

Springer

1st
edition

1st ed. 2019, XXIII, 348 p.

Printed book

Hardcover

Printed book

Hardcover

ISBN 978-3-030-04005-5

\$ 169,99

Available

Discount group

Professional Books (2)

Product category

Monograph

Engineering : Offshore Engineering

de Medeiros, J.L., de Oliveira Arinelli, L., Teixeira, A.M., Araújo, O.d.Q.F.

Offshore Processing of CO₂-Rich Natural Gas with Supersonic Separator

Multiphase Sound Speed, CO₂ Freeze-Out and HYSYS Implementation

- Presents the conceptual aspects of offshore processing of raw natural gas with supersonic separators in comparison to processing with conventional technologies
- Discusses in detail the concept and theory of generalized multiphase and multi-reactive speed of sound as a thermodynamic property and how to calculate it in HYSYS process simulators
- Provides a complete theoretical framework for modeling supersonic separators for the removal of condensable species such as water and heavy hydrocarbons from natural gas
- Describes process flowsheets for the removal of water and heavy hydrocarbons from natural gas using supersonic separators, comparing the economic and energy performance with conventional approaches

This book introduces a new and powerful approach based on rigorous process simulations conducted with professional simulators like HYSYS to predict the performance of supersonic separators (SS). The book addresses the utilization of SSs for the offshore processing of CO₂-rich natural gas as an alternative to Joule-Thomson expansion, glycol absorption, membrane permeation and chemical absorption. It describes and analyzes the conventional offshore processing of CO₂-rich natural gas, discussing the advantages of SS in terms of cost and power consumption. The book offers a comprehensive framework for modeling SS units, describing the physical principles of SS in detail. The thermodynamic multiphase sound speed is also discussed at the light shed by a classical analysis based on the Landau Model of phase transitions. A complete framework is presented for modelling and simulating SS units within HYSYS environment.

Order online at [springer.com/book sellers](https://www.springer.com/book sellers)**Springer Nature Customer Service Center LLC**

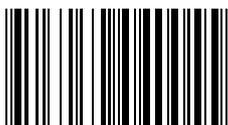
233 Spring Street

New York, NY 10013

USA

T: +1-800-SPRINGER NATURE

(777-4643) or 212-460-1500

customerservice@springernature.com

ISBN 978-3-030-04005-5 / BIC: TTSH / SPRINGER NATURE: SCT23070

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add \$5.00 for shipping one book and \$ 1.00 for each additional book. Outside the US and Canada add \$ 10.00 for first book, \$5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

Part of **SPRINGER NATURE**