Polymeric Resins for Dispersed Oil Removal

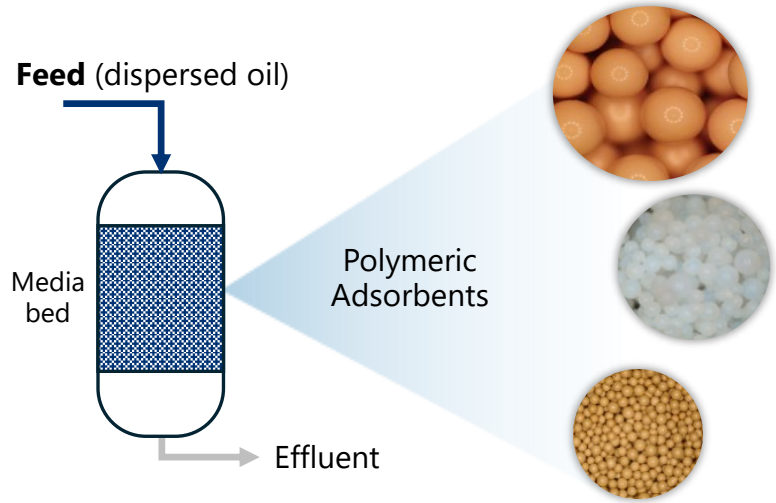
Process Description

Polymeric resins are used to remove oil from water streams across a range of oil droplet sizes, including dispersed oil (>20 µm), emulsified oil (5-20 µm), and dissolved oil (<5 µm). The treatment process involves passing the feed water through a packed column containing the resin, where oil compounds are selectively adsorbed onto the media surface. Once saturated, the resin is regenerated using a chemical solution that desorbs the accumulated oil, restoring its adsorption capacity.

These systems are typically applied for tertiary polishing, industrial wastewater treatment, and water reuse applications. Compared with conventional adsorbents, polymeric resins offer higher adsorption capacities, greater selectivity for hydrophobic organic compounds, and longer operational lifetimes.

Commercial polymeric resin suppliers include Ecolab Purolite® and DuPont™. Other advanced media include ProSep's Osorb®, utilizing an organically modified silica adsorbent.

Process Schematic



Publications

- Evaluation of polymeric adsorbents via fixed-bed columns for emulsified oil removal from industrial wastewater (Link)
- Protocol for Preparing Synthetic Solutions Mimicking Produced Water from Oil and Gas Operations (Link)

For further information, please contact us at email: GWSC@conocophillips.com