

## **PRODUCTION OF LOW AROMATIC WHITE SPIRITS (LAWS) FROM KEROSENE OIL USING CHITOSAN**

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Low aromatic white spirit (LAWS) is a widely used solvent in industrial and commercial applications due to its reduced aromatic hydrocarbon content, making it safer for both health and the environment compared to solvents with higher aromatic levels. LAWS is particularly crucial in the paint industry, as its low aromaticity ensures the desired color in paints, preventing issues with pigment performance. It is derived from the distillation of petroleum crude oil and shares similarities in chemical composition and physical properties with kerosene, allowing for production from high aromatic fractions through dearomatization processes. A spirit sample was acquired by subjecting kerosene vapor (100 mL) to treatment with chitosan extracted from prawn shell waste (10 grams) at room temperature. The dearomatization process was evaluated using FT-IR analysis, while the chitosan material underwent characterization through FT-IR and SEM analyses. Based on the FT-IR results, the intensity of the characteristic peak associated with CH bonds connected to aromatic rings decreased significantly, while the intensity of aliphatic CH bonds remained relatively constant. Since directly measuring peak intensity isn't suitable for quantitative FT-IR analysis, the peak intensity ratio between aromatic and aliphatic CH bonds was considered. This analysis revealed a significant removal of aromatic groups in the treated kerosene. Additionally, the further reduction in the intensity of the characteristic carbon-carbon double bond in the FT-IR spectrum obtained from treated kerosene also confirmed the successful dearomatization of kerosene upon treatment with chitosan. The research demonstrates that chitosan effectively dearomatizes kerosene oil, resulting in the production of LAWS. This approach is both environmentally friendly and economically efficient. Keywords – Kerosene oil, Chitosan, and LAWS.

**Keywords:** *Kerosene oil, Chitosan, LAWS*