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ZrP nanoplates based fire-fighting foams stabilizer¹ LECHENG ZHANG, ZHENG DONG CHENG, HAI LI, Texas A&M Univ — Firefighting foam, as a significant innovation in fire protection, greatly facilitates extinguishments for liquid pool fire. Recently, with developments in LNG industry, high-expansion firefighting foams are also used for extinguishing LNG fire or mitigating LNG leakage. Foam stabilizer, an ingredient in fire-fighting foam, stabilizes foam bubbles and maintains desired foam volume. Conventional foam stabilizers are organic molecules. In this work, we developed an inorganic based ZrP ($\text{Zr}(\text{HPO}_4)_2 \cdot \text{H}_2\text{O}$, Zirconium phosphate) plates functionalized as firefighting foam stabilizer, improving firefighting foam performance under harsh conditions. Several tests were conducted to illustrate performance. The mechanism for the foam stabilization is also proposed.

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