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| **Published Researches****الأبحاث المنشورة** |
| Title**عنوان البحث** | [Evaluation of polypropylene melt blown nonwoven as the interceptor for oil](https://www.tandfonline.com/doi/abs/10.1080/09593330.2020.1714743) |
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| Abstract**خلاصة** | The present study aims to evaluate PolyPropylene meltblown nonwoven sorbents as interceptor barrier for oils (motor oil – soybean oil). Experiments carried out in oil-water bath under both static and dynamic conditions. Among tested sorbents, sorbent P3 with porosity 85.93% show high sorption capacity. In which it achieves the highest absorption values 13.13 and 11.91 g/g for motor oil and soybean oil, respectively. Followed by sorbent P2 with porosity 88.30% and sorbent P1 with porosity 91.46%. Besides, results show that sorbent P1 registered the highest oil retention rate followed by sorbent P2 and sorbent P3, respectively. The SEM observation indicates that pore size and porosity play a significant role in deciding oil sorption and retention. At static condition, oil interception performance was evaluated. oil begins to break through the interceptor barrier in sorbent P3 at 29 min for motor oil with intercepting efficiency 98.00% and at 22 min for soybean oil with intercepting efficiency 96.57%. As the thickness of the interceptor barrier increases the time for initial leakage prolonged. After oil leakage, steady oil spillage took place. The typical oil leaking rate was divided into three phases in which oils leaks sharply increased rate, decrease rate and finally gently. Under dynamic conditions, quickly oil leakage happens compared to a static condition. With water flow rate 166 ml/s, the initial oil leakage for sorbent P3 shortens at 16 min for motor oil and 7 min for soybean oil, with Interception efficiencies at 93.42% and 90.00%, respectively. |