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GRAPHENE OXIDE MICROCAPSULES (GOMs) WITH LINSEED OIL CORE VIA PICKERING EMULSION METHOD: EFFECT OF DISPERSE SPEED

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Abstract

Graphene oxide microcapsules (GOMs) have been prepared through Pickering emulsion method by varying the disperse speed to study its effect on the GOM's size. The GOMs were characterized through phase separation observation, polarized optical microscope (POM), and particle size analyser (PSA). Phase separation observation showed more viscous and cloudy emulsion was produced when the disperse speed was increased. After 24 hours, only 800 rpm emulsion did not show any phase separation. POM characterization depicted that increasing the emulsification energy led to the finer emulsion with the 1200 rpm sample showing the smallest microcapsule size of around 8 μ m. However, PSA analysis suggested that although the disperse speed controls the GOMs size, the amount of GO in the emulsion plays an important role for the microcapsule to maintain its stability. Emulsion produced at 800 rpm possesses satisfactory stability with GOMs diameter of 11.15 μ m. The result also suggested that graphene oxide encapsulated linseed oil may act as a promising candidate for healing microcapsules in a self-healing coating system.

Keywords

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KeyWords Plus: [LIQUID-CRYSTALS](#); [BARRIER](#); [GAS](#)

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