



# An Overview on compound Retention in Porous Media

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## Abstract

Polymer flooding is a very important increased oil recovery technology introduced in field comes since the late Sixties. The key to a thriving compound flood project depends upon correct estimation of compound retention. The aims of this paper square measure twofold. First, to indicate the mechanism of compound flooding and the way this mechanism is littered with compound retention. supported the literature, the quality quantitative relation considerably will increase as a results of the interactions between the injected compound molecules and also the reservoir rock. Secondly, to produce an improved understanding of the compound retention, we tend to mentioned compound retention varieties, mechanisms, factors promoting or inhibiting compound retention, strategies and modelling techniques used for estimating compound retention.

## Keywords

polymer flooding; compound retention; quality quantitative relation

## INTRODUCTION

Implementing increased oil recovery (EOR) techniques has become additional vital to recover additional hydrocarbons, with the continuation of exploration and development of latest oil reserves. Vladimir et al. indicated that the life of a reservoir principally consists of 3 phases: primary recovery as oil is extracted by naturally driven mechanisms, secondary recovery with reservoir pressure maintaining techniques through water and gas injection, and increased oil recovery typically known as tertiary recovery with a big selection of advanced technologies. In primary recovery and secondary recovery, solely 20–40% of the potential oil is extracted. it's potential to extract up to half-hour of the initial oil reserve within the well by the implementation of EOR techniques.

Furthermore, as of 2017, it's been calculable by the organization of the rock oil exportation countries that more or less one.5 trillion barrels of well-ried oil stay in reservoirs globally. when the exhaustion of the applications of standard recovery strategies, increased oil recovery helps not solely extract these reserves however conjointly guarantees a continuing offer of oil within the future. EOR mechanisms broadly speaking embrace chemical flooding, gas injection and thermal recovery. In chemical flooding, some chemicals like polymers square measure more to the injected water to boost the oil displacement ability. The ability of water to displace oil associated increase production was initial noticed within the Pit hole town space of Pennsylvania in 1865 as an accidental water injection to the organic compound zone. In 1924, rock oil corporations complete the matter of low oil recovery by natural energy and also the got to sweep additional oil from reservoirs, and initial 5 spot pattern water injection was initial enforced in Bradford oil field, Pennsylvania. additional organic compound was extracted exploitation water flooding techniques. However, in 1949, Muscat initial indicated that water flood performance would be littered with fluid quality, that was a vital discovery that helped different researchers begin finding out new

techniques for up water quality. Stiles, Dykstra, and Parsons used permeableness and distribution capability in water flooding calculations, and also the latter 2 researchers noticed the result of the quality quantitative relation and permeableness variation on recovery.

Moreover, the quality quantitative relation impacts on injection and production histories in a five-spot water flood were conjointly investigated. moreover, Dyes showed the result of the quality quantitative relation on the assembly of oil when a breakthrough. By 1962 Caudle, Witte and Barnes recommended that by increasing water consistence, water flood sweep potency is improved. In 1964, Pye and Sandiford conducted a fruitful study showing that adding atiny low quantity of soluble the compound will with efficiency cut back the quality of water utilized in water flooding that successively can cut back the quality quantitative relation so up sweep of oil. Since then, studies were directed towards the compound flooding potency, poignant factors, limitations, challenges, measurements and modelling techniques of compound flooding.

Mechanism of compound Flooding: it's unacceptable for oil and water to utterly displace each other in a reservoir as oil and water square measure unmixable fluid. Immiscibility of each fluids is mirrored within the crude oil saturation and irreducible water within the relative permeableness curve. As indicated by Mridul results, for a water flood system, despite the injected amount of water into the reservoir, the oil saturation isn't reduced below the crude oil saturation. Introducing the injected water with a soluble compound can increase the water consistence.

Polymer Retention: compound retention includes a major impact on the speed of compound propagation through porous media throughout compound flooding, and consequently, on oil recovery. it's a considerable result in porous media on the transport and performance of compound answer

Factors Effecting compound Retention: In early studies by Szabo for dynamic compound sorption, it had been shown that 2-acrylamido-2methyl fuel sulphonate (AMPS) sorption is below HPAM. Broadly, xanthin sorption in porous media is far below that of HPAM and tends to indicate less sensitivity to the salinity/hardness conditions of the solvent.

## Key Observation

- The flow of compound solutions through porous media could be a complicated development requiring associate understanding of retention, flow capability alteration, and inaccessible pore volume. Estimation of those factors is very important for economic analysis and slug style for a thriving implementation of compound flooding EOR.
- Polymer retention is caused by sorption on the surfaces, mechanical defense thanks to slender passageways in porous media, and hydraulics defense thanks to high flow rates.

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