

**EFFECTIVENESS OF MODIFIED CELLULOSE-BASED AEROGELS AS
ABSORBENT MATERIAL FOR OIL ABSORPTION: A REVIEW**

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ABSTRACT

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Throughout the years, ocean pollution have been quite an issue as incidents such as, transportation and storage leakage, leakage of pipelines, oil spillage or leakage in the manufacture industry, and others have brought threats in human health, marine ecosystem and also the environment. Thus, the alternatives to prevent these issues have been proposed. One of the alternatives that being introduced is by using absorbent material for oil absorption as it is eco-friendly and cost-effective. In this review paper, modified cellulose-based aerogels were used as the absorbent material for oil absorption due to its abundant resources and unique properties. The structure of cellulose itself, source of origin and its absorption capacity were discussed in detail. In general, this paper has provided an overview regarding the effectiveness of the modified cellulose-based aerogels as the oil spillage recovery treatment and its application in oil spillage incidents.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Nowadays, the growth of industry and the enormous energy demand have led to ocean pollution due to the oil spillage. This issue occur because of the naturally growth in the number of vessels, traffic density and port operations where it also increases the possibility of accidental risk that might lead to fatal injury, economic and environmental problems (Ye *et al.*, 2019; Cakir *et al.*, 2021). In research from Demirel Bayik and Altin (2017), oil leakage and spillage during manufacturing, transportation and storage have contribute to soil, groundwater and surface water pollution. Oil spills also can be described as the natural releases from oil transportation, oil drilling and accidental collision or sinking of oil tankers, failures in pipelines and oil rigs, etc. (Keramea *et al.*, 2021).

The declaration of United Nations towards 17 Sustainable Development Goals (SDGs) or also known as the global goals that being proposed to eliminate poverty, preserve the environment and ensure peace and security for all society