

4-day course

Oilfield Production Chemicals & Microbiology



Available as an 'in-house' course and may be delivered at any location worldwide.

Course Description

Chemical additives are essential to the efficient production of crude oil and are used in drilling, completion, stimulation and production processes. This course focuses on those products used to facilitate the production processes. Potential problems are recognised and described. A wide variety of simple and complex, inorganic and organic chemicals are used within this industry. The course is designed to provide an insight into the reasons for deploying chemical products. The types of chemicals that are used will be described together with guidelines for product selection. Emphasis will be placed on practical, operational aspects, laboratory and field evaluation techniques and deployment. The course does not seek to explore detailed theoretical issues. The microbiology content of the course will be provided by Commercial Microbiology Ltd.

Learning Objectives

Upon completion, participants will have gained an understanding of the wide diversity of chemicals and formulated blends that are used in the oil production industry. The participant will learn why chemicals are necessary, how they are evaluated and understand the options for deployment within the process plant. Participants will also gain an insight into how new products and processes help environmental compliance.

Who Should Attend

The course aims to provide a common understanding of oilfield production chemicals to petroleum engineers, chemists and other scientific and managerial disciplines. Project engineers, petroleum engineers, technical and commercial managers, those responsible for product development or evaluation and field operating personnel would all benefit. Employees responsible for environmental issues or marketing of chemicals should find interest in the content of this course.

Enquiries

All enquiries to hts consultants,
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Detail of up-coming open courses shown on web-site.

www.hts-consultants.co.uk

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Typical Schedule (may be customised to suit client's preferences)

Day One	<p>Introduction to Oil Production Operations Overview of production processes. Equipment used to process crude.</p> <p>Chemical Additives, the Chemistry of Crude Oil and the Chemistry of Surfactants – an introduction to the chemistry and chemical additives. Flow assurance, integrity management and product quality.</p> <p>Environmental Issues Discharges of hazardous substances, ecotoxicity testing .</p> <p>Wax and Asphaltene Control Wax formation and control; inhibitors (PPD's, crystal modifiers). Wax solvents. Rheological properties. Laboratory evaluation. Application of inhibitors and solvents.</p> <p>Asphaltene Inhibitors, dispersants and solvents</p>	
Day Two	Day Three	Day Four
<p>Drag Reducers. Flow improvement for oil and water systems.</p> <p>Hydrate Control Formation of gas hydrates. Deepwater. Thermodynamic and threshold inhibitors. Application of inhibitors.</p> <p>Gas Treatment Foaming / Types of antifoams. Sweetening and dehydration of gas. Liquid unloading of gas wells.</p> <p>Lunch</p> <p>Demulsification Emulsion types and causes of stability. Types of demulsifiers. Formulation practices, Evaluation / optimisation.</p> <p>De-oilers. Flocculants. Separators and associated equipment.</p> <p>Exercises: emulsions and organic solids.</p>	<p>Soap Scale Issues Naphthenate emulsions and scales.</p> <p>Mineral Scale Control Types of Scale and conditions for formation. Prediction. Prevention options. Inhibitor types and laboratory evaluation. Application of scale inhibitors. Squeeze techniques. New Technologies.</p> <p>Scale Removers: types and application. Radioactive scale problems.</p> <p>Exercise - scale</p> <p>Lunch</p> <p>Corrosion Control Types of corrosion. Prevention options. Corrosion inhibitors: types available. Laboratory evaluation of corrosion inhibitors.</p> <p>Application of corrosion inhibitors. Monitoring methods. Hydrogen sulphide scavengers.</p> <p>Exercise – corrosion</p>	<p>Water Injection Chemicals and Practices Treatment of waters for injection. Chlorine, oxygen scavengers, corrosion Inhibitors etc. Injection practices</p> <p>Oilfield Microbiology Introduction to bacteria. Problems associated with bacteria.</p> <p>Lunch</p> <p>SRB in Injection and Production systems. Monitoring techniques for sessile and planktonic bacteria</p> <p>Reservoir Souring Reservoir souring. Options to reduce souring. Biocide action and application strategy.</p>