

Absorbency of oil-only socks and pillows

Gravimetric determination in diesel · in-house testing

SPECIMENS

n = 10

1 – PURPOSE AND STATUS

To record the absorbency of our production material under one repeatable procedure, and to state plainly how that procedure differs from published standards.

This is **in-house testing by the manufacturer**, not an accredited laboratory report. It is issued so that a buyer can reproduce it. Independent verification is scheduled and will supersede this revision.

2 – METHOD

Basis	Own procedure, following the principles of ASTM F726-17(2024)
Fluid	Automotive diesel, density taken as 0.84 kg/L
Conditioning	Ambient, approx. 20 °C
Procedure	Weigh dry · immerse fully 15 min · suspend and free-drain 2 min · reweigh. Capacity = (wet – dry) / dry.
Replicates	One specimen per configuration. Replicate testing at n = 3 outstanding.
Tested by	Production personnel at the mill, Ukraine
Dates	5, 6 and 12 August 2026
Batch	<from first production run>

3 – RESULTS, ABSORBENT SOCKS

FILL	DRY	RETAINED	G/G	L/KG	LITRES
100% MB	225 g	2 145 g	9.5	11.3	2.55
100% MB	268 g	2 652 g	9.9	11.8	3.16
100% MB	320 g	3 080 g	9.6	11.5	3.67
100% MB	460 g	3 441 g	7.5	8.9	4.10
50/50 MB+SB	321 g	2 979 g	9.3	11.0	3.55
70/30 MB+SB	320 g*	2 980 g	9.3	11.1	3.55
50/50 MB+HF	320 g*	2 381 g	7.4	8.9	2.83

Retained = net mass of fluid held after draining. MB meltblown PP · SB spunbond PP offcuts · HF hollowfibre. * dry mass reported as nominal by the mill, to be re-recorded.

PHOTOGRAPHIC RECORD

PHOTO 01 – SPECIMEN, DRY	PHOTO 02 – AFTER 2 MIN DRAIN	PHOTO 03 – BUOYANCY IN WATER
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PREPARED BY <NAME, POSITION>

4 – RESULTS, ABSORBENT PILLOWS

SIZE, MM	DRY	RETAINED	G/G	L/KG	LITRES
250 × 200	210 g	2 583 g	12.3	14.6	3.08
250 × 200	260 g	2 990 g	11.5	13.7	3.56
500 × 400	310 g	3 286 g	10.6	12.6	3.91

All pillow specimens 100% meltblown polypropylene.

5 – WATER BEHAVIOUR

A finished sock was placed in water and observed. It floated on the surface and released no water when lifted. This is a **qualitative observation confirming oil-selective behaviour**, not a gravimetric water pick-up measurement; the latter is outstanding. Reported 6 August 2026.

6 – FILL DENSITY GOVERNS CAPACITY PER GRAM

The 460 g specimen holds **more litres and less per gram** than the 320 g specimen — 4.10 L at 7.5 g/g against 3.67 L at 9.6 g/g. Added fill brings material while removing the void volume between fibres, and it is the voids that retain fluid.

A heavier sock is therefore not proportionally better. At 44% more fill the 460 g specimen returns only 12% more fluid, and the saturated piece is heavier to lift and costs more to dispose of by mass. We supply 320 g as standard for this reason.

How this differs from published standards. ASTM F726 measures recovery of oil from a water surface in a defined cell, not immersion in neat fluid. BS 7959-1 — which specified UK sorbency testing in L/kg — was withdrawn by BSI on 5 March 2024 and used a 30-second drain rather than two minutes. A longer drain gives a **lower** figure. We report the lower one and name the method, rather than quote a standard we did not follow.

Values are single measurements on production material unless stated otherwise. They are typical, not guaranteed minima; guaranteed minima are given in TDS-01 and TDS-02.

Findings and outstanding work

What the measurements show, and what has not yet been measured

7 – FILL COMPOSITION

FILL	G/G	VS 100% MB
100% meltblown, 320 g	9.6	reference
70/30 meltblown + spunbond	9.3	–3%
50/50 meltblown + spunbond	9.3	–3%
50/50 meltblown + hollowfibre	7.4	–23%

Replacing half the meltblown with spunbond offcuts costs about 3% of capacity — within the spread of the measurements themselves. Replacing it with hollowfibre costs 23% and was rejected. The 50/50 meltblown–spunbond blend is therefore the production fill.

8 – CONCLUSIONS

- 01 Production socks at 320 g fill retain **9.3 g/g** — 11.0 L/kg, 3.55 L per piece — after a two-minute drain.
- 02 Pillows retain **10.6 to 12.3 g/g**, higher per gram than socks, because the fill is not held under tension in a sleeve.
- 03 The material is **oil-selective**: it floats and takes up no measurable water.
- 04 Increasing fill mass raises litres per piece and lowers capacity per gram. Specify by **litres required**, not by weight of sorbent.

9 – OUTSTANDING WORK

Replicates	n = 3 per configuration, reported with mean and range
Additional fluids	Hydraulic oil, engine oil 15W-40, and deionised water for a measured zero
Independent testing	Third-party laboratory verification of the production fill
Batch traceability	Batch number recorded against each test from the first production run
Compression trial	Effect of vacuum compression on recovered loft after storage and re-expansion

Each will be added to this report as it completes. A buyer who needs a particular fluid tested before committing should ask — we would rather run it than estimate it.

On catalogue figures. Capacity measured immediately on lifting a product from the fluid, before it stops dripping, is substantially higher than capacity measured after a defined drain. Both are legitimate numbers; they are not comparable with each other. When comparing suppliers, ask which is quoted and over what drain period.

ISSUED BY

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This report records our own measurements and is issued in good faith. It is not an accredited test certificate. Values are typical and do not constitute a warranty. Suitability for a particular application is the responsibility of the user.