



## Confidential Report

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Materials for oil absorption – Drainage  
and absorption per weight of absorption  
material

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## 1. Summary

Pouches were filled with either a foamed polymer or PP-fibres. After soaking in rape oil the oil drainage from the pouches were measured. It was observed that after 2 minutes the drainage from the foamed polymer was roughly half compared to the PP-fibre filled pouch, 1.5-1.8 compared to 3.1-3.7. After 20 minutes the drainage from the PP-fibre filled pouches were still larger compared to the foam filled. The amount of oil remaining per weight of absorption material was, after 20 minutes, twice as much in the foam filled pouches.

## 2. Background

Sanol AB contacted YKI concerning if it would be possible to compare two materials for oil absorption. The properties of interest were, drainage of oil from the material after removing it from the oil and amount of oil remaining in the absorption material after a longer time or at equilibrium.

## 3. Objective

The objectives were to determine the initial speed of drainage of oil and the amount of oil per weight of absorption material remaining after a longer time.

## 4. Experimental

### 4.1. Materials

Polypropylene (PP) fibres, foamed polymer and pouch material were supplied by Sanol AB. Rape seed oil was used to test the oil absorption and drainage.

### 4.2. Methods

Small pouches were filled with either PP-fibres or foamed polymer, figure 1. The pouches with PP-fibres were filled with 4g and the pouches filled with foam were filled with 2g. The pouches were soaked in rape seed oil for 15 minutes and then removed from the oil and immediately positioned above a scale, figure 2.



Figure 1. Pouches filled with either PP-fibres, left, or foamed polymer, right.



Figure 2. Pouch clamped above scale to measure drainage.

## 5. Results and Discussion

The drainage curves show that speed of drainage is higher for the PP-fibres compared to the foamed polymer, figure 3. PP-fibres show a much higher rate of drainage during the first 100 s. At longer times the drainage levels out, but the amount of drained oil is still higher for the PP-fibres. The two foamed filled pouches show similar behaviour. However, the PP-fibres filled pouches show different behaviour for longer times. This might be due to packing. Separation of the PP-fibres and packing might be the cause of this since it was done manually.

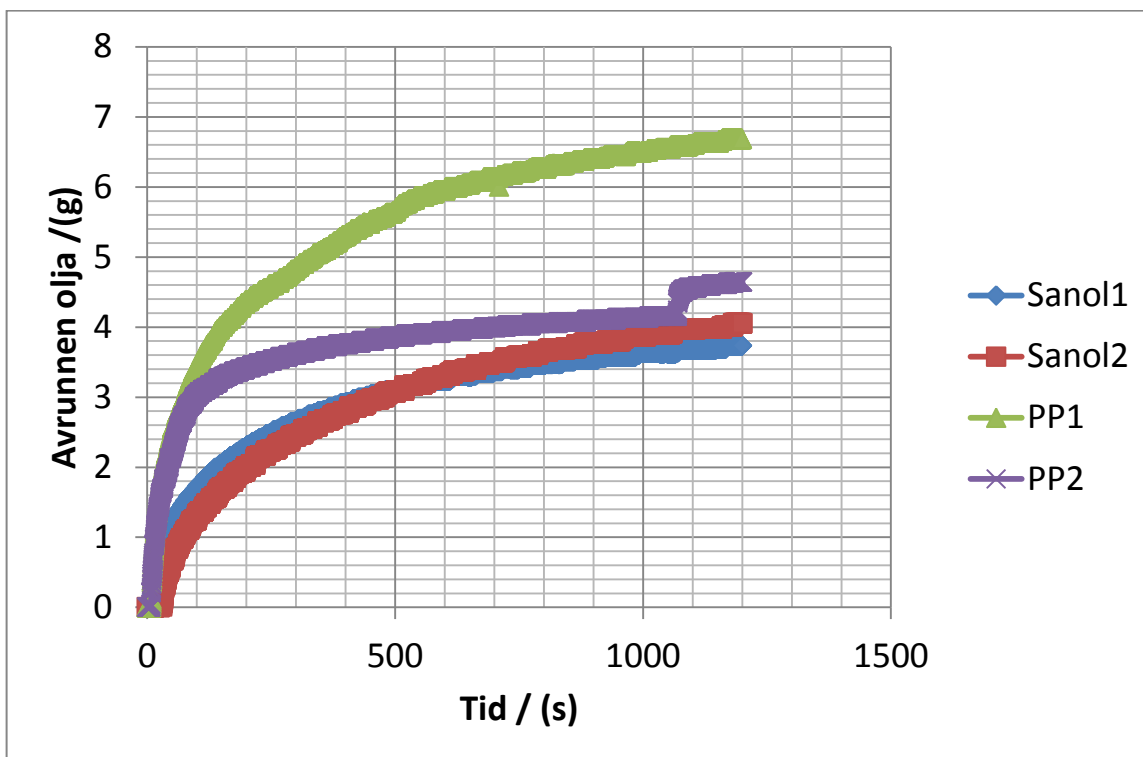


Figure 3. Drainage from the pouches.

After 20 minutes the measurements were stopped and the weight of the pouches was measured, figure 4. It was observed that the amount of oil remaining in the absorption material was more than twice as much for the foamed polymer compared to the PP-fibres, 31-36 g oil per g absorption material compared with 13-14 g.

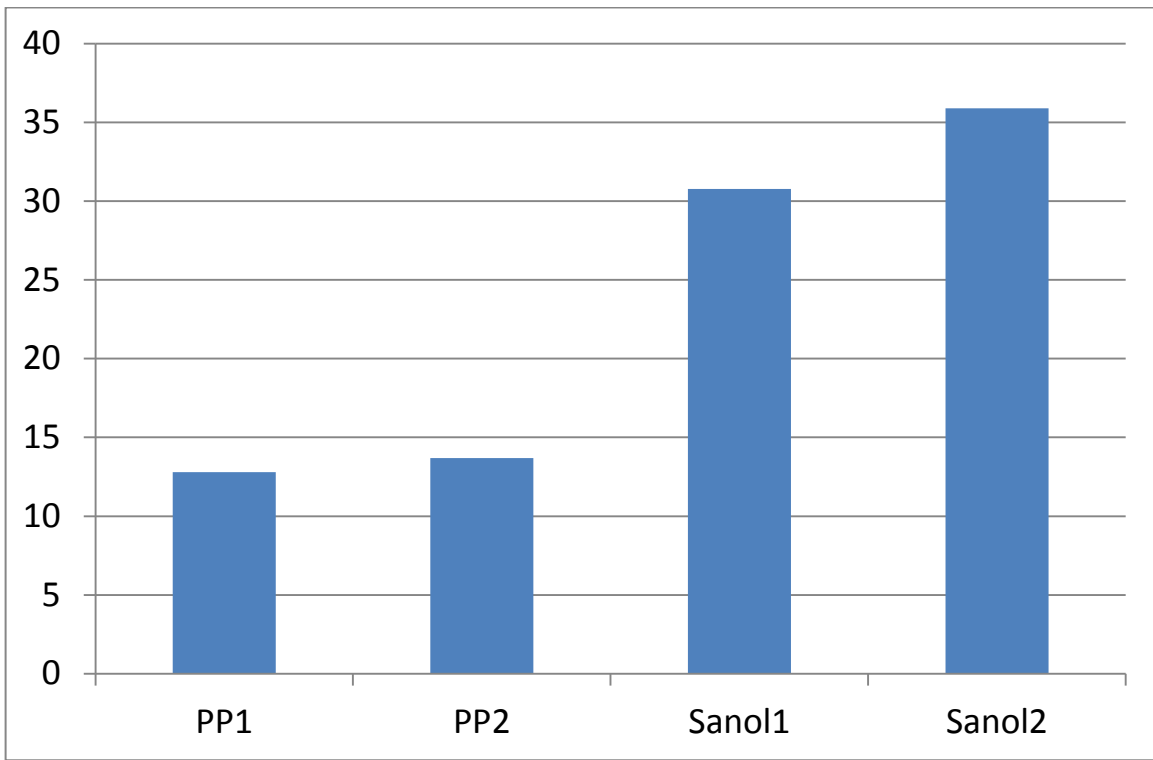


Figure 4. Gram of oil per gram of absorption material after 20 minutes.