
GROUNDED

THE UK PRODUCES

500,000

TONNES OF WASTE COFFEE GROUNDS PER YEAR

THIS CONTRIBUTES TO

1.8 MILLION

TONNES OF CARBON EMISSIONS

"GROUNDED" EXPLORES THE ABILITY TO MAKE A

BIODEGRADABLE

COMPOSITE USING COFFEE GROUNDS AND ORANGE PEELS, TO CREATE ARTISANAL GOODS

SPENT COFFEE GROUNDS ARE AN IDEAL BASE FOR THE MATERIAL AS THEY ARE READILY AVAILABLE AND EASY TO PROCESS, WHILST RE-PURPOSING

COFFEE GROUNDS

PREVENTS THEM FROM, BEING DISCARDED INTO LANDFILL AND CONTRIBUTING TO CARBON EMISSIONS.

I CREATED

SAMPLES

TO HELP REFINE A FINAL
MATERIAL RECIPE







SAMPLES CRACK

SO MOVING FORWARD I ADJUSTED THE RATIO FOR BINDER

INCONSISTENT RESULTS







MEAN THAT MOVING FORWARD I WILL PRODUCE MULTIPLE SAMPLES FOR EACH RECIPE TO ENSURE THAT RECIPES ARE ABLE TO PRODUCE CONSISTENT RESULTS







FINAL RECIPE

HAVING CREATED MY OWN MATERIAL RECIPE, THE NEXT STEP IS TO TEST THE MATERIAL'S PROPERTIES AND APPLICATION

TESTING

SANDING

THE MATERIAL

AFTER

BEFORE

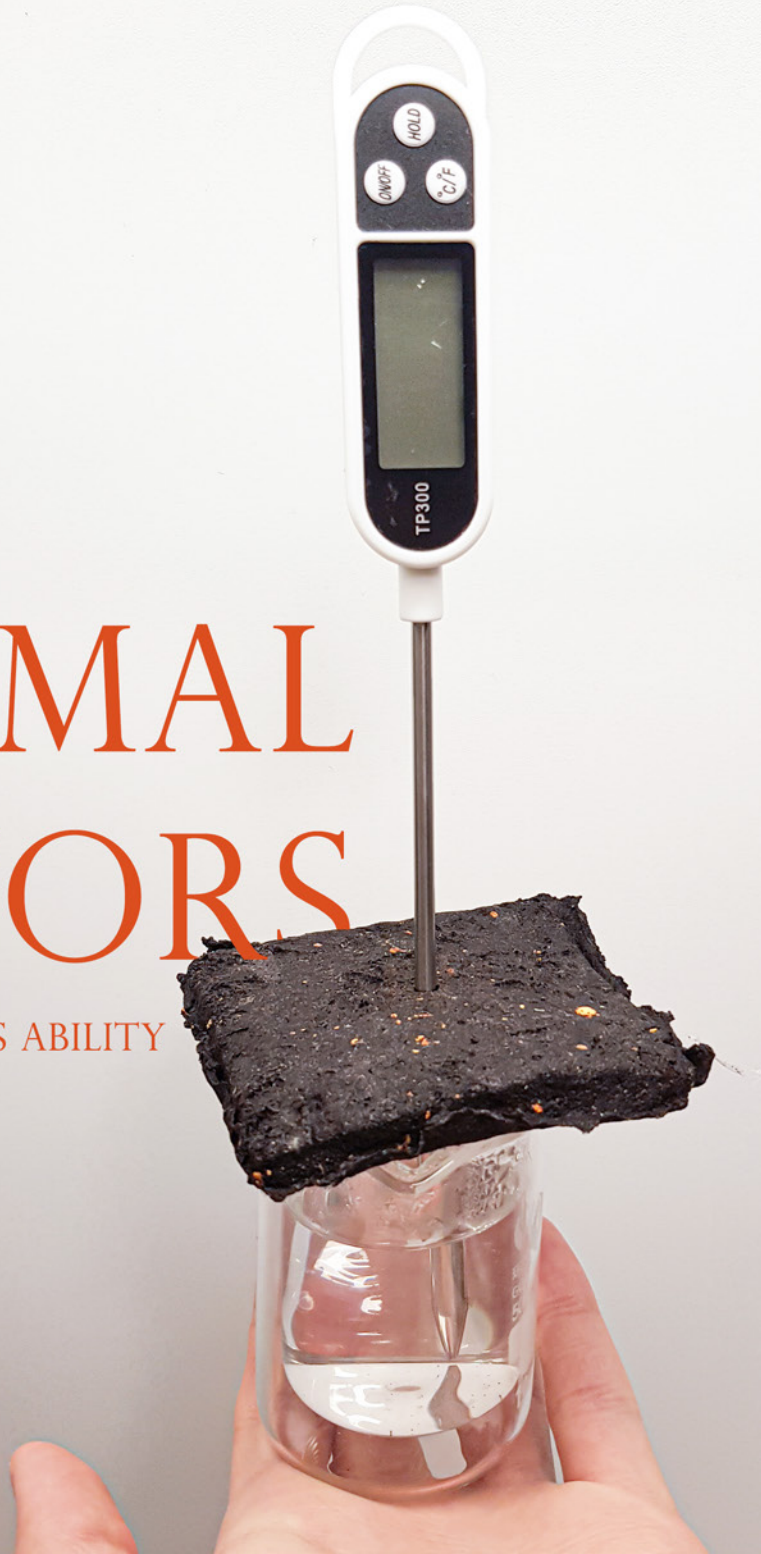
THE MATERIAL IS STRONG
AND RIDGED, MEANING IT
CAN WITHSTAND BEING

CUT & DRILLED

INSULATION TESTS SHOWED THAT THINNER SAMPLES WERE BETTER

THERMAL CONDUCTORS

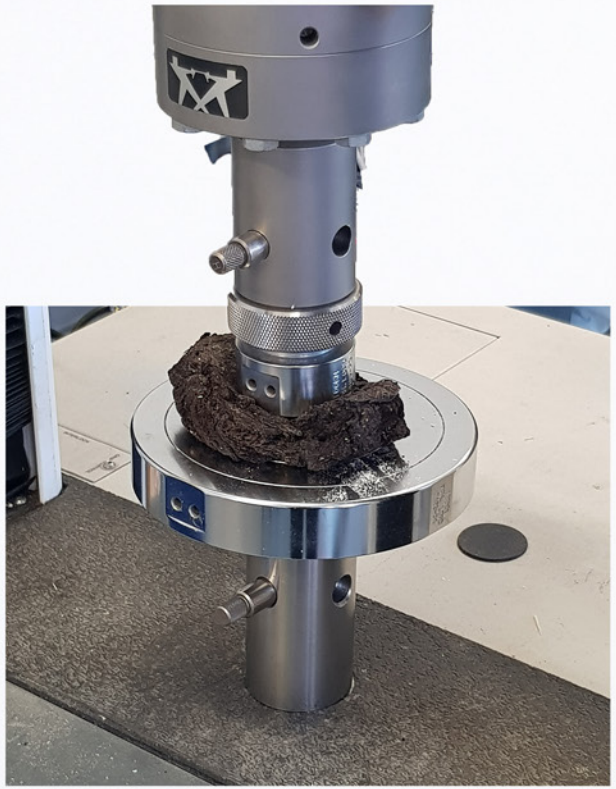
ORANGE SPECKLES DID NOT IMPACT THE MATERIAL'S ABILITY TO RETAIN HEAT



COMPRESSION TESTS SHOWED THAT THE MATERIAL HAS A

COMPRESSIVE STRENGTH

OF 1.3 MPA



THE MATERIAL HAS A COMPRESSIVE STRENGTH OF 3.44 MPA
WHEN ORANGE PEELS ARE REMOVED FROM THE RECIPE

TENSILE STRENGTH TESTS SHOWED THAT THE MATERIAL HAS A

TENSILE STRENGTH

OF 279 N

THIS VESSEL WAS FORMED BY MOULDING SHEETS AND

JOINING

THEM TOGETHER USING THE MATERIAL AS AN

ADHESIVE

WHEN PROCESSING,
THE
MATERIAL IS MALLEABLE
AND CAN BE

PRESS

MOULDED

TO ACHIEVE ITS DESIRED FORM. THE MATERIAL IS THEN
CUT AND SANDED TO FURTHER REFINE ITS FORM,
BEFORE BEING FINISHED IN A COAT OF SHELLAC

WHEN PRESS MOULDED,
THE MATERIAL RETAINS

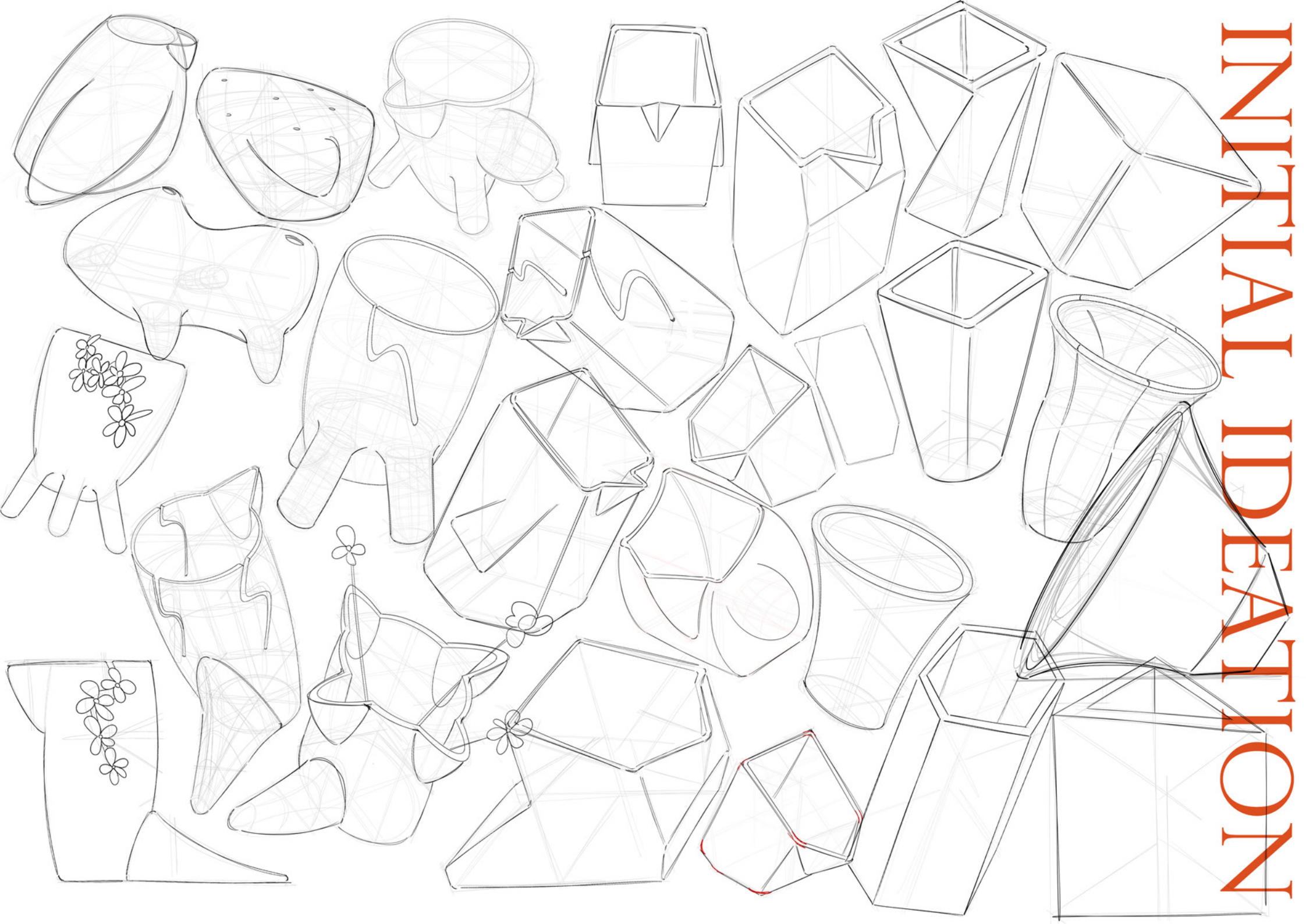
TEXTURE

INSPIRATION BOARD

SPECKLES

TEXTURE

INITIAL IDEATION



SKETCH MODELLING

THESE FORMS ARE TOO THIN AND COMPLEX FOR THE MATERIAL TO BE MOULDED INTO, MOVING FORWARD I GENERATED SIMPLER FORMS

I DECIDED TO MOULD MY MATERIAL INTO

SIMPLE

FORMS SUCH AS TRIANGLES AND RECTANGLES, AS
THESE FORMS ARE FEASIBLE AND REALISTIC

THE

PROCESS

INCLUDES PRESS MOULDING FORMS,
BEFORE REFINING THE VESSEL BY CUTTING
AND SANDING EXCESS MATERIAL AWAY


WHEN SANDED THE MATERIAL HAS A
SPECKLED
SURFACE

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