

CHAPTER I

INTRODUCTION

Conventional crude oil production by pressure of the reservoir is categorized as primary oil recovery stage, approximately 20% original oil in place (OOIP) is recovered from this stage. After that, water flooding technique was applied to maintain pressure of the reservoir to recover about 20% OOIP. However, crude oil produced from two first stages is not enough for responding the world oil demand.

Therefore, the tertiary oil recovery stage or Enhance Oil Recovery (EOR) is one of the most efficiency process is applied to produce crude oil remained in the reservoir. So, nowadays enhanced oil recovery techniques are taken more attention from oil production companies than the previous days for solving the oil demand situation.

Many recently researches were studied on surfactant enhanced oil recovery effects. The limitation of these methods is mainly depends on characteristics of the reservoir and availability of injection fluid. Therefore, to obtain the highest crude oil recovered amount, surfactant enhanced oil recovery process is needed to compatible design with the reservoir condition.

Crude oil in Thailand is mainly classified as light crude oil in sandstone reservoir with low-middle temperature range, 30°C to 50°C. Other contaminate components in crude oil are needed to consider for specific case.

This research studied the phase behavior of anionic and non-ionic surfactants depend on salt concentration between decane, which simulated as light crude oil. Microemulsion phase behavior (Winsor type III) is studied in order to determine the suitable surfactant formulas which were performed in spontaneous imbibitions tests to investigate amount of decane recovered from sandstone core.