

Ebullated Bed: Introduction

CPFD Software

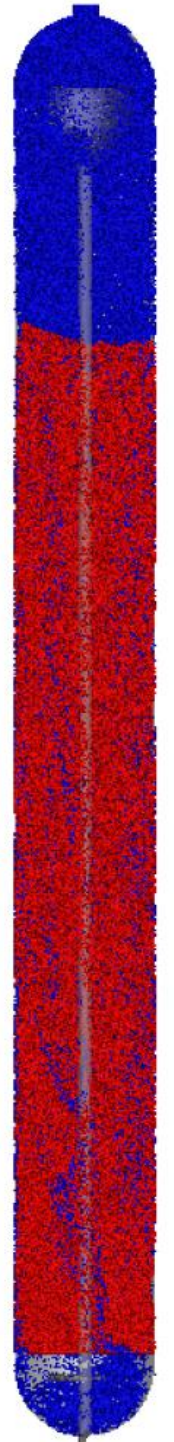
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Overview

Ebullated bed reactors are used for hydrocracking to convert vacuum resid (VR) into lighter hydrocarbons (Vacuum Gas Oil, diesel, naphtha, propane) using hydrogen gas.

An ebullated bed reactor utilizes:

- Ebullition, or bubbles
- 3-phase VLS (vapor, liquid, solid) with a liquid domain



Overview

A generic ebullated bed reactor geometry is used

The model is isothermal and reacting

Boundary conditions:

1. Fluid and bubbles are allowed to leave at the top
2. Recycle pan to return liquid from the top of the vessel to the bottom
3. Secondary feed to replenish VR
4. Baffle used as the gas distributor
5. Distribution ring for hydrogen bubbles

