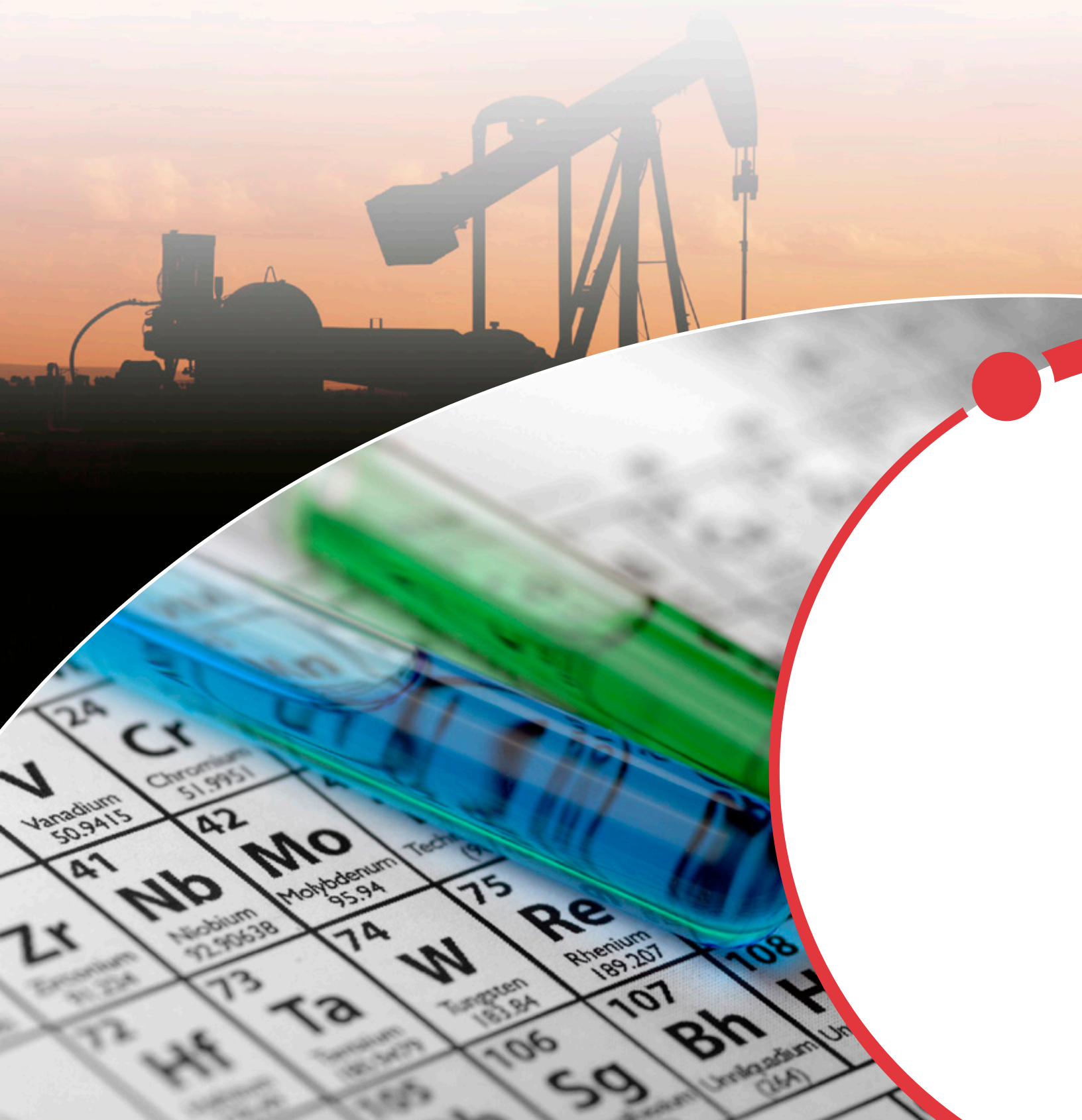
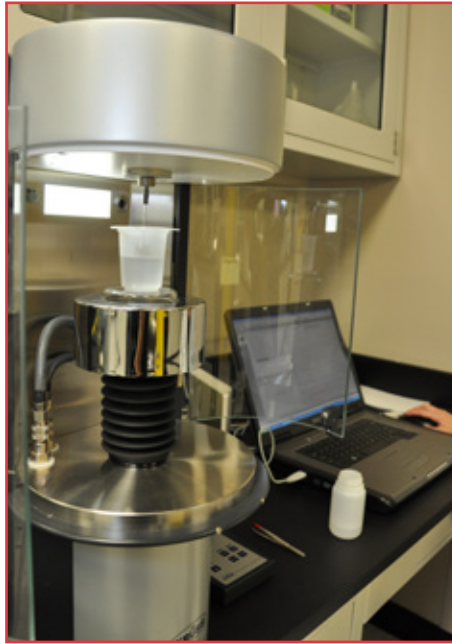




Providing Quality and Service to the Global Oilfield  
**Chemical & Technology Group**



**Commitment to Innovation** CESI's vision is to bring innovative chemical solutions to today's challenges in the global oilfield. In order to achieve this vision, CESI has developed a world-class Research and Development Organization located in The Woodlands, Texas and Technical Services located in Marlow, Oklahoma where both focus on developing and delivering a full spectrum of oil field specialty chemicals used for drilling, cementing, stimulation, production and improved oil recovery (IOR). In order to fully meet our customers' needs, CESI has adopted a customer focused problem solving and product development approach while capitalizing on our extensive knowledge and experience in the industry.



Maximize Returns



Manufacturing Capabilities



Research & Development

## Commitment to the Environment

CESI Chemical is committed to developing environmentally conscious products for the global oilfield. We work closely with our customers and suppliers for continuous improvement of environmental characteristics for the entire product offering. An example of our commitment is our patent protected Complex nano-Fluids™ technology suite of formulations that are composed of naturally plant derived ingredients and oils, do not contain priority pollutants as set forth by the EPA and many of the products are North Sea approved. We will continue to focus on developing environmentally sustainable products without sacrificing performance.

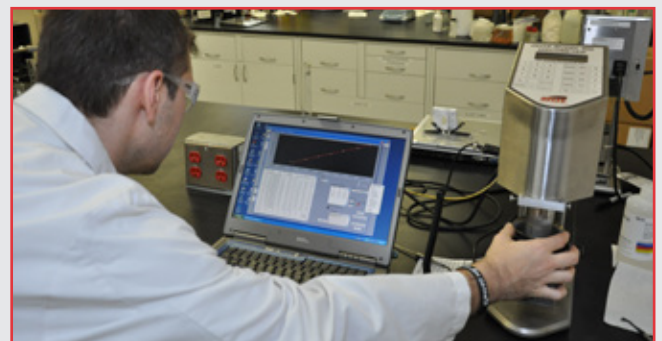


**Personnel** CESI Chemical is staffed with Chemists and Engineers, many of whom hold Ph.D. degrees. Each individual brings a diverse background and advanced skill set to the team that creates an environment ripe for new product development.



## TECHNOLOGY DEVELOPMENT CAPABILITIES

- Formulation of complex nano-fluids and proprietary surfactant packages
- Characterization of products with advanced instrumental methods
  - ∅ Surface and Interfacial Tension
  - ∅ Nano droplet size distribution
  - ∅ Wetting and Contact Angle
  - ∅ Density and Viscosity
  - ∅ Electrokinetics
  - ∅ Acoustic spectroscopy
- Basic and Applied Research supporting product development and problem solving
  - ∅ Studies of two-phase flow in packed columns
  - ∅ Effect of chemical additives on wettability of rock matrix
  - ∅ Permeability restoration with chemical treatments
  - ∅ Friction Reduction evaluation in the flow loop
  - ∅ Emulsion breaking/demulsifier effectiveness
- Intellectual property and Publications
  - ∅ Three issued U.S. Patents
  - ∅ Pending patent applications
  - ∅ 20+ SPE and peer reviewed publications



## SOME RECENT PUBLICATIONS

SPE 144095 — **Critical Assessment of Microemulsion Technology for Enhancing Fluid Recovery from Tight Gas Formations and Propped Fractures**

*L.M. Champagne, A.S. Zelenev, G.S. Penny, and K. Travis, CESI Chemical*

SPE 127922 — **Microemulsion-Assisted Fluid Recovery and Improved Permeability to Gas in Shale Formations**

*A.S. Zelenev, H. Zhou, L.B. Ellena, and G.S. Penny, CESI Chemical*

SPE 121762 — **Lab and Field Study of New Microemulsion-Based Crude Oil Demulsifiers for Well Completions**

*Y. Yang, K.I. Dismuke, G.S. Penny, and J. Paktinat, CESI Chemical*

**Investigation of Interactions of Diluted Microemulsions with Shale Rock and Sand by Adsorption and Wettability Measurements** *Colloids and Surfaces (in press)*

*A.S. Zelenev, L.M. Champagne, and M. Hamilton*



Manufacturing and packaging locations

Marlow, Oklahoma  
Calgary, Canada  
The Netherlands

Sales and Warehousing locations

Oklahoma  
Texas  
Utah  
Wyoming  
Pennsylvania  
California  
Colorado  
Arkansas  
West Virginia  
Canada  
The Netherlands  
Abu Dhabi  
Egypt  
Turkey



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