

**UNIVERSITI TEKNOLOGI MARA**

**PERFORMANCE STUDY OF  
DEMULSIFIER GRAPHENE OXIDE  
WITH EMULSION MIXED WITH  
ANIONIC COMPOUND (TRITON X  
100)**

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## **ABSTRACT**

Aiming to pursue studying enhance oil recovery with an emulsion that act as flooding agent using a low cost demulsification material that can break up oil in water emulsion. In this experiment an amphiphilic material, graphene oxide was introduce as a demulsifier to break up the oil in water emulsion at room temperature. It shown the small droplet of emulsion coalesced to form the oil phase and separated. The test indicate that an amount of graphene oxide and amount of synthetic oil in water emulsion effect the performance of saperation. The effect of ph on demulsification are varies with ph. This finding may shows that graphene oxide may be one of demulsifier in oil industry

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Research Background**

Emulsion is one of the seen contribution that bring goodness to mankind in many aspect of medical, oil and gas, agriculture and many more. In aspect of oil and gas, emulsion has positive and negative effect on the oil and gas production. Where emulsion has positive effect when it use on reservoir for enhance oil recovery (help increase the production of oil). Enhance oil recovery occur when the production of produce water increase but the production of oil decrease. The emulsion act as a drive fluid to displace the pressure loses due to oil production. These technologies also help in addressing challenge of recover oil at subsea and deep sea reservoir.

Nanoparticle had become one of the interests in scientific study. This is due variety of application in medical, optical and electronic. Nanoparticle technology is the bridge between the bulk material and molecular material which help reduce the space and cost for more research. The interesting about nanoparticle is unexpected characteristic and behavior as the synthesis of particle is change.

### **1.2 Problem Statement**

For at least decade, gas and oil will still domain as the primary energy source. Gas and oil are trapped inside the natural pore in the formation. Production of crude oil change the pressure inside the reservoir .The oil pressure will start decline as the production start The process of oil recovery can be divided into three stages. The first stage is called primary recovery and the efficiency of oil recovery at this stage is controlled by the geological formation. The primary stage typically allows recovery of 5-15 % of original oil in place (OOIP). The second stage of oil recovery which is usually a form of water flooding provides an additional 30-35 %. The final stage is tertiary recovery which has potential for high oil recovery ( $\approx 80 - 90 \%$ ). The last two stages require the application of pressure to the system. Enhance oil recovery have many type but in this experiment will focus on emulsion. Emulsion is one of the best tools used to enhance the oil recovery. Emulsion should be injected into the well for