HYPHAE

grown not made

Structural materials grown from fungal mycelium. Material book, second edition.



Ganoderma lucidum

We do not make a leather substitute.

Every grown material of the last decade has been sold as an apology for something else — nearly leather, almost leather, leather without the cow. Each one asks to be judged against a material it can never quite equal.

HYPHAE is engineered for structure. It does what mycelium is good at, and it looks like what it is.

Ganoderma lucidum

a material **with grain**

Mycelium grows directionally. Left alone it produces an anisotropic mat — strong along the growth axis, compliant across it. Every competitor treats that as a defect to be pressed out. We treat it as the point.

Trametes versicolor

How it is made.

01

INOCULATE

A selected strain is introduced to a substrate of agricultural waste.

02

GROW

Nine to fourteen days in the dark, humidity held, growth axis directed by the mould.

03

ARREST

Heat halts growth. Nothing living leaves the facility.

04

FINISH

Pressed, tanned with plant material, and cut. No plastic topcoat, ever.

Fourteen days from substrate to sheet. No tanning yard, no chrome, no runoff.

Pleurotus ostreatus

I

Properties.

Measured on 3 mm sheet, conditioned at 23 °C and 50% RH.

Ganoderma lucidum

TENSILE STRENGTH

42

MPa along grain

Across grain the figure is 11 MPa. The ratio is the material's defining property, and we publish both numbers together, always.

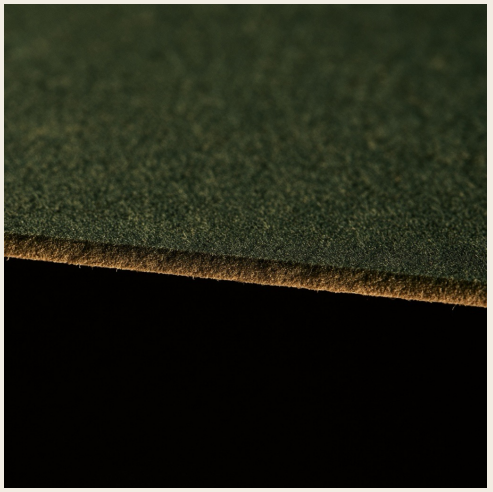


fig. 1 — surface, unfinished

Pleurotus ostreatus

WATER

4.2

% uptake, 24 h

Untreated. A plant-wax finish takes this below 1%, at some cost to breathability — we will tell you which you are choosing.

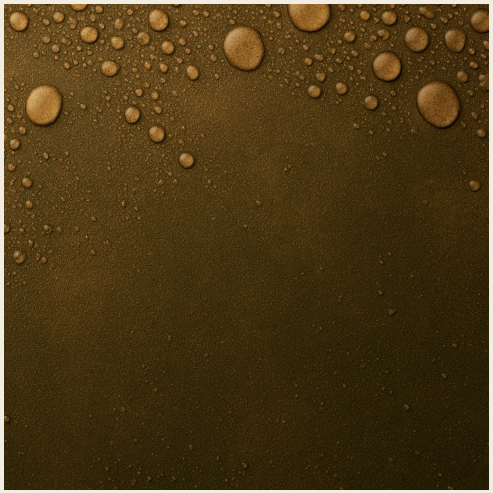


fig. 3 — surface, unfinished

Ganoderma lucidum

END OF LIFE

11

weeks to compost

Industrial composting, 3 mm sheet, unfinished. Waxed material takes considerably longer and we do not round that down.



fig. 4 — surface, unfinished

Trametes versicolor

Full specification.

PROPERTY	VALUE	NOTE
Thickness	1.5 / 3.0 / 5.0 mm	*±0.2 mm*
Sheet size	1200 × 900 mm	*Larger by arrangement*
Tensile, along grain	42 MPa	*ISO 527*
Tensile, across grain	11 MPa	*ISO 527*
Density	310 kg/m³	*Conditioned*
Flex endurance	> 40,000 cycles	*No visible cracking*

Hypholoma fasciculare

II

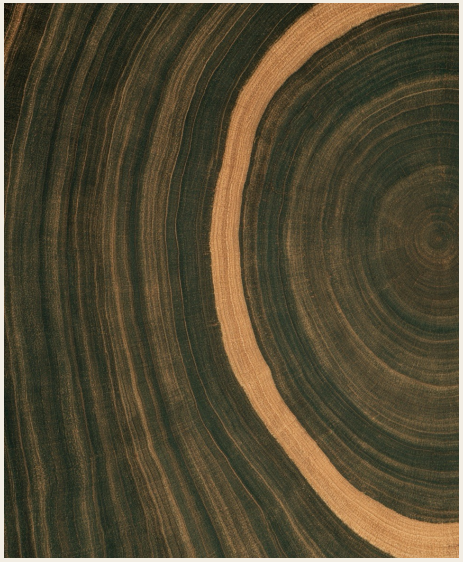
Species.

Four strains in production. Each behaves differently and we do not blend them.

Trametes versicolor

TURKEY TAIL

Banded and irregular. Every sheet is visibly not the last one, which some clients want and some cannot accept.

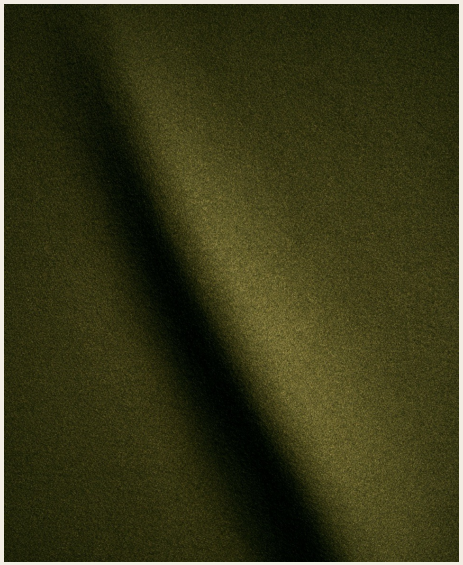


strain 02 — in production

Pleurotus ostreatus

OYSTER

Fast, pale, the most compliant of the four.
Upholstery and soft goods.



strain 03 — in production

Ganoderma lucidum

III

Application.

Where the anisotropy is an advantage rather than a quirk.

Pleurotus ostreatus

Furniture

Seat backs and shells, where the grain runs with the load and the density saving is worth real money in shipping.



Pleurotus ostreatus

Soft goods

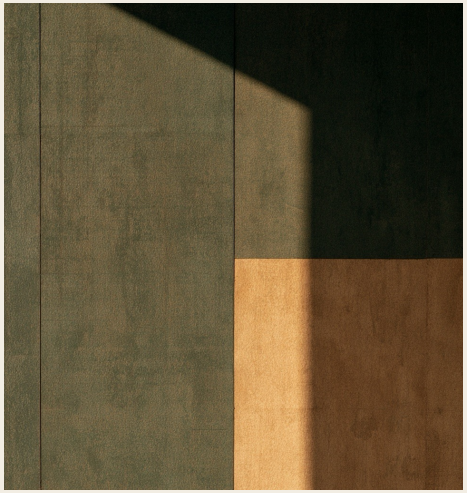
Bags and cases. The oyster strain takes a fold without a crease line and does not shine with wear.



Pleurotus ostreatus

Interior surface

Wall and ceiling panels. Acoustically useful, and the only application where we recommend leaving it entirely unfinished.



Fomes fomentarius

What it will not do.

It is not waterproof

Untreated it takes on water. Wax helps and does not solve it.

It is not consistent

Batch variation is visible. If your QC rejects on colour match, stop here.

It is not cheap yet

We are roughly 1.8× calf at equivalent thickness.
That gap closes with volume, slowly.

It is not fast

Fourteen days of growth cannot be compressed. Plan the lead time in.

Ganoderma lucidum

Against what you use now.

PROPERTY	HYPHAE	CALF	PU
Density	310 kg/m³	860	1100
Water uptake, 24 h	4.2%	12%	0.3%
Compostable	yes	no	no
Batch consistency	low	medium	high
Cost index	1.8	1.0	0.4

We publish the two rows where we lose. A material book that only shows wins is a brochure.

Trametes versicolor

IV

Working together.

Lead times, minimums, and what we need from your team.

Pleurotus ostreatus

Lead time and minimums.

ORDER	LEAD TIME	MINIMUM
Sample pack, four strains	10 days	No minimum
Development quantity	6 weeks	20 m²
Production, standard	11 weeks	400 m²
Production, custom strain	20 weeks	1,200 m²

Growth is fourteen days of that. The rest is finishing, conditioning and freight.

Ganoderma lucidum

Finishes.



UNFINISHED



PLANT WAX



PRESSED



DYED, IRON

Colour comes from the strain and the iron, never from pigment. The range is narrow on purpose.

grown **not** **made**

HYPHAE — material book, second edition.



HYPHAE is a fictional company invented for the purpose of demonstrating presentation design. Every property, figure, lead time and price in this book is invented. The species named are real fungi; nothing claimed about their material behaviour should be relied on.