating operating procedures for hydrate control • Wellbore bullheading of methanol for shut in condition • Optimised bullheading approach	**15:30**	**SESSION 4** **Course Wrap-up** • Review and discussion • Feedback forms • Certificates
12:30	Lunch break	16:30	Finish

The course will start promptly at 08:30 am, finishing around 16:30 pm. Beverages, lunches and snacks will be provided during the week.

Contact: +44 (0)1635 30226 • mail@oilplusltd.com • www.oilplusltd.com

OIL+PLUS
GLOBAL LEADERS IN OILFIELD SOLUTIONS