

Modelling and optimization of compact subsea liquid-liquid separation system

Tamal Das, Preben Fürst Tyvold, Johannes Jäschke

Dept. of Chemical Engineering, Norwegian University of Science and Technology, N-7491 Trondheim, Norway tamal.das@ntnu.no jaschke@ntnu.no



• Simplified steady state model for subsea separation system. • Find optimal conditions to maximize oil fraction in product.

Introduction

- Subsea separation of hydrocarbons: Why?
- Enables production from harsh environments.
- Saves operating and capital costs.
- Improved hydrocarbon recovery + Water reinjection.



- Very few simplified separation models in literature:
- We developed steady state models.
- Goal: Identifying optimal operating conditions.
- Gravity Separator: Preliminary oil/water separation
- Dewaterer: Removes residual water from oil stream
- Deoiler: Removes residual oil from produced water

