AlgaeShape

Workbook

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Final bachelor project 2020
Crafting Everyday Soft Things

TU/e

Project name	Natural dyes & patterns	Photo
Project description		
Stage	[X] *Open ended* [ ] *Ideation* [ ] *Development* [ ] *Implementation*	
Part name		
Changed by	**Date** 19/2/'20	
Keywords	Watercolour paint, cotton	

Highlights

What should I remember about this? Watercolour pigments will attach to the cotton and not directly rinse out

Journey

Setup

Goal	*What am I interested in exploring now?* Can wc paint be used to dye cotton.
Process & approach	*How do I want to explore?* Creating different samples and test them differently

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?*
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	-
Machine setup	-
Machine settings	-
Material(s)	-

Reflection in action & Documentation of Digital Craftmanship

Software

Attributes	-

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?*
Properties	*What is it like?*
Behavior	*What can it do?*
Technique	*How was it made?*

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

Watercolour paints 19/2/'20

Method:
Apply paint with wet paint brush and add more water if needed
Paints used: see samples

Wv #:

#1: Paint applied on dry cotton and more water on the right of each colour.
No vinegar
Cotton attached to wc paper
Bled quite a lot

#2: Paint on dry cotton
No vinegar
Cotton attached ← Dried with hair dryer
Rinsed ~~first~~ in cold water

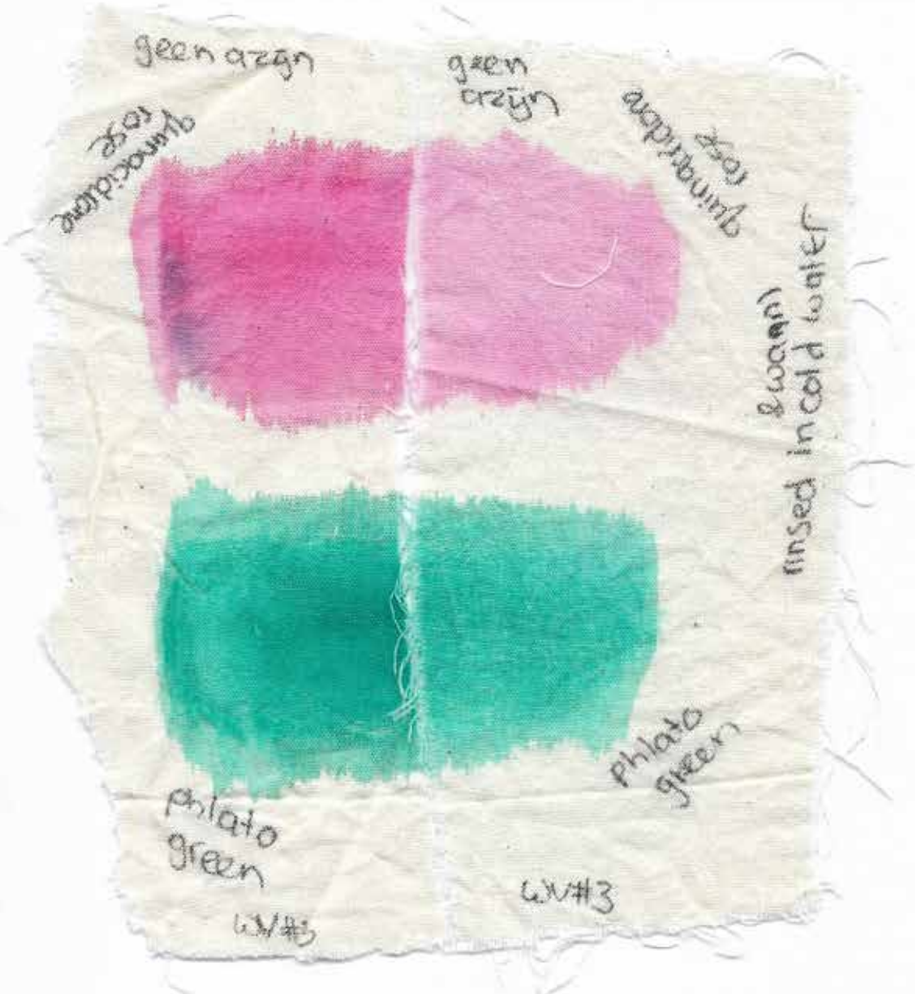
#3: Paint on dry cotton
No vinegar
Cotton attached
Cut in half and dried with hair dryer
One part rinsed in first cold water, next warm

#4: Cotton completely wet
Paints: ultramarine, quinacridone rose, phtalo green, turquoise green
Bled a lot
no vinegar

#5: Paint on dry cotton
Vinegar
Seemed to need more water to apply paint

#6: Paint on dry cotton
No vinegar
Glue applied before paint and dried ~2 hours

#7: Paint on dry cotton
Vinegar
Cut in half and dried with hairdryer
One half rinsed in cold and next warm water


green azgn
green azgn
quinacridone rose
quinacridone rose
rinsed in cold water
phlato green
phlato green
wv#3
wv#3


rose
Ph. green
Azquiz
pgrey
pgrey
wv#4
wv#4
rose
Pl.green
rinsed in cold→warm water


Turkcoise green
Indigo
Quinacridone rose
Burnt umber
Intense blue
Hooker green deep
Phlato green
Cadmium yellow
no vinegar
rose
Indigo
wv#4
Azgnband
wv#5

Project name	Natural dyes & patterns		Photo
Project description			
Stage	☒ *Open ended* ☐ *Ideation* ☐ *Development* ☐ *Implementation*		
Part name			
Changed by		**Date**	19/2/'20
Keywords	Tumeric, cotton		

Highlights

What should I remember about this? No difference at first between vinegar/not + longer soaked → darker colour

Journey

Setup

Goal	*What am I interested in exploring now?* The behaviour of natural dyes
Process & approach	*How do I want to explore?* Paint unbleached cotton with tumeric with adjusting some variables

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?*
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	-
Machine setup	-
Machine settings	-
Material(s)	-

Software

Attributes	-

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Yellow coloured cotton
Properties	*What is it like?* Same as before dyed
Behavior	*What can it do?* -
Technique	*How was it made?* See other paper

Evaluation

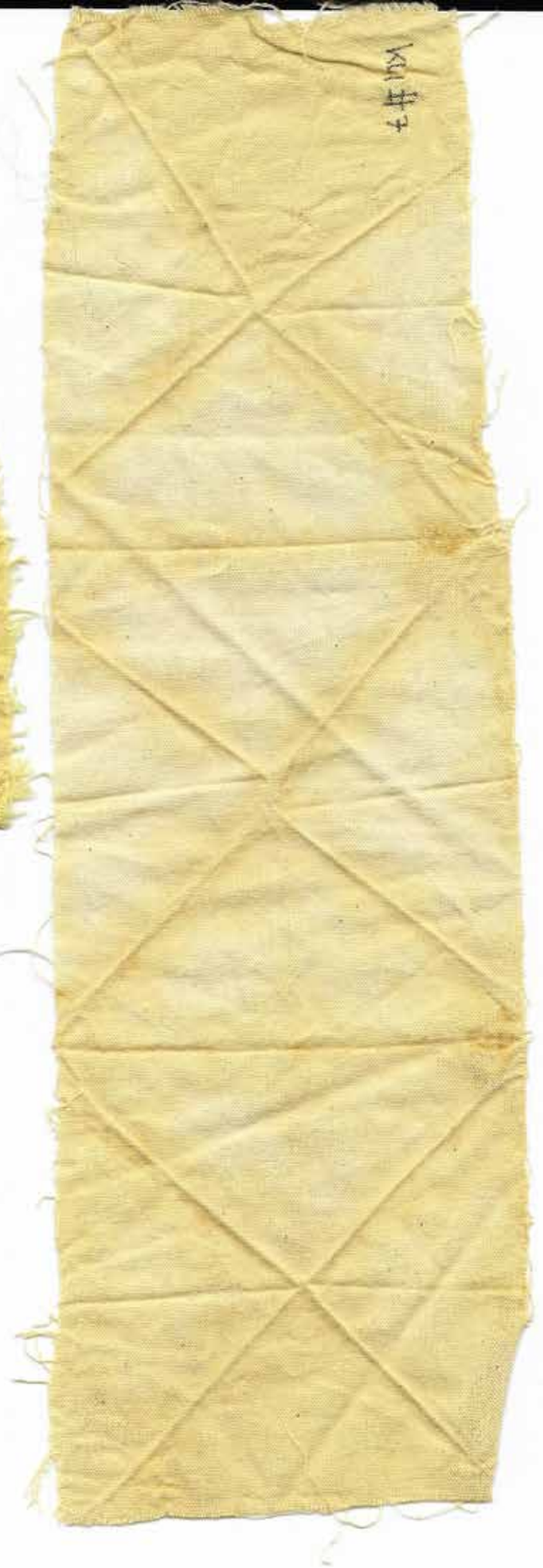
Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes


KU #5


KU #6


KU #7



Tumeric dye natural cotton 19/2/'20

Method :

~2 el tumeric powder on ± 1 liter water
Bring to a boil an add fabric

Ku # → tumeric samples

Boiled in vinegar
1 part vinegar : 4 parts water
Simmer wet fabrics for 1 hour.
Rinse in cold water

↓
if not fabric rinsed in cold water and added wet to the dye

Samples:

#1 : Not boiled in vinegar
Simmered for 30 minutes
Rinsed in cold water

#2 : Boiled in vinegar (see box)
Simmered 30 min
Rinsed in cold water

#3 : Boiled in vinegar
Simmered 30 min + 1 h off heat
Rinsed in cold water

#4 : Not boiled in vinegar
Multi due clear added and dried for 2 hours.
Added to still warm dye → 1 h off heat
Rinsed in cold water

#5 : No vinegar
Folded accordeon and secured with stitches
Simmered 30 min
Rinsed in cold water
Removed stitches before drying

#6 : No vinegr
Folded accordeon + dubbelgevouwen → stitches
Simmered 30 min
Rinsed in cold water
Remove stitches before drying

#7 : No vinegar
Pattern folding →
Simmered 30 min
Rinsed in cold water
Removed stitches before drying

+ mountain fold
— valley fold

Project name	Natural dyes & patterns		Photo
Project description			
Stage	☒ Open ended ☐ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date** 19/2/'20	
Keywords	Red cabbage, cotton, pH, colour changing		

Highlights

What should I remember about this? Colour depends on pH an can be changed afterwards

Journey

Setup

Goal	*What am I interested in exploring now?* Will the pH still influence the colour after dyeing and effect of soaking time for the colour
Process & approach	*How do I want to explore?* Soak multiple samples different times & dip in water+vinegar and water+ baking soda

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* pH of pan has influence. Weak colour if soaked for a short time. perhaps more cabbage. pH can be changed afterwards
Next steps	*What am I making next?* See if you can have both pH<7 & pH>7 in same sample when dyeing for the first time

Technical specifications

Hardware

Machine/equipment	–
Machine setup	–
Machine settings	–
Material(s)	–

Software

Attributes	–

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Coloured cotton & watercolour paper
Properties	*What is it like?* Shades of blue, purple/rose, yellowochre
Behavior	*What can it do?* Change color
Technique	*How was it made?* See added paper

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

Red cabbage

19/2/'20

Method:

1/3 cabbage in preces + ~0,75 l water + 1/2 el salt
Simmer for 25 minutes
For ~~esp~~ watercolor
→ Batch 1 → in overschaal
Let sit for 1 hour
Remove cabbage
→ Batch 2

Watercolour paper samples:

- Batch 1

#1: soaked for 15 min.

#2: soaked for 30 min

#3 - #8: soaked for 19 h

! #4, #5, #6, #7 all were from the same paper sample as #3

#4 : held in satured water with baking soda

#5 : held in water with vinegar

#6 : soaked in saturated water with baking soda

#7 : saturated water with baking soda applied with paint brush

Cotton samples

RK

#1: No vinegar
Batch 1
Soaked ~~in~~ 19 h
Rinsed in cold water

#2: Vinegar
Batch 2
Simmer 30 min
Rinsed in cold water

#3: Vinegar
Batch 2
Simmer 30 min + 19 h off heat
Rinsed in cold water
Cut in samples #3.1, #3.2, #3.3

#3.1 : Same as #3
Dipped in saturated water with baking soda
Rinsed in cold water pH > 7

#3.2: Same as #3
Dipped in water + vinegar pH < 7
Rinsed in cold water
→ blue stains are from contact with #3.1

#3.3: Same as #3
First completely immersed in sat. water with baking soda.
Rinsed in cold water.
Dipped in water + vinegar
Rinsed in cold water

#4 : No vinegar
Batch #2
Simmer 30 min
Rinsed in cold water

#5 : Vinegar
Batch 1
Soaked for 19 h
Rinsed in cold water

#6 : No vinegar
Batch 2 + baking soda
Simmer 30 min → but burnt, all water was evaporated even with a lid
Rinsed in cold water

#7 = #6

#8: No vinegar
Batch 2 + baking soda
Cold soake for 1 hour
Rinsed in cold water

#9 : No vinegar
Batch 2 + vinegar
Cold soake for 1 hour
Rinsed in cold water

15 min

30 min

19h

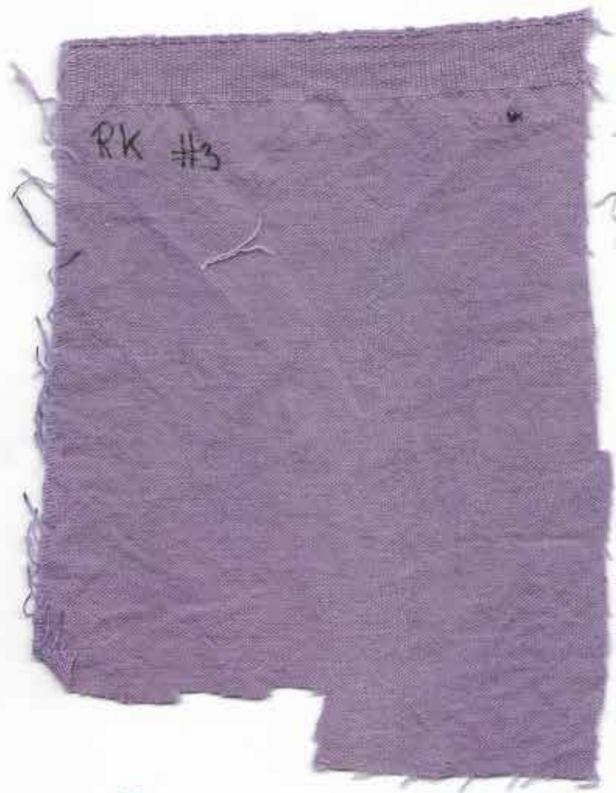
19h
baking soda
ph > 7

19h
vinegar
ph < 7 ?
blue so ph > 7

19 h
baking soda
p > 7

19h
baking soda "paint"
ph > 7

19h



Project name	Natural dyes
Project description	
Stage	☐ Open ended ☐ Ideation ☐ Developmen
Part name	
Changed by	**Date**
Keywords	Beetroot, dye, (palette dye)

Highlights

What should I remember about this? Beetroot gives a p washes out

Journey

Setup

Goal	*What am I interested in exploring now?* Whether cold beetroot juice could be used as a dye
Process & approach	*How do I want to explore?* By dyeing a sample in left over beetroot juice

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* I only had very little juice, but very concentrated. It still worked but most colour dissapeared when rinsed
Next steps	*What am I making next?* Tests with red cabbage & folding

Technical specifications

Hardware

Machine/equipment	-
Machine setup	-
Machine settings	-
Material(s)	-

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Pink cotton
Properties	*What is it like?* Nice colour and same textural feeling
Behavior	*What can it do?* -
Technique	*How was it made?* Dyed with juice from vacuum beets

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

Project name	Natural dyes & Kaumerg		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	25/5/20
Keywords	Red cabbage, folding, pH, blue, green, purple, pink		

Highlights

What should I remember about this? Extreme pH = extreme colours + folding does not work well for pattern.

Journey

Setup

Goal	*What am I interested in exploring now?* Can I create coloured patterns through different pH-levels.
Process & approach	*How do I want to explore?* Origami in dye + origami in acidic/basic solution + droplets of acidic/basic solution

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* See each sample file
Next steps	*What am I making next?* Woven sample of dyed yarn

Technical specifications

Hardware

Machine/equipment	-
Machine setup	-
Machine settings	-
Material(s)	-

Software

Attributes	-

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Cotton samples
Properties	*What is it like?* -
Behavior	*What can it do?* -
Technique	*How was it made?* -

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?* More cabbage → stronger colour absorbs quick and solution continues to spread on a wet fabric

Notes

Red cabbage #2 26/2/'20

Method

- 366 g red cabbage + 1 tbs salt
- 1,7 L water

Simmer for 1 hour
Rested one hour with cabbage
Cabbage removed
Samples added → not soaked in cold water

Cotton fabric cooked 30 min 16:10 heat turned off
Thread 20 min

Soaked for 20h rinsed in luke warm water
some only 4h

! Too little red cabbage → colours are really "mat" light

Two samples with beewaxs → applied before hand with iron

No vinegar since previous test showed no difference, except hue of colour

Sample ironed on cotton setting with steam.
↓
turned more purple.

Water sprayed on sample with iron → turned green even when ironed

Water ⇒ alkaline (ph>7)
but due to heating the steam is acid/neutral

reference sample

sample # 3 of previous test → hue is more intense while soaked and cooked for a shorter time but with more cabbage compared to water

27/2/'20

~ Background : colour after dye bath red cabbage #2

~ pink : drops of lemon juice (not fresh)

~ greenish : saturated water with soda (baking)

Vinegar with water has a higher pH = more purple than undiluted lemon juice

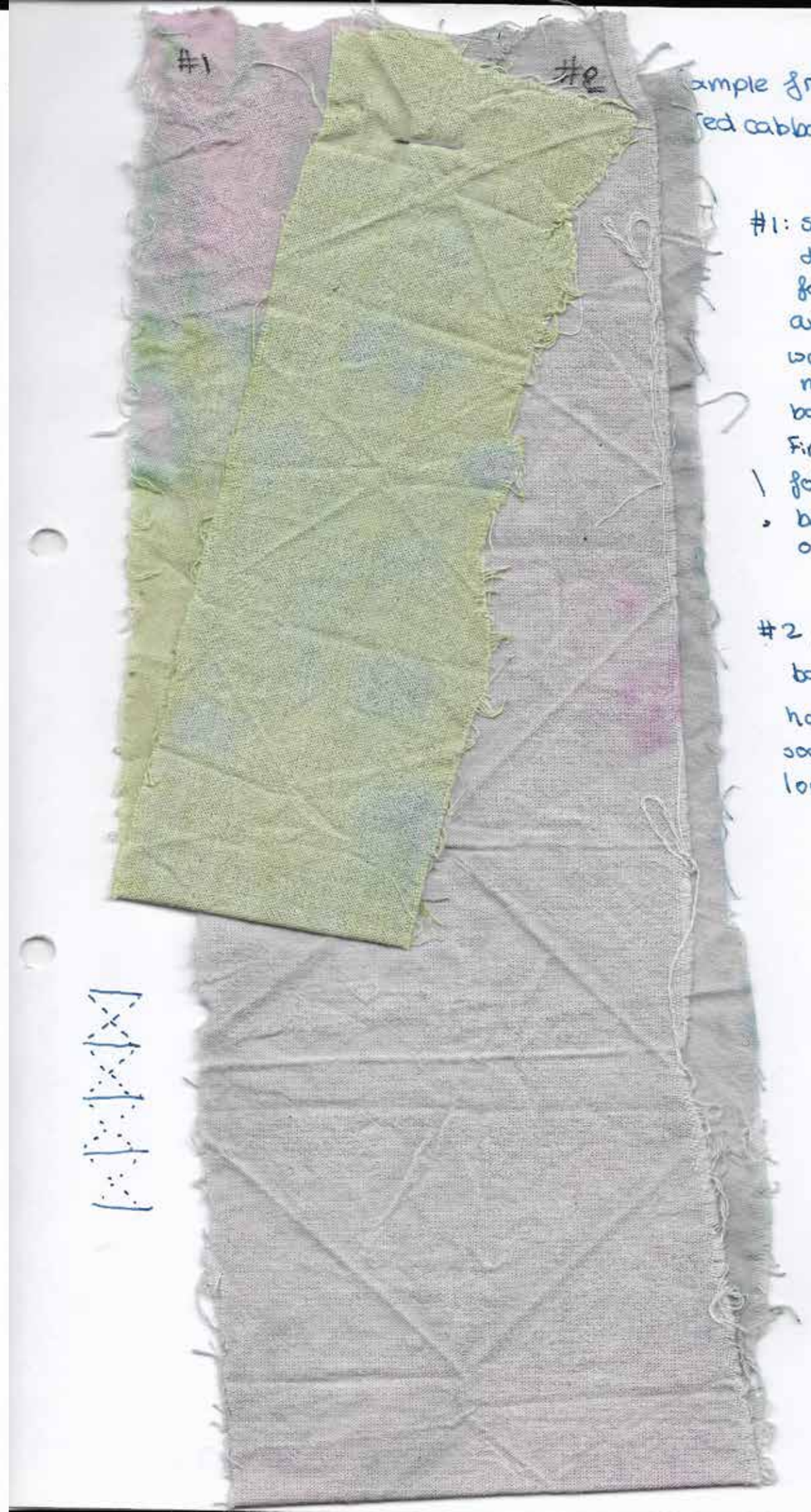
The colour spreads after you apply it and becomes more intense

saturated water with baking soda

The green & ~~citron~~ lemon pink ~~dye~~ are ~~dif~~ way more intense and green resembles tint of previous test ~~(#2)~~ but still lighter see #3.1 from previous test

Vinegar + water

27/21'20



ample from method
red cabbage #2

#1: soaked open in dye. When dry folded in pattern and first dipped in water + vinegar and next in water + baking soda.
First only green on folding edges
, but spread quick on still wet fabric

#2 folded in dye bath. ~~Pattern~~ ⇒ stitched
hardly visible ⇒ soaked for too long (20h) ?

Project name	Natural dyes & Kaumera		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	26/2 ~~3~~1'20
Keywords	beeswax, resit, red cabbage		

Highlights

What should I remember about this? Only use beeswax in cold (or not hot <65°C) water

Journey

Setup

Goal	*What am I interested in exploring now?* The use of beeswax as a natural resist.
Process & approach	*How do I want to explore?* Apply beeswax on samples and dye it with red cabbage

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* In the warm/simmering water the beeswax melted. In cold water stayed in place and worked as a resist but yellow not (yet) removed.
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	–
Machine setup	–
Machine settings	–
Material(s)	–

Software

Attributes	–

Finish & Post-production

–

On the floor

Outcomes

The material/artefact	*What did I make?* Cotton with beeswax
Properties	*What is it like?* #1: hard, greasy #2: partly melted, greasy
Behavior	*What can it do?* Resist ~~pota~~ dyes, fold well. keep food "fresh"
Technique	*How was it made?* With iron, grater, baking parchment apply beeswax. Dye in simmering / cold water

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?* Beeswax can fuction as a (fixed) resist in cold dye

Notes

Method:
see red cabbage #2

Beewax

#1: put in cold dye water soaked 4h
#2: simmered 30 min + soaked 20 h

Wax melts when in warm water → dye can reach it but slightly more purple

In cold water it stays in place → but wax is yellow from nature and not easy to remove

27/2/2020

Project name	Natural dyes & Kamera		
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementati		
Part name			
Changed by		**Date**	5/3/20
Keywords	Weaving, cotton, red cabbage		

Highlights

What should I remember about this? Same properties + beautiful

Journey

Setup

Goal	*What am I interested in exploring now?* ~~Patt~~. Colour changing with a hand woven fabric due to pH
Process & approach	*How do I want to explore?* Dye cotton yarn and use it as weft thread

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* After dyeing different tones. In base water turned green and in vinegar pink/purple. Baking soda had little / no effect.
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Handwoven sample with dyed weft thread
Properties	*What is it like?* Thick but soft & flexibel
Behavior	*What can it do?* Change colour when the pH changes
Technique	*How was it made?* Weaving with undyed cotton thread as warp thread and dyed (red cabbage #2.) weft thread

Evaluation

Process	*How did I experiment with it?* Rinse in water, dip one side in soda and other end in vinegar
Remarks/insights	*What did I learn?* Initial "pattern" dissapears when in a different environment and this cannot be reversed

Notes

After dyeing and weaving

Project name	Natural dyes & Kaumerq		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	1/3/'20
Keywords	Alginaat, turmeric, orange		

Highlights

What should I remember about this? Turmeric turns orange with alginate + becomes easily to thick

Journey

Setup

Goal	*What am I interested in exploring now?* How can alginate be used with natural dyes
Process & approach	*How do I want to explore?* Create a dye with turmeric + alginate and paint with it on cotton

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The alginate makes the colour darker + it lays the dye on and not in the fabric
Next steps	*What am I making next?* Cotton immersed in alginate

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?*
Properties	*What is it like?* Before rinsing "korrelig"
Behavior	*What can it do?* Dye fabric
Technique	*How was it made?* See separate paper

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

#1

2.3

2.2

1.2

2.1

1.3

2.0

1.1

#1

2,5 g turmeric
0,25 L water
10 g alginate
} all dissolved in the warm water and rest for 45 minutes & mixed with spoon

→ very thick gel

→ not everything dissolved

1.1 ~~directly~~ painted with mix from above
1.2 thicker layer
1.3 dilluted with water to make it thinner

#2

→ alginate lumps at the botton

↓

blender might help

or

dissolve alginate in alcohol before adding water

#2

1 g turmeric
125 ml water
5 g alginate
| Dissolve turmeric in the warm water. Leave till room temperature
Paint 2.1
Add alginate, mix with spoon.
Wait ~5 min
Paint 2.2
Wait ~5 min
2.3

Project name	Natural dyes & Kaumera		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	2/3 1'20
Keywords	Alginate, cotton, watercolour paint		

Highlights

What should I remember about this? Cotton with alginate absorbs water quicker.

Journey

Setup

Goal	*What am I interested in exploring now?* Effect of alginate on cotton fabric
Process & approach	*How do I want to explore?* Soak cotton in alginate solution + test with WC paints

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Absorbs more water, spreads a lot. With little water absorbed, it doesn't feel as wet as normal
Next steps	*What am I making next?* ~~Cotton thread soaked in alginate for weaving~~ Dye of WC paint + alginate

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Cotton with alginate
Properties	*What is it like?* It feels stiffer's
Behavior	*What can it do?* Absorbs water
Technique	*How was it made?* See other sheet of paper

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?* Absorbs water quicker

Notes

Alginate when left overnight

ALGINATE COTTON

2/3/20

1 cup warm (58°C) water

3 g alginate

Stir + shake, still alginate powder on bottom

Cotton fabric & thread added.

Stir frequently

Soak for 15 minutes

Dry on a paper towel, do not rinse!

~~At the same time soak a 2nd piece of fabric in water of ~same temperature and let it dry at the same time as the alginate sample.~~

Observations

- feels stiffer, starchy in comparison to before
- When water is applied to the fabric, it absorbs it much faster than regular cotton (lays on top) → see photo on other side
- Feels not wet when water is applied in a small quantity
- Watercolour paint spread a lot when applied
- Same amount of wc paint ~~cots~~ dyes a bigger area, but less intense

cotton with alginate

↳ untreated cotton

Project name	Natural dyes & Kaumeroa		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	2/3/'20
Keywords			

Highlights

What should I remember about this? Too much alginate + wc paint will make it crack

Journey

Setup

Goal	*What am I interested in exploring now?* Do you need less pigment when using alginate & wc
Process & approach	*How do I want to explore?* Add ½ tsp to water with some watercolour pigments ↳ each time, tilla gel forms

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Colours do intensify a bit, When it is a gel it will crack
Next steps	*What am I making next?* Alginate fibers or cotton fiber with alginate

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Dye with wc pigments & alginate
Properties	*What is it like?* Pink and with a layer on the fabric → can be peeled of
Behavior	*What can it do?* -
Technique	*How was it made?* -

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?* The gel cracks when to thick

Notes

Why does it cracks with a wc pigment but not with turmeric. While turmeric gel was even thicker.
↳ binders in the watercolour pigment that might react?

ALGINATE WATERCOLOUR PAINT

2/3/'20

Watercolour paint dissolved in 1cm of water in peanut butter jar. Adding ½ tsp each time. Mixing with paint brush and sampling. IF two samples, first directly applied and second after the paint stood for around 5-10 minutes, ~~etc~~

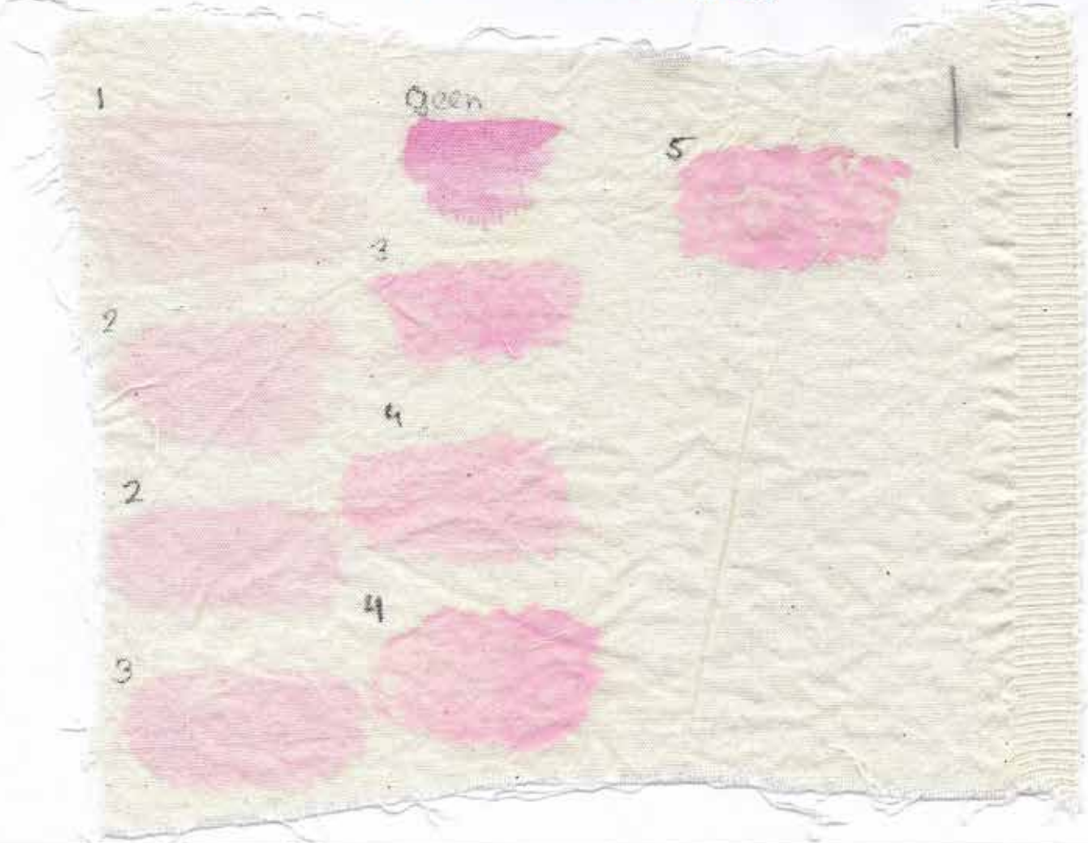
1 = ½ tsp
2 = 2 · ½ tsp
3 = 3 · ½ tsp, etc.

After 2 tsp / 2,5 tsp it became a thick gel

Sample rinsed in cold water when completely dry

Observations

- paint water becomes less translucent.
- need a lot of alginate before it becomes a gel
- mixing with nr. 10 paint brush works well
- when more a gel, it stays on top of the fabric
- when it is a thick gel it will rest on the fabric and cracks (see back ↳ partly ~~it~~)
- when rinsed a layer dissapeared, colours did not fade



Amount of watercolour water + ½ tsp

The gel that formed after 2 tsp

Project name	Natural dyes & Kaumera
Project description	
Stage	☐ Open ended ☒ Ideation ☐ Development ☐
Part name	
Changed by	Date 5/3/
Keywords	Cotton, alginate, Weaving

Highlights

What should I remember about this? Alginate cotton absorbs more water

Journey

Setup

Goal	*What am I interested in exploring now?* If the same properties apply for a yarn as for the earlier tested fabric
Process & approach	*How do I want to explore?* Soak cotton yarn in alginate and use that as the weft + normal warp yarn. Compare with non treated.

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* It absorbs water better
Next steps	*What am I making next?* Use it as warp thread

Technical specifications

Hardware

Machine/equipment	Same alginate solution as the cotton soaked in alginate
Machine setup	
Machine settings	
Material(s)	100 % cotton from durable

Software

Attributes	

Finish & Post-production

Not rinsed

On the floor

Outcomes

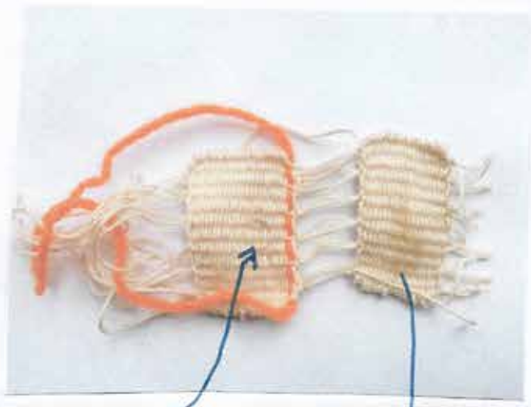
The material/artefact	*What did I make?* Small pieces of handwoven cotton fabric of which one with alginate
Properties	*What is it like?* The one with alginate is less soft, more starchy
Behavior	*What can it do?* Absorb water quick
Technique	*How was it made?* With a handloom

Evaluation

Process	*How did I experiment with it?* Place water droplets on the fabrics.
Remarks/insights	*What did I learn?* still absorbs water better, even with only the weft thread treated.

Notes

The untreated sample is marked with an orange thread



16/3/2020

Alginaat katoen # 2

2½ cup warm water
8 g alginaat
mixen met verfhwast.

#1 n

#3 na 5 min □
10 min △ ○ → 10 in rode kool verf
15 min ○ ↳ waar alginaat is → groener

#1,-2 15 min weken
laten drogen oppapier in zon

1: 10 min in verfbad, uitgespoeld
2: 2 min in verfbad

Alginaat katoen # 2

- lap in alginaat
  zie Alginaat kaben#2
- drogen
- akordeon vouw
  ↳ vast zetten met elastiekjes
- 15 min in verfbad
- drogen in de zon
  ↳ blauw!
- openen
- uitspoelen
  ↳ blauw verdwijnt

! Alginaat → basisch

Alginaat
kaboem #2

- lap geweekt
- drogen
- vouwen en
  met elastiekjes
  vast zetten
  1) aberdeen vouw
  2) driehoekjes
- 10 min in verfbad
- drogen in de
  zon
- openen
- spoelen met
  koud water

Na het drogen
in de zon werd
de stof donker
blauw aan de
buiten kant
maar dit spoelt
eruit

Project name	~~Natural dyes & Kromefa~~ Alginate		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date** 20/3	
Keywords	Alginate, $CaCl_2$, fibers		

Highlights

What should I remember about this? No fibers produced → not enough cohesic/gel → too thick

Journey

Setup

Goal	*What am I interested in exploring now?* How to create fibers from alginate using $CaCl_2(aq)$
Process & approach	*How do I want to explore?* Create different gels with different w/v% alginate (& glycerol) and eject in $CaCl_2$-solution

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The gels became very thick and when in syringe they would not be ejected smoothly → $CaCl_2(aq)$ seemed to have no effect.
Next steps	*What am I making next?* A bioplastic film with a recipe of biofabrication course

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Alginate gel
Properties	*What is it like?* wobbly, no cohesion when stirred
Behavior	*What can it do?* nothing
Technique	*How was it made?* See recipes

Evaluation

Process	*How did I experiment with it?* Bring in contact with $CaCl_2$
Remarks/insights	*What did I learn?* $CaCl_2$ had no effect + gel is too thick

Notes

Alginate fibers

recipe #1

- 1g alginaat 1 w/v %
- 100 mL water → te dun

recipe #2

- 4 g alginaat 4 w/v %
- 100 mL water → te dik

recipe #3

- 10 g alginaat
- 70 g glycerine w/v %
- 100 mL water → te dik

eerst glycerine dan water

1. Roeren
2. uur laten staan
3. Spuiten met dosseerspuit in 10% w/v $CaCl_2$ oplossing

13:50

recipe

- 1 g alginaat 2%
- 24 g glycerine 48%
- 25 g water

blijven roeren om de paar minuten

glycerine
$= 1{,}260\ g/cm^3 = 1{,}260\ g/mL$
$= 1{,}260\ kg/L$

→ result when injected in $CaCl_2(aq)$

Project name	Natural dyes & ~~Kombucha~~ Alginate		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	28/3/2020
Keywords	Alginate, fibers, $CaCl_2$		

Highlights

What should I remember about this? Not 100% alginate of tapwater contains too much calcium?

Journey

Setup

Goal	*What am I interested in exploring now?* Creating a bioplastic according to recipe to test if it works
Process & approach	*How do I want to explore?* Use recipes from fabricademy

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The solution became thick after ½ hour → not pourable while that should be the case
Next steps	*What am I making next?* Researching alginate → testing the different variables (water, alginate)

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Little bits of alginate & alginate "moulds" of the cups
Properties	*What is it like?* Like gelatin pudding → set but wobbly
Behavior	*What can it do?* -
Technique	*How was it made?* See recipes → mixed with paintbrush 1, 2, ✓3, 4

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?* One of my materials is wrong

Notes

Alginate bioplastic recipes 19/3/2020

bron: bio Materials 2020

#1 Flexible thin foil
%w/v = 3,125
12,5 g alginate
30 g glycerine
400 mL water

10% (~~mass~~ volume) sodiumchloride

#2 Flexible ~~thicker~~ thin foil
%w/v = ~~3,04~~
8 g alginate
20 g glycerine
200 mL water

10% sodiumchloride

#3 Flexible bio-plastic → thicker
12 g alginate
%w/v = 6
20 g glycerine
10 g sun flower oil
200 mL water
10% sodium chloride

• Let mixture sit for a few hours to allow all air bubbles to escape

alginate dissolved in 50 wt% glycerol under stirring for 1d at 25°C

Ax:	Alginate wt%	glycerol wt%
A_1	1,25	49,375
A_2	1,50	49,250
A_3	1,75	49,125

Electrospun into 80 wt% ethanol aqueous solution containing 10% wt $CaCl_2$

Test
#1 = recipe 1/4 9:30
#2 = recipe 2/2
#3 = recipe 3/2
#4 = recipe 1/2 without glycerine

Project name	Natural dyes & ~~Kombucha~~ Alginate		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	23/4/2020
Keywords	Alginate, CaCl2, tapwater, distilled water		

Highlights

What should I remember about this?	Panduro alginate powder is probably not 100% sodium alginate + tap

Journey

Setup

Goal	*What am I interested in exploring now?* See if I have 100% sodium alginate and/or if the tapwater contains too much calcium
Process & approach	*How do I want to explore?* Test the alginate powder in distilled water

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The alginate did not dissolve in destilled water and hence did not set.
Next steps	*What am I making next?* Same test with other alginate powder

Technical specifications

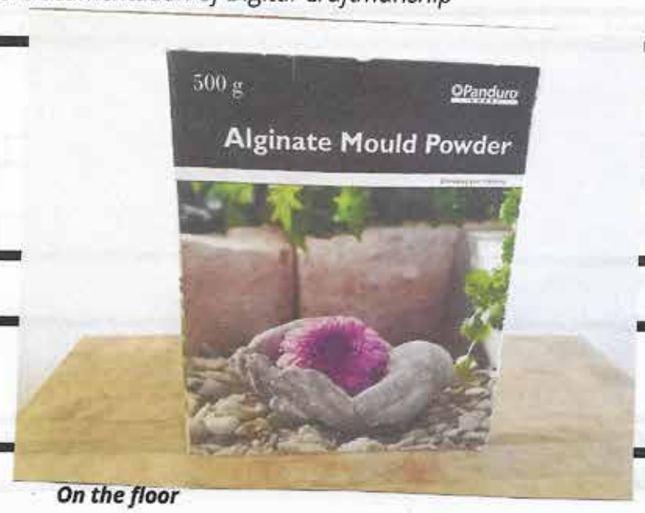
Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production



On the floor

Outcomes

The material/artefact	*What did I make?*
Properties	*What is it like?*
Behavior	*What can it do?*
Technique	*How was it made?*

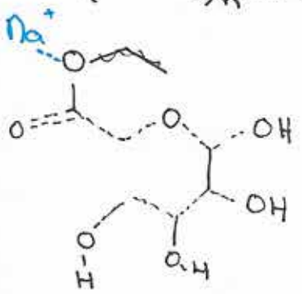
Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

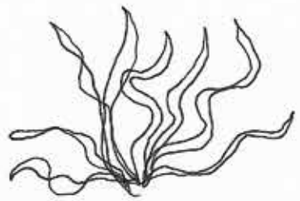
ALGINATE

$(C_6H_8O_6)_n + n\ Na^+$



♡ 💧 → hydrophilic

↳ 3/4 ~~water~~ hydrogen bonds



brown seewead/algae

→ alginic acid gives strength and flexibility to the algal tissue and regulates the water content in the seaweed

Alginic acid + sodium

= alginate

CALCIUM ALGINATE

sodium alginate (aq) + calcium chloride (aq)

↳ becomes a gel

- higher w/v % of alginate → ~~thinner~~ stronger
- higher (10%) w/v % of $CaCl_2$ → thicker gel

Applications

- wound dressings
- moulds
- thickener (E404)
- dyes → screen printing
- bioplastics
- fibers

💧 water proof in neutral or acid water

🌡 ~~heat~~ resistant till 150°C

BIO PLASTICS

Sodium alginate + glycerol + water

↳ flexibility → without brittle

+

10 % calcium chloride (aq)

1) Mix with blender till smooth
2) Let sit for a couple of hours to allow air to escape
3) Prepare surface of molds → spray with $CaCl_2$-solution.
4) Cast the alginate solution without inglobating air. Spread with spatula
5) After a couple of minutes, spray with $CaCl_2$.
6) Once cured, rinse with water

24/3/2020

EXPERIMENTS

- different sort of threads
  - mechanical properties (more/less alginate & glycerine)
  - shapes
  - thickness
  - plied yarn

- colours
  - different natural pigments
    - red cabbage → colour change ?
    - turmeric
      - powder
      - filtered water
    - other pigments
  - 2 or more colours in fiber
    - core ⊙
    - gradients
    - half-half ◑

- processing methods
  - knitting
  - weaving
  - sewing
  - embroidery
  - casting / moulding
  - 3d printing ?

Project name	~~Natural dyes &~~ Alginate		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	25/3/2020
Keywords	Alginate, fibers, bar $CaCl_2$		

Highlights

What should I remember about this? It works both with tap & destilled water

Journey

Setup

Goal	*What am I interested in exploring now?* If this alginate powder works
Process & approach	*How do I want to explore?* Create 2 gels with both tap & destilled water

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* ~~Fibers~~ Fibers set direct but overlay does become thicker with time
Next steps	*What am I making next?* Experiment with knitting

Technical specifications

Hardware

Machine/equipment	-
Machine setup	-
Machine settings	-
Material(s)	-

Software

Attributes	-

Finish & Post-production

-

On the floor

Outcomes

The material/artefact	*What did I make?* Alginate fibers
Properties	*What is it like?* Transparent, to some degree flexible, cold
Behavior	*What can it do?* Be used as a thread
Technique	*How was it made?* See other sheet of paper

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

Alginate fibers 25/3/2020

recipe #1: 10:00

% w/v = #²

- 4 g alginate
- 0 g glycerine
- 200 mL water (tap)

recipe #2:

- 4 g alginate → dunner
- 200 mL destilled water

Mix with blender till smooth
Sit for hours.
Eject with 5 mL syringe in ~~foetje~~
10 % w/v $CaCl_2(aq)$.
Set dry.
Rinse in cold (tap) water

Notes:

- 4 % w/v really thick
- blender (staafmixer) incoorperates lots of air bubbles
- not directly a difference between tap & destilled water

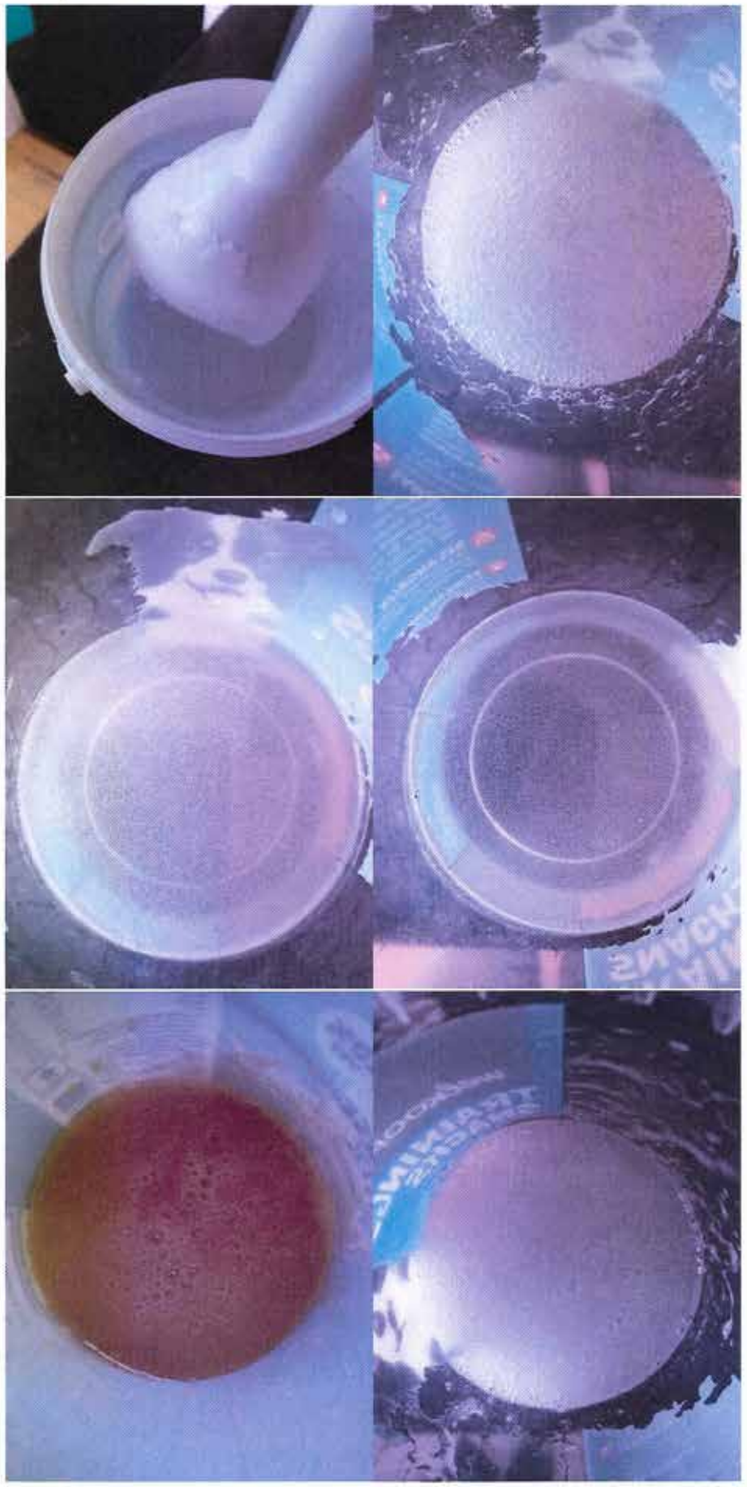
12:00

#1 work both

#2

with turmeric → works less well to create a long thread is difficult

↗ glue like thickness & cosistency



→ directly after mixing with blender

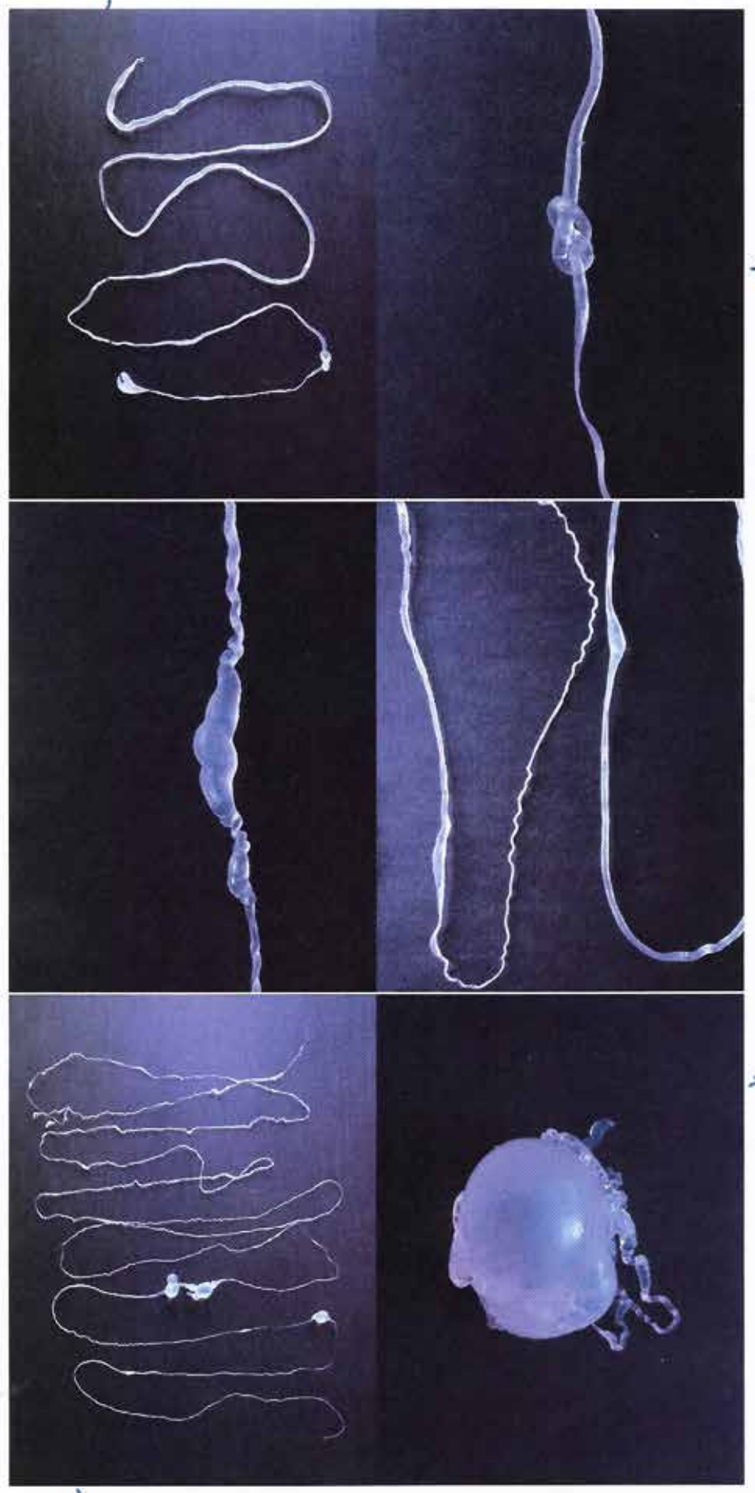
left: after 1h

right: after 2h
↳ used for samples

↓ with turmeric

↳ with glycerol

beginning is always thick



→ flexible

left: espes

right: thinnest part

less flexible

→ gastric bubble (egg size) formed when pouring. not clear why (see other picture)

stayed in $CaCl_2$ solution for ~15 min. and became firmer
↓
gel wand thickness increaser when longer in $CaCl_2$ solution

↓ when pouring from container some "blobs" form (not smooth?) already noticeable when pouring

other side of big bubble

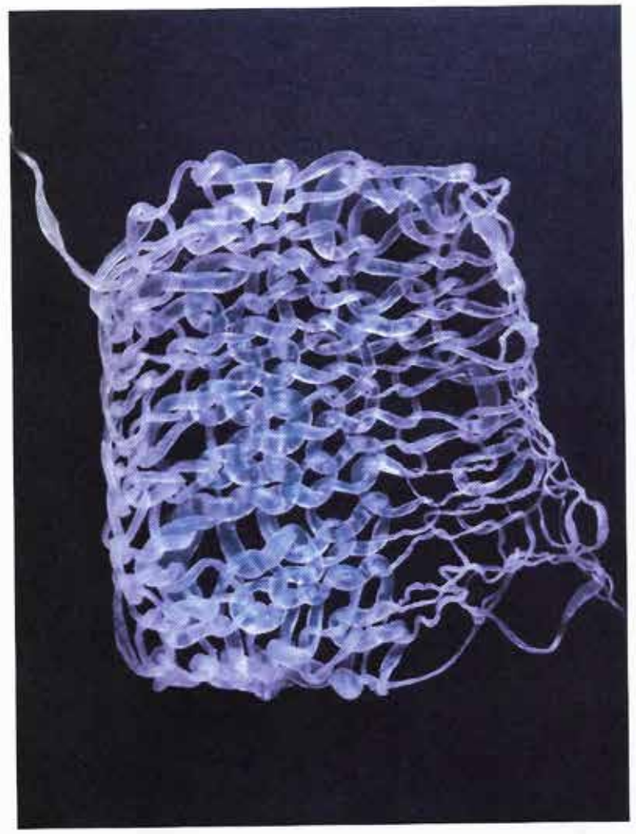
theory: I poured in a lot in one go → created an island of connected threads. New alginate came on top, did not touch the $CaCl_2$ bath it sank and formed the bubble

→ colours not true. more orange.

Alginate mixed with turmeric after sh. became more brittle → not possible to make a long thread with the syringe

↓ the mess of threads when I poured a lot in at once. Still after When pouring it mingled in the solution

↳ intersection of a thicker part. Inner part still "liquid" but outside is set.



knitted with needle 3,5

not really strechable

Strange to knit with:

- different thickness + flexebility
- afraid it would burst open and spill liquid
- thread that is too thick doesnot bend well

Feels really cold (dried outside)

threads with d=2mm feel nicest + knit easier
↳ flexible + soft

really thin part are quite rigid but not brittle

Project name	~~Natural dyes &~~ ~~Kombucha~~ Alginate		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	26/3/'20
Keywords	Alginate fiber, glycerine, $CaCl_2$		

Highlights

What should I remember about this?	~~If the glycerine~~ Perhaps a bit more flexible

Journey

Setup

Goal	*What am I interested in exploring now?* If the glycerine makes it more flexible
Process & approach	*How do I want to explore?* Add glycerine and make fibers

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Bit more flexible & can be straightened by stretching
Next steps	*What am I making next?* Add turmeric too colour the fiber

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

Stretching the fiber after the bath too make it straighter

On the floor

Outcomes

The material/artefact	*What did I make?* Transparent fiber
Properties	*What is it like?* Cold, flexible
Behavior	*What can it do?* Bend
Technique	*How was it made?* Withsyringe

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

WATER

Project name	Natural dyes & ~~Kourmeca~~ Alginate	Photo
Project description		
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation	
Part name		
Changed by	**Date** 26/3/'20	
Keywords	Alginate fibers, turmeric, $CaCl_2$	

Highlights

What should I remember about this? Also 1% w/v alginate works

Journey

Setup

Goal	*What am I interested in exploring now?* Can you colour the fiber with turmeric powder
Process & approach	*How do I want to explore?* Directly blender the turmeric with the alginate powder

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* When making it seemed very thick, but colouring worked well
Next steps	*What am I making next?* Use red cabbage water instead of normal water to make it red/purple/pink

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Orange fiber
Properties	*What is it like?* Light orange with speckles insights
Behavior	*What can it do?* -
Technique	*How was it made?* 1% w/v alginate

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

27/3

2g alginaat
200 ml red cabbage juice/water

11:00

Mix with blender
Leave for ? hours

! Already very thick when mixing
↳ pH ?

Eject with syringe in $CaCl_2$
Spread on flat surface with $CaCl_2$.
Leave to dry overnight
↓
dehydrated, became very hard and brittle + shrunk a lot.

Did not work!

30/3

#1
6 g alginate
10 g glycerine
5 g olijfe oil
100 ml water

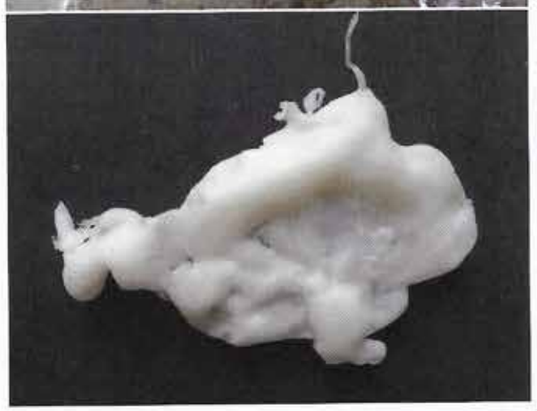
! oil seperates
↳ white

#2
6 g alginate
16 g glycerine
200 ml water

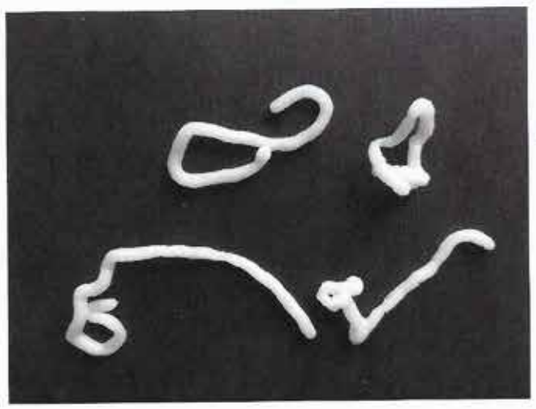
→ transparent
+ turmeric → yellow

Cover baking sheet with plastic foil and spray $CaCl_2$ (10%)-solution on it.
With a plastic knife spread the gel as thin as possible →
very hard to get a thin layer
Pour $CaCl_2$ on top, let sit for 1/2 hour.
To get an even thicker coating, soak in $CaCl_2$ solution.
Rinse in cold water
Leave to dry in cold room

- turmeric
  + on top transparant gel



→ with more glycerine +
olive oil
hard to spread
evenly



→ not possible to extract
a long thread

After a few days:
- harder
- less flexible
- more yellowish

3D "printing"

CLOTHES

- shirt
- sweater
- jeans
- trousers
- socks
- underwear
- pyjamas
- jacket
- dress
- shirt

BAGS

- fibers or film
- how strong?
- food bags
- pencil case

STAINED GLASS EFFECT

Raincoat

→ film is waterproof
→ seal seams instead of sewing?
→ change of colour ?
→ does not breath

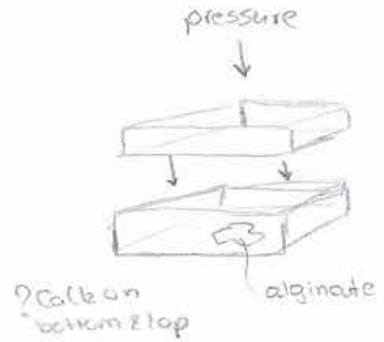
BIO plastic

- coating ?
- bags (food)
- bottles
- containers
- glass
- cases (mobile)
- packaging
- straw
- cutlery
- toys

ALGINATE FILMS

✓ zonder $CaCl_2$

? stick to plastic
↓
cover with $CaCl_2$

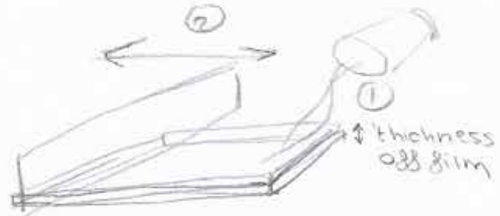


? $CaCl_2$ on bottom & top

X misschien als het dunner is en zonder $CaCl_2$

Icing method
pipe border, fill, shake to egalize

Pipe border
fill by pouring mixture in



Spread by moving scraper

PROPERTIES

FIBERS

- no to little stretch
- cold to touch
- dehydrates
- biodegredable → high pH
- transparant/white or coloured
- different thichnesses
- water resistant
- heat resistant (150°C)

Calcium alginate layer dissolves in very basic (pH>7) water
starts bubbling
Does not directly dissolve

Films

- water resistant
- heat resistant (150°C)
- cold to touch
- biodegradable

COATED COTTON

- To some degree water repellant → but it does penetrate
- when dried → stiff a bit like paper
- Not as cold to touch
- Not soft

Project name	Natural dyes & alginate
Project description	
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementa
Part name	
Changed by	Date 31/3
Keywords	alginate coating, cotton, red cabbage

Highlights

What should I remember about this? Only reacts to pH < 7 and turns green

Journey

Setup

Goal	*What am I interested in exploring now?* Does the colour change works + is it water reppelent.
Process & approach	*How do I want to explore?* Coat cotton (dyed) with a thin layer of alginate and expose to water & pH <7 & >7

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* pH<7 pink, pH>7 dissolved (alginate) + green. not waterresistant & cracks when dry
Next steps	*What am I making next?* Cotton coated with a thicker alginate layer

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Coated cotton that can turn pink with acid
Properties	*What is it like?* It is irritating your skin (schuurt)
Behavior	*What can it do?* change colour
Technique	*How was it made?*

Evaluation

Process	*How did I experiment with it?* Stretch it → alginate breaks
Remarks/insights	*What did I learn?*

Notes

31/3

Rode kool #2

- 200 ml rode kool water → 30 min koken laten afkoelen
- 6 g alginaat
- (8 glycerine)

Dunne film met glycerine

- 200 ml water
- 6 g alginate → bit thinner
- 15 glycerine

→ werkt best zonder $CaCl_2$ op de bodem

! need to be thinner to cast very thin films

! Shrinks a lot → becomes thicker

Thin film → witte bak

- 300 ml water
- 9g alginaat

- Meng paar ml rode kool sap met de gel → blauwig (pH>7?) (→ geeft af) (→ nog steeds verkleuring bij andere pH)
- Cast film by spreading with knife or if thin enough tilt the surface

Rode kool samples geven af

Strength test

- houd 2 soorten droden en trek met evenveel kracht

result without glycerine slightly stronger

Bending test

-
- taai drogen op verwarming en herhaal

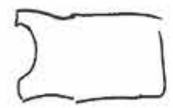
no CaCl2 beforehand
↑ and spread by moving/kitting

alginate with glycerine casted in a "wit bakje"
shrunk a lot
One part very thick

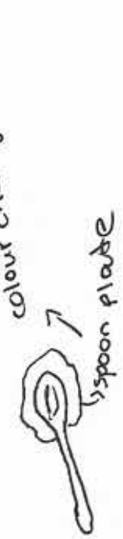
→ alginate film with red cabbage dye
→ turns slowly pink with lemon juice but only the thinner piece

→ very thin film
  ↳ gel was thinner / more liquid due to the red cabbage juice
→ after 2 days → dehydrated and could easily tear + less flexible

↳ stability
↳ water repellant



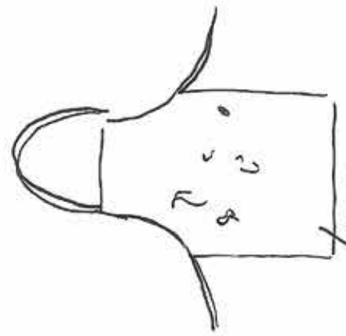
sportswear
↳ change of pattern when sweating



colour changeessalvig
↳ spoon plaste

↳ colour changing gloves

raincoat
↳ water repellant



↳ colour change when good touches it

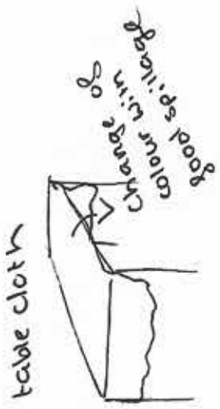


table cloth
change of colour in variable good spirits

3/3

Project name	Natural dyes & alginate		Photo
Project description			
Stage	☐ *Open ended* ☒ *Ideation* ☐ *Development* ☐ *Implementation*		
Part name			
Changed by		**Date**	2/4
Keywords	Cotton, pH, alginate coating		

Highlights

What should I remember about this? ~~A~~ lemon juice spreads less quick on coated cotton + more irregular shape

Journey

Setup

Goal	*What am I interested in exploring now?* Difference in spreading between coated & not coated
Process & approach	*How do I want to explore?* Drip lemon juice on 2 samples

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* on cotton first a drop but spread eventually faster and in a circle
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?*
Properties	*What is it like?* Alginate coated less flexible, but even coated → thinner coating & a bit of shine
Behavior	*What can it do?* Change colour
Technique	*How was it made?* Turn mixture of midterm video

Evaluation

Process	*How did I experiment with it?* Drip lemon juice on it
Remarks/insights	*What did I learn?*

Notes

Project name			Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date**	2-4
Keywords	Alginate cups, pH		

Highlights

What should I remember about this? When in water the colour dissapears

Journey

Setup

Goal	*What am I interested in exploring now?* Colour change with pH<7
Process & approach	*How do I want to explore?* Fill with lemonjuice, rinse and then soak in water

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* With pH < 7 turned pink and the colour dissapeared in water
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Alginate cups
Properties	*What is it like?* Flexible cups
Behavior	*What can it do?* Turn colour
Technique	*How was it made?* See midterm video

Evaluation

Process	*How did I experiment with it?* Soak in lemon juice & water
Remarks/insights	*What did I learn?* The colour dissapears

Notes

Project name			*Photo*
Project description			
Stage	☐ *Open ended* ☒ *Ideation* ☐ *Development* ☐ *Implementation*		
Part name			
Changed by		**Date**	2-4
Keywords	Alginate cups		

Highlights

What should I remember about this? Dries out → becomes hard

Journey

Setup

Goal	*What am I interested in exploring now?* Create alginate cups
Process & approach	*How do I want to explore?* Spread thin gel in cups and pour in CaCl2

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* shrunk a lot but worked and after 5 days really hard
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Alginate cups
Properties	*What is it like?* In the beginning flexible, turns harder & shrinks
Behavior	*What can it do?* Hold water
Technique	*How was it made?* See midterm video

Evaluation

Process	*How did I experiment with it?* Leave 5 days
Remarks/insights	*What did I learn?* Turns very hard & shrinks even more & can break

Notes

See eggbox 2-4

2/4

sweat pH≈4,5

beer & wine

milk pH≈6,7
spoiled milk pH= 5,7

pH

⇓

intelligent food packaging

fish spoilage

magic

intriging

traces

COLOUR CHANGE

expression

information

movement

versatile

Cotton with alginate coating
↳ pre dyed with red cabbage

31/3

→ pH < 7 still works, reverse not

→ immersed in gel and with fingers removing excess little shrinkage but does cracks & does n't feel nice

4/4

thicker gel on only one side
First hours still flexible and gel like

→ did shrink and hence fabric rimpled

Project name	Natural dyes & alginate
Project description	
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Imp
Part name	
Changed by	Date
Keywords	Alginate coating cotton red c

Highlights

What should I remember about this? It can shape the fabric

Journey

Setup

Goal	*What am I interested in exploring now?* Effect when only on one si
Process & approach	*How do I want to explore?* Spread thick alginate. Set. Dehydrate overnight. Drizzle water

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* went not water resistant? but could also be because ~~it~~ getting underneath (not flat)
Next steps	*What am I making next?* Try a flat layer or just one line

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Coated (one side) cotton
Properties	*What is it like?* Underneath soft, top stratchy
Behavior	*What can it do?* Change colour
Technique	*How was it made?* See back of midterm video → thick gel

Evaluation

Process	*How did I experiment with it?* Completely stretched it → broke and removed pieces of alginate
Remarks/insights	*What did I learn?* Alginate layer becomes really hard

Notes

Project name	Natural dyes & alginate		
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		Date	4/4
Keywords			

Highlights

What should I remember about this? Extra alginate makes it very strong & harder

Journey

Setup

Goal	*What am I interested in exploring now?* Can you use the nozzles to create different shaped fiber
Process & approach	*How do I want to explore?* Have a thicker gel

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Gel held the shape in the air but once it hit the $CaCl_2$ it shrunk into a round shape
Next steps	*What am I making next?*

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Very strong thread when pulled, but breaks when twisted
Properties	*What is it like?* Hard, yellowish, bit flexible
Behavior	*What can it do?* Bend, dissolve, give support
Technique	*How was it made?* See midterm video

Evaluation

Process	*How did I experiment with it?*
Remarks/insights	*What did I learn?*

Notes

Project name	Natural dyes & Kaumera		Photo
Project description			
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation		
Part name			
Changed by		**Date** 8/4	
Keywords	Singlet, tricot, alginate		

Highlights

What should I remember about this? Creates interestingshapes

Journey

Setup

Goal	*What am I interested in exploring now?* How the alginate feels when wearing it
Process & approach	*How do I want to explore?* Put alginate on a tricot top and wear it.

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Before it dried, it felt cold, was flexible but the tickliness irritated After the alginate broke → hard and no longer cold
Next steps	*What am I making next?* Samples with different kind of samples

Technical specifications

Hardware

	(1)	(2)
Machine/equipment	6 g alginate 200 ml water	10 g alginate 200 ml water
Machine setup	Bachts 15 min rinse	links → als het op is gel ligt
Machine settings	dry	
Material(s)		

Software

Attributes	

Finish & Post-production

Leave it to dehydrate for 5 days

On the floor

Outcomes

The material/artefact	*What did I make?* A tricot singlet with alginate stripes
Properties	*What is it like?* Cool (when no dried), hard (when dried)
Behavior	*What can it do?*
Technique	*How was it made?*

Evaluation

Process	*How did I experiment with it?* Wear it twice for an hour
Remarks/insights	*What did I learn?* You get used to the cold, but when it changes place, it still feels cold. The fabric curled around, but the thickness did not feel nice → little irritation

Notes

Dried: The gel formed sticks and they broke → stick in your skin when trying it on, but not when wearing. Not limiting movement and no longer cold.

The thick alginate gel was sharper when broken and broke quicker

Project name	Natural dyes & ~~Kourmeya~~ Alginate	
Project description		
Stage	☐ Open ended ☒ Ideation ☐ Development ☐ Implementation	Photo
Part name		
Changed by	**Date** 8/4	
Keywords	10*10 cm, alginate, shrink, stretch	

Highlights

What should I remember about this? Thin fabrics shrink the most

Journey

Setup

Goal	*What am I interested in exploring now?* ~~Retel~~ Behaviour of different types of fabric
Process & approach	*How do I want to explore?* Cut 10*10 cm squares of different fabrics and apply 3 w/v% & 5 w/v% alginate in a + shape

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* Samples shrunk + fabric curls around the gel
Next steps	*What am I making next?* More intricate patterns

Technical specifications

Hardware

Machine/equipment	3 w/v% 6 g alginate 5 w/v % 10 g alginate
Machine setup	200 ml tapwater 200 ml tapwater Leave overnight
Machine settings	Apply with 5 ml syringe on dry fabric ⊞ and submerge 1 min in 10% $CaCl_2$, drop & rinse in cold water.
Material(s)	Dry outside overnight + 5 days inside

Software

Attributes	

Finish & Post-production

On the floor

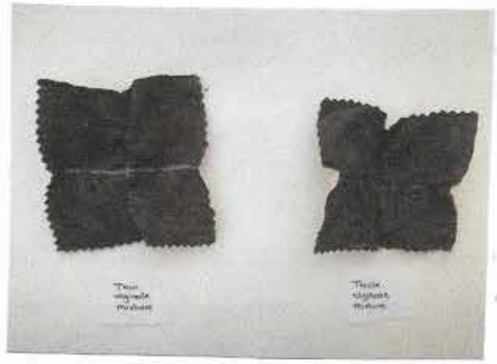
Outcomes

The material/artefact	*What did I make?* Different samples
Properties	*What is it like?* Stiff
Behavior	*What can it do?* Shrink + knitted fabrics can still stretch in the other places
Technique	*How was it made?*

Evaluation

Process	*How did I experiment with it?* Measure normal length before, stretched and after → data analysis
Remarks/insights	*What did I learn?* Light weight fabric shrinks more

Notes



Project name	Alginate & fabrics	*Photo*
Project description		
Stage	☐ *Open ended* ☐ *Ideation* ☒ *Development* ☐ *Implementation*	
Part name		
Changed by		**Date** 2/1/4
Keywords	alginate, ML	

Highlights

What should I remember about this? More alginate, more shrinkage

Journey

Setup

Goal	*What am I interested in exploring now?* The influence of the amount of gel /10cm on the shrinkage.
Process & approach	*How do I want to explore?* Have a lot of samples with and apply 0,2 - 5 ml per 10cm with the syringe.

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* More alginate gel → more shrinkages + curved
Next steps	*What am I making next?* Test with different curing times

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* 16 samples with different quantities of gel
Properties	*What is it like?* The fabric gathered & alginate became hard in a curved shape
Behavior	*What can it do?* Provide structure
Technique	*How was it made?* 3 w/v% alginate

Evaluation

Process	*How did I experiment with it?* Measure before & after
Remarks/insights	*What did I learn?* The amount of shrinkage depends on the volume / 10 cm.

Notes

Reflection in action & Documentation of Digital Craftmanship

Project name	Alginate & fabrics		Photo
Project description			
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implementation		
Part name			
Changed by		**Date**	9/4 24/4
Keywords	Alginate, curing time		

Highlights

What should I remember about this?	Curing time has effect on final shrinkage

Journey

Setup

Goal	*What am I interested in exploring now?* If the curing time is of influence on the final shrinkage
Process & approach	*How do I want to explore?* Let samples cure for different amount of times and measure before + after

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The alginate/fabric shrunk more when cured for a longer time
Next steps	*What am I making next?* Apply alginate in patterns

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* 5 samples with 2 mL alginate / 10 cm
Properties	*What is it like?* Alginate is hard and curved
Behavior	*What can it do?* ?
Technique	*How was it made?* 3 c/o % alginate

Evaluation

Process	*How did I experiment with it?* measure before & after
Remarks/insights	*What did I learn?* A longer curing time will result in more shrinkage.

Notes

Project name	Alginate & fabrics
Project description	
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implem
Part name	Alginate patterns
Changed by	Date 16 24/4
Keywords	Alginate cotton

Highlights

What should I remember about this? It easily looks messy due to all the wrinkles

Journey

Setup

Goal	*What am I interested in exploring now?* The influence of a pattern of alginate on the properties
Process & approach	*How do I want to explore?* Create different patterns of alginate on 10*10 cm samples

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The fabric curled around the alginate + shrunk in the directions of the alginate
Next steps	*What am I making next?* Trying to use alginate as seam instead of sewing

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* 5 small samples with different patterns
Properties	*What is it like?* Very wrinkled
Behavior	*What can it do?* The ≦ pattern can easily be pressed like an accordeon
Technique	*How was it made?* 3% alginate applied with syringe, cured 10% $CaCl_2$

Evaluation

Process	*How did I experiment with it?* Press it in both directions and bend
Remarks/Insights	*What did I learn?* You can make patterns but I haven't got found a purpose for it

Notes

Project name	Alginate & fabrics	
Project description		
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implementation	*Photo*
Part name	Sealed cotton	
Changed by	**Date** 16/4/14	
Keywords	Cotton, alginate seams	

Highlights

What should I remember about this? It sticks but can easily be torn apart, but did not really shrunk

Journey

Setup

Goal	*What am I interested in exploring now?* Can alginate be used instead of sewing for a seam.
Process & approach	*How do I want to explore?* Use a syringe to get the alginate on one fabric and place another on top of it. Then cure

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The samples stitched but can also be torn apart
Next steps	*What am I making next?* ~~Test different volumes of alginate~~ Jacket to wear it

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

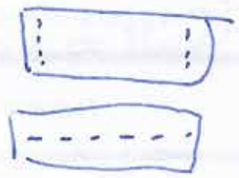
Outcomes

The material/artefact	*What did I make?* Different samples & patterns
Properties	*What is it like?* Two pieces of cotton sealed together
Behavior	*What can it do?*
Technique	*How was it made?*

Evaluation

Process	*How did I experiment with it?* Apply pressure on it : crackles and tried pulling apart
Remarks/insights	*What did I learn?* It's not super strong as seam

Notes



Project name	Alginate & fabrics	
Project description		
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implementation	Photo
Part name	Jacket	
Changed by	**Date** 23/4	
Keywords	Cotton jacket, alginate, 1st pp	

Highlights

What should I remember about this? Cold when not dehydrated + no limitations in movement

Journey

Setup

Goal	*What am I interested in exploring now?* How the alginate feels when wearing it on your skin
Process & approach	*How do I want to explore?* Apply alginate on jacket and wear it 1 h.

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* See document 1st person perspective
Next steps	*What am I making next?* ?

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* A jacket with alginate stripe & circles on the back
Properties	*What is it like?* Alginate is hard & brittle and the fabric gathered.
Behavior	*What can it do?* –
Technique	*How was it made?* With 3% alginate + turmeric

Evaluation

Process	*How did I experiment with it?* I wore it for 2 times 1 hour
Remarks/insights	*What did I learn?* When you know you need to write what you feel you are more aware of your experiences +

Notes the

Project name	Alginate & Fabrics		Photo
Project description			
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implementation		
Part name			
Changed by		**Date**	6/5
Keywords	Alginate, glycerine %, tests		

Highlights

What should I remember about this? A higher % glycerine: less shrinkage + feeling greasy + attach less well to the cotton

Journey

Setup

Goal	*What am I interested in exploring now?* The effect of glycerine on the alginate, will it stay flexible.
Process & approach	*How do I want to explore?* Make different mixtures with 5-50% glycerine and 4% alginate

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The more glycerine, the less shrinkage and it feels greasy + mixture is less smooth
Next steps	*What am I making next?* A more expensive test with 2% alginate and 10% glycerine with 0.2 - 5 mL / 10 cm

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

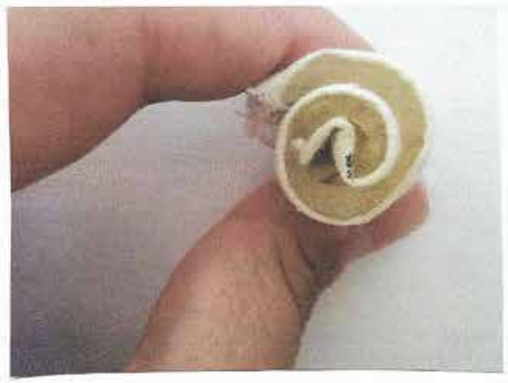
Outcomes

The material/artefact	*What did I make?* 5 samples of each % glycerine
Properties	*What is it like?* Flexible, not cold, greasy
Behavior	*What can it do?* shrink the fabric + provide structure
Technique	*How was it made?* 10% alginat- glycerine, 2% alginate

Evaluation

Process	*How did I experiment with it?* Roll it in both direction to see if it breaks and measure dimensions before and after.
Remarks/insights	*What did I learn?* 5% glycerine is already sufficient to keep it flexible

Notes



Project name	Natural dyes & ~~Kombucha~~ alginate		Photo
Project description			
Stage	☐ Open ended ☐ Ideation ☑ Development ☐ Implementation		
Part name			
Changed by		**Date**	6/5
Keywords	Alginate, glycerine, X ml/10 cm, test samples		

Highlights

What should I remember about this? more glue ml more shrinkage but less than without glycerine

Journey

Setup

Goal	*What am I interested in exploring now?* Create more samples wit Find a line to predict shrinkage based on ml/10 cm
Process & approach	*How do I want to explore?* Create more samples with 0.2-8 ml gel / 10 cm.

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* It shrinks only a little
Next steps	*What am I making next?* Coat a sample with glycerine to see if it also stays flexible

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

The material/artefact	*What did I make?* Test samples
Properties	*What is it like?* Flexible, not cold, feel a bit greasy
Behavior	*What can it do?* Bend, shrink
Technique	*How was it made?* 10% glycerine, 2% alginate

Evaluation

Process	*How did I experiment with it?* measure dimension + test flexibility
Remarks/insights	*What did I learn?* The width hardly shrinks and the height a little

Notes

Project name	Alginate & Fabrics	Photo
Project description		
Stage	☐ Open ended ☐ Ideation ☒ Development ☐ Implementation	
Part name		
Changed by		**Date** 6/5
Keywords	cotton, alginate, glycerine, coating	

Highlights

What should I remember about this? The coating stays flexible

Journey

Setup

Goal	*What am I interested in exploring now?* If the glycerine can also keep a coating flexible
Process & approach	*How do I want to explore?* Coat on side of the cotton and let dehydrate

Design process – end of the day

Insights	*What happened? What have I discovered? What could be made different?* The cotton shrinks → stays flexible but stiffer than before
Next steps	*What am I making next?* Trying to keep folds in place with alginate

Technical specifications

Hardware

Machine/equipment	
Machine setup	
Machine settings	
Material(s)	

Software

Attributes	

Finish & Post-production

On the floor

Outcomes

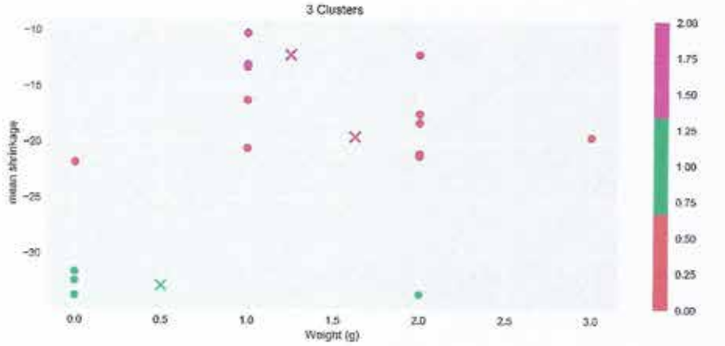
The material/artefact	*What did I make?* Coated fabric
Properties	*What is it like?* Flexible, but less than normal cotton wrinkled, not cold, not greasy
Behavior	*What can it do?* Not waterproof
Technique	*How was it made?* 50% glycerine, 4% alginate

Evaluation

Process	*How did I experiment with it?* Bend, test it with water
Remarks/insights	*What did I learn?* Not waterproof, shrinks in all directions and stays flexible

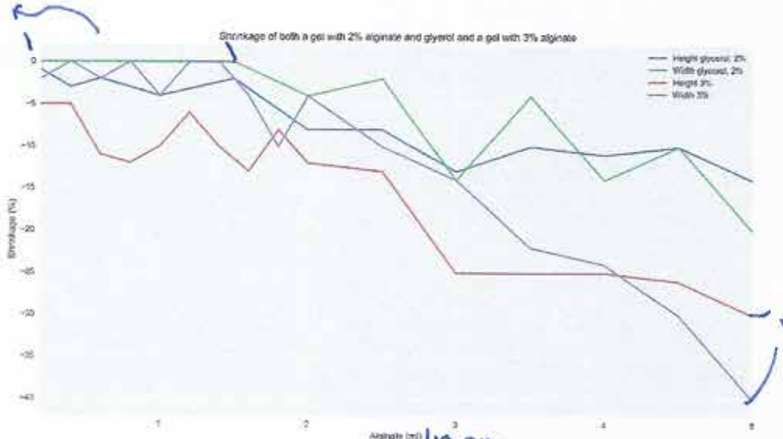
Notes

DATA ANALYSIS



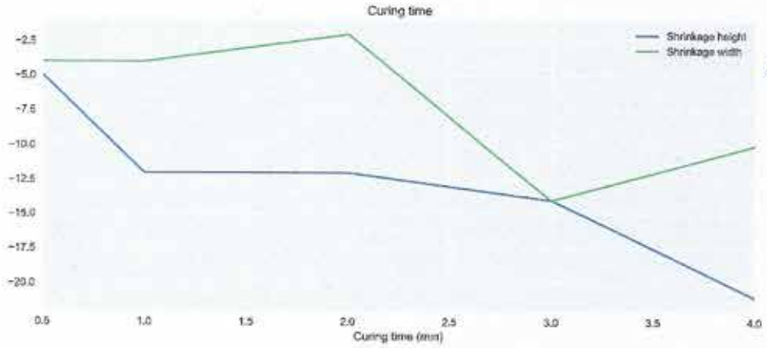
3% & 5% alginate
10 samples of different fabric

no & little shrinkage with little alginate

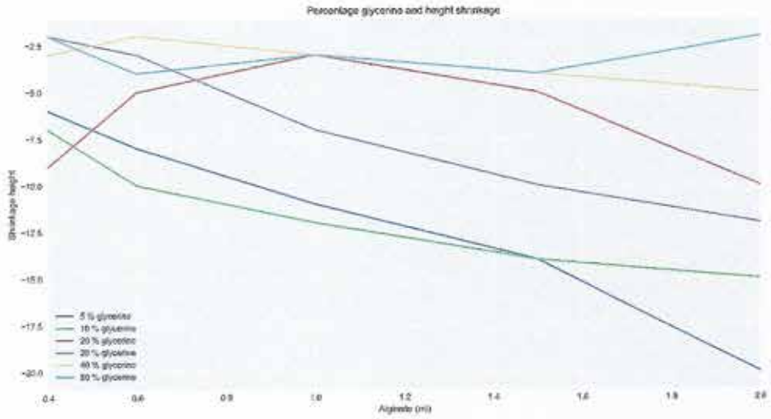


more shrinkage without glycerine

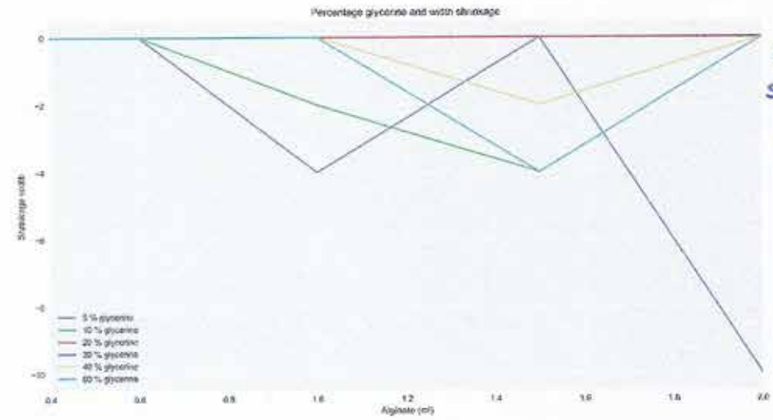
/10 cm



3 w/v % alginate

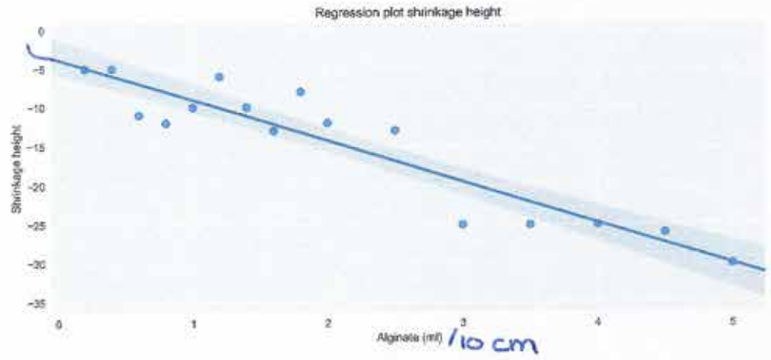


more glycerine less shrinkage in height



little to no shrinkage in width

should start in .0

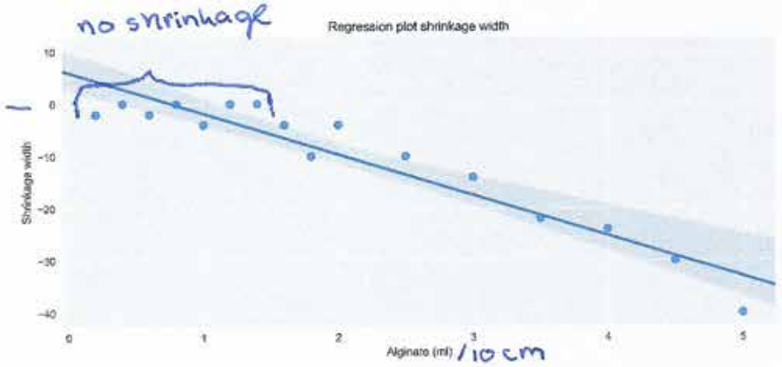


3% alginate

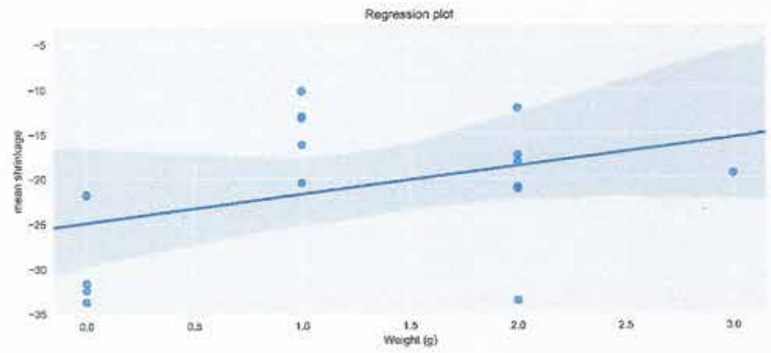
/10 cm

no shrinkage

should start in zero



3% alginate



3% & 5% alginate
different fabrics
more weight, more shrinkage

Fabric-type	Weight (g)	mean	median
Knitted	2	-20.500	-18.2
	3	-19.500	-19.5
Woven	0	-29.875	-32.0
	1	-14.620	-13.2
	2	-21.000	-21.0

Weight (g)	mean	median
0	-29.875000	-32.0
1	-14.620000	-13.2
2	-20.583333	-19.6
3	-19.500000	-19.5

shrinkage (width & height combined)

	Weight (g)		mean shrinkage	
	mean	median	mean	median
Weight				
light	0.400000	0	-30.62	-32.4
medium	1.555556	1	-15.90	-16.2
heavy	2.000000	2	-19.70	-19.7