

ELECTROSPUN OIL SORPTIVE FIBER BASED ON EPDM

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ABSTRACT

The electrospun EPDM ultrafine fiber (EUF) was prepared for oil sorption application. Through microwave radiation, the unsaturated side-chain of EPDM formed a crosslinking tri-dimensional network structure, which greatly improved physical properties. Gel and sol of EUF were isolated by extraction with cyclohexane. Sol EUF can be reused as oil sorbent through microwave radiation again. Infrared (IR) spectra were used to study the structure of EUF both before and after crosslink. The morphology of EUF was investigated by scanning electron microscopy (SEM). The oil swelling process of the gel EUF was studied. Oil sorption properties were measured by method ASTM (F726-81) while swelling kinetics was evaluated by an experimental equation. Compared with the granular and bulk oil sorbents based on EPDM, the gel EUF showed a fast swelling property and better oil sorption ability.

Keywords: electrospinning; EPDM; ultrafine fiber; oil sorption; microwave radiation.