

**REFINING OF INDUSTRIAL SPENT FUEL
OIL BY USING DESULFURIZATION
METHOD: A REVIEW**

SITI NURFARHANAH BINTI MOHD ZAINAL

**BACHELOR OF CHEMICAL ENGINEERING
(ENVIRONMENT) WITH HONOURS**

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By

SITI NURFARHANAH BINTI MOHD ZAINAL

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ABSTRACT

Recycling or 're-generation' of used fuel oil or commonly known as refining method is deemed to be important and necessary. Available process of refining method for petroleum products are liquefaction, gasification and pyrolysis. Among the process available, pyrolysis shown an impressive performance. Refining does not necessarily able to remove most of harmful contaminants and sulphur content present in used fuel oil. Thus, desulphurization method was introduced. The objective of this review study is to do a comparison on the different method used for desulphurization of pyrolysis oil from different sources including from waste engine (WE), waste tires (WT) and plastic waste (WP) oils and to analyse on the influence of parameter control such as temperature, reaction time and amount of acid catalyst/catalyst used on the sulphur removal efficiency based on different literature. Several articles were used as the main reference to do comparison on the different sources of pyrolytic oil. It has been found that, adsorptive desulphurization method was recorded highest on sulphur removal for three types of waste pyrolytic oil. In conclusion, for waste engine oil, the highest sulphur removal recorded were at 87.5%, for waste tire oil the highest sulphur removal is 89.4%. Meanwhile for waste plastic oil, the highest sulphur removal was at 98%. Moreover, the optimum temperature obtained was at (350-380⁰C), optimum reaction time (50-250 minutes) and optimum amount of acid/acid catalyst acquired was at (0.02-1.0g).