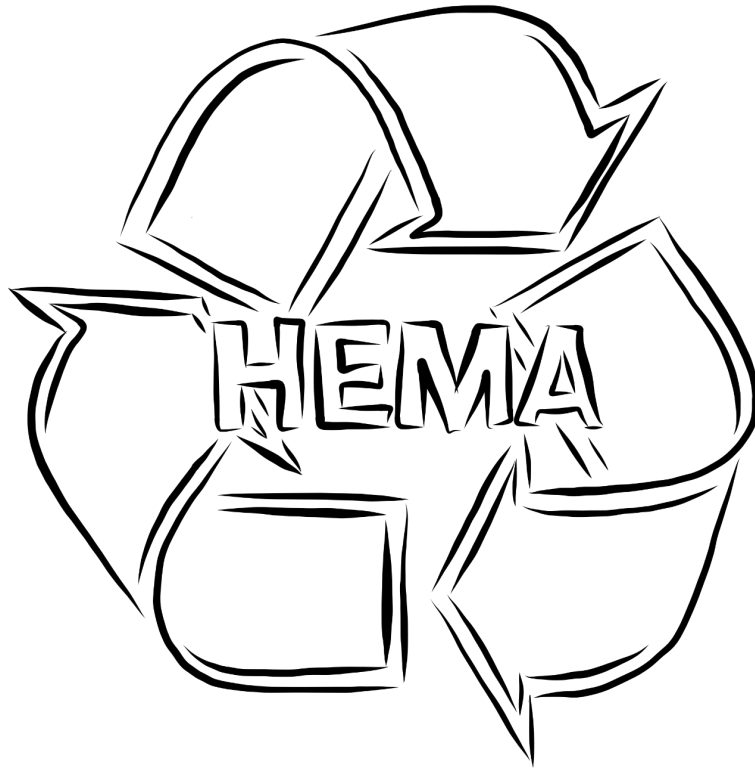


# Research

HEMA concept



# Different sorts of bio-plastic:

<https://www.treehugger.com/problem-bioplastics-4857750>  
<https://www.treehugger.com/best-biodegradable-trash-bags-5097468>

Conclusion about bioplastics:

- People think you can recycle bioplastic which can ruin the production of actually recycling the other materials. And also causes more non-bioplastics to get into the bio bin since people think "plastic" is allowed to go in there → even more pollution.
- People think bioplastic perishes in nature, so that causes more litter.
- The best eco-friendly bioplastic is the compostable one, however, there is still no good way of actually composting this from individuals. This means it's still gonna end up in the normal trash bag...
- The best option is to reject any single-use plastics, use reusables and if you have to use a disposable item, choose materials that are easily recyclable like metal or glass.

For our garbage bag, that we want to be as eco-friendly as possible for our garbage bag because bio-plastic is not a great option. From the information I read, it looks like it's more a marketing trick rather than something that's actually good for the planet. We wanted to make it reusable first, and I think that's still the best option.

# Different sorts of waterproof fabrics:

<https://sewguide.com/waterproof-water-resistant-fabric/>

## TPU

“TPU stands for Thermoplastic polyurethane; it is a better alternative to PUL fabric and used interchangeably with PUL in making waterproof products like cloth diapers – more softer, flexible and environmentally friendlier (questionably) than PUL. And the functions are the same. The disadvantage is that it may be less durable than PUL.”

## 2. Waxed cotton

“Waxed canvas is a densely woven cotton fabric (Canvas) coated with paraffin-based wax; it has a rugged weathered attractive appearance due to the creases and folds of wax on its surface. Canvas itself may be water-resistant to a degree depending on its weave density but the coating on it adds waterproofness. It is many times more **expensive** than ordinary canvas.”

## 3. Nylon and Polyester

“These materials are not really waterproof on their own. They can be said to be water-resistant because of their tight weave. But with a special coating, these fabrics are used for making the most waterproof of all things – rain umbrellas. A layer of polyurethane is used to cover the interior of the fabric. These fabrics are less breathable than laminated fabric and not as strong.”

## 4. PVC coated polyester

- Waterproof
- 100% polyester
- Strong and durable

Cleaning:

“It’s often recommended to dry clean PVC polyester, but it can be washed with cool or warm water and a mild cleaning agent. Do not machine wash PVC polyester. Use a spray bottle or non-abrasive tool like a sponge or cloth to apply the cleaning solution. If this isn’t enough to clean the fabric, you can gently clean it with a soft-hair brush. Allow the cleaning

solution to remain on the fabric for a few minutes, then wipe it dry with a dry cloth or sponge. Avoid using strong cleaning solvents like acetone, ethers, gasoline, kerosene, and benzene. Strong oxidants and strongly acidic products should also be avoided.”

#### Sewing:

“Use clips instead of pins to avoid making permanent holes in the fabric. When sewing PVC polyester, we recommend using a new sharp needle, size 12 or 14 will work but you can also use a denim or leather needle. All-purpose thread will work fine with this fabric. Extend the stitch length to about 3mm. If the stitch length is too short it will create many holes in close proximity, which could lead to tearing or puckering. For curves, you may need to switch back to a normal stitch length. We recommend testing out your stitches on a scrap piece before starting.”

#### Conclusion:

- We're using PVC coated polyester since it has all the benefits we need; waterproof, durable, flexible and relatively cheap.

# Recycling garbage (NL):

<https://www.milieucentraal.nl/minder-afval/afval-scheiden/welk-afval-waar/>

“Door afval te scheiden, blijft er **minder gewoon huisvuil (of restafval) over**. Dat scheelt milieubelasting, want afvalverwerking kost energie en zorgt voor de uitstoot van broeikasgassen, wat leidt tot versterking van het **broeikaseffect**.”

## (app: afvalwijzer)

Glas en metaal zijn oneindig recyclebaar, 60% van al het glas is gerecycled.

## PLASTIC

- Plastic recycle bins are just meant for plastic packaging, not anything else.  
<https://youtu.be/Gf--8o3yD6g?list=TLGGI68ikHTNzKoxNDA1MjAyMQ>
- Empty drink containers → PLASTIC (sometimes residual waste depending on the municipality) <https://youtu.be/nhgXsYn6lHY?list=TLGGX0KO-8MsAd0xNDA1MjAyMQ>  
They're being separated from the plastic and then being soaked in hot water so the different layers (paper, plastic and sometimes aluminium) get detached from each other and recycled.
- Metal packaging also goes into the plastic bin.  
<https://youtu.be/5zYlxmJss08?list=TLGG-koQGv0POP0xNDA1MjAyMQ>

## PAPER

<https://www.afvalscheidingswijzer.nl/categorieen/papier-en-karton/>

- When you can rip the paper, it's meant for the paper bin.
- Paper with food leftovers have to go with the residual waste.

## RESIDUAL WASTE

<https://www.milieucentraal.nl/minder-afval/afval-scheiden/restafval/>

- Uit onderzoek (2018) blijkt dat we per persoon jaarlijks ruim 170 kilo afval in de grijze bak bij het restafval weggooien. Van die 170 kilo is 62 kilo echt restafval. Wat haal jij nog uit je afval door beter te scheiden?
- Een van de redenen dat we afval liever niet storten, is dat er methaan (stortgas) vrijkomt uit stortplaatsen (vooral uit organisch afval zoals groente, fruit en tuinafval). Methaan is een sterk broeikasgas. Gft-afval mag daarom helemaal niet meer gestort worden. Verder wordt stortgas verbrand ('afgefakkeld'), of gebruikt om energie op te wekken.

## ORGANIC WASTE

<https://youtu.be/b2hwj0rAsJM?list=TLGG1Lj0AnNVgulxNTA1MjAyMQ>

- Making your own compost heap:

<https://www.milieucentraal.nl/huis-en-tuin/tuinonderhoud/zelf-composteren/>

Het is niet bekend of zelf composteren beter is voor het milieu dan grootschalige compostering van groente-, fruit- en tuinafval (gft). Duidelijk is wel dat zelf composteren een milieuvriendelijke optie kan zijn, omdat het afval dan niet vervoerd en verwerkt hoeft te worden. Dit geldt echter alleen als je goed composteert; anders verandert een eventueel milieuvoordeel in een nadeel.

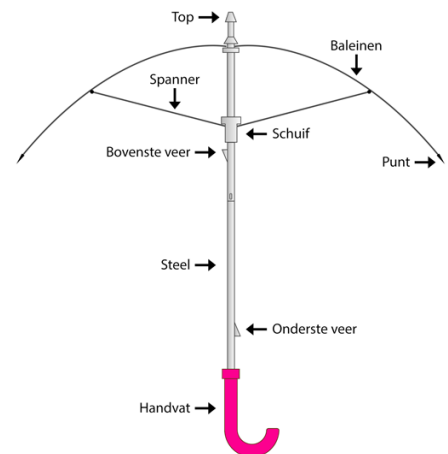
### What waste do people produce after a picnic/ "outdoor gathering"?

The waste produced after a picnic/"party" outside really depends on the people. For instance, students buy way more things prepacked, which means more plastic waste. Families with little kids on the other hand produce (in general) way less plastic since they prepare a lot more.

#### Conclusion

- Composting seems pretty hard and when done wrong it actually could harm the environment rather than help it.
- Since paper can't be recycled anymore and has to go into the residual waste bin when stained with food, we think it doesn't have priority in our concept. However if there is space, we will obviously include it.

# Foldable product examples



# Measurement school bag and bike carrier



## Bike carrier (on the back):

- Afmeting bagage oppervlak: 16 x 40 cm. (27 L, average backpack)



## School bag:

- Based off of a very popular bag in high school; the eastpak. The width is 29,5 cm, depth is 22 cm and height is 44 cm.

It has to fit in the bag, either at the bottom on the inside or at the bottom on the outside, that's what we prefer since it's trash and you'd rather not have it inside your bag, but that's a challenge we have to tackle, how are we going to attach it to the schoolbag?

In the end we didn't do much with these measurements, oscar has attachments parts that can be used to attach it to anything.

# Inside bag



It's durable, dishwasher safe, waterproof, sealable, flexible etc.  
Slidable sealing or "pressure" sealing.

Afmetingen pakket: 28.6 x 27.8 x 3 cm; 1 kg

I want the bag to be 2 kg/2L so the width will be twice as big; 6 cm, I assume.

<https://www.coolblue.nl/product/872034/eastpak-out-of-office-13-graded-black-27l.html#product-specifications>

## How eco-friendly is silicone?

Silicone is quite hard to recycle, something that would go against our idea of being eco-friendly. However, for now, it is probably the best option since it is very durable and has all the other functions we were looking for. If we would develop this product even further, we would certainly look for a material that still has all the benefits and is recyclable as well.



## TPU

TPU is also a very good option since it's more eco-friendly, flexible, dishwasher safe, etc. The problem is that there are no ziplock bags available at the moment.

# “Afrikaandermarkt schoner door afval scheiden”

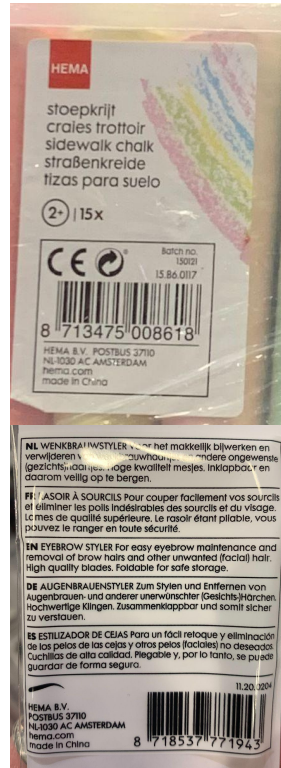
<https://www.resilientrotterdam.nl/afrikaandermarkt-schoner-afval-scheiden/>

‘Dit is weer een stap op weg naar Rotterdam als circulaire stad. Veranderen naar 'circulair' is hard nodig. Als we de huidige trend niet doorbreken, wordt de vraag naar een groot aantal primaire grondstoffen veel groter dan het aanbod. De druk op het milieu daarvan is hoog: het zorgt voor aantasting van de natuur, verlies van biodiversiteit en uitstoot van broeikasgassen. Daarom is hergebruiken van primaire grondstoffen erg van belang.’

- A neighbourhood in Rotterdam is already busy with recycling more; the rubbish at the beginning and during the market at afrikaanderplein is being picked up and taken to the right bins.
- This project is more of a social project and about actual people that collect the trash, so we can't really take much from it apart from the fact that again we see how important it is to keep your environment clean.

# Packaging HEMA

- Name in:
  - Dutch
  - French
  - English
  - German
  - Spanish
- HEMA logo on top left corner, can differ in colour, normally red
- Mostly same font (futura), sometimes different design with different font
- Description written on the back in all the different languages
- Patterns/ simple illustrations
- Barcode on the back + adres



# Our packaging

We want our packaging to be a bit more outstanding from the general HEMA packaging (think of altering the logo and font a bit), so that people see that it's not a usual product and hopefully catches the attention. The paper has to be recyclable and preferably created by recycled paper already, also has to appear as "eco-friendly" to the customers. For the rest: keep it clean and simple.

## Plantable seed paper:



We had the idea to add an extra little touch to our packaging by printing it on plantable seed paper. It's biodegradable paper with seeds integrated that can be put into the ground to grow some green! The customer could leave the tag on when it's bought and plant it on the first use. By buying the product they do not only keep nature clean but also give something back to the environment. This will also strengthen their bond with nature even more and hopefully spreads awareness towards friends/family seeing the label be planted. Just some extra marketing there.

## Inspiration:



## Description:

Packable, sealable, washable

Oscar is the solution to pack away all the trash you might accumulate outdoors. Separate your waste on location, seal the bag, properly dispose of it in the right bins at home, rinse and reuse! With the interior pockets made from durable and waterproof silicone, we've made it possible to easily pop into the dishwasher so it can be used over and over again. Whether you're going on a hike, having a picnic or outside gathering, Oscar will always come along!

Oscar is de oplossing om makkelijk al het afval in te pakken wat je buiten vergaart. Scheidt het afval op locatie, sluit de vakken af, gooi het afval thuis weg in de juiste bakken, was de vakken en blijf Oscar opnieuw gebruiken! Doordat de vakken los van elkaar kunnen worden gehaald is het heel eenvoudig om alles weg te gooien. De interne vakken kunnen door hun duurzame en waterbestendige silicone constructie bovenop makkelijk door de vaatwasser zodat deze keer op keer hergebruikt kunnen worden. Of je nou een wandeling maakt, een picknick organiseert of voor iedere andere buitenactiviteit, Oscar komt altijd mee!

