

# Effect of Synthesized UMP Surfactant for Emulsification and Stabilization of Water-in-Crude Oil Emulsions

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## 2. COLLABORATORS

- The system has approached by Japan (ENTRON CO. LTD, Japan).
- It is a renewable and green technology.
- The system is ready for commercialization

## 1. INTRODUCTION / ABSTRACT / BACKGROUND

With the increasing energy crisis and the drive to reduce CO<sub>2</sub> emissions, universities and industries are challenged to find new technologies in order to reduce energy consumption, to meet legal requirements on emissions, and for cost reduction and increased quality. In the conventional combustion process, fuel is combined with air and burned. The result is carbon dioxide, water vapour and heavy oxides of Nitrogen, which are a prime cause of chemical smog. If water could largely replace air as a source of oxygen in combustion, this would avoid the large amounts of Nitrogen introduced by air. And thus eliminate much of the noxious Nitrogen oxides. This invention makes the replacement of air as source of Oxygen by water (30%). The invention is highly a new contribution for energy sources and highly reduces the emission problems cause by Nitrogen Oxides.

## 3. NOVELTY / INVENTIVENESS / METHODOLOGY

- UMP Surfactant is an environmentally friendly and replaced the Oleic acid by sunflower oil as raw material.
- The processing time reduced from 9 hours into 7.5 hours
- The final product is very stable.

## 5. MARKETABILITY / COMMERCIALIZATION / POTENTIAL MARKET

- The emulsifier is an alternative and cost effective to the current surfactants and commercial emulsifiers.
- It is a renewable and green technology.

## 7. ACHIEVEMENTS / ENVIRONMENTAL IMPACT

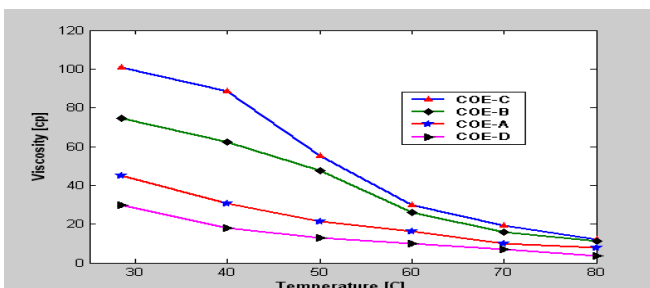
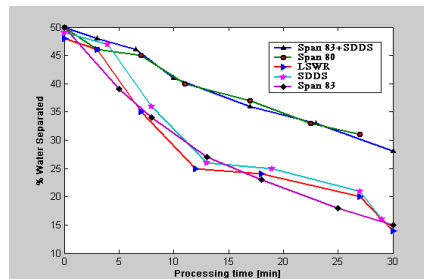
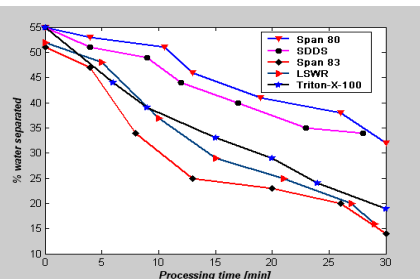
- UMP Pre-commercialization grant, UIC120301, RM 60,000.00
- FRGS, RDU130113, RM125,500.00

## 4. BENEFITS

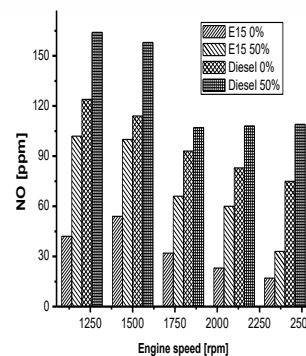
- Environmentally friendly
- Economically competitive
- Technically feasible
- 30% reduction in cost of fuel
- 60% reduction in emissions
- 95% more efficient than the pre-processed emits 60% less emission



## 9. Results



## 8. Results



## 10. PATENT /COPYRIGHT

Patent NO: PI: 2011000192

Granted Patent: MY-152725 - A