

**RESEARCH
ABOUT THE LIFECYCLE OF
PLASTIC PRODUCTS
PRODUCED BY MEPAL**

FINAL REPORT

CONDUCTED BY THE PROJECT
TEAM RE/VERSION

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Project scope

Gain better insight and investigate possibilities of circularity of MEPAL products arriving at the six stores of Kringloop Stichting, Zwolle.



MEPAL

The main goal of the conducted project was to gain more information about the end phase of the lifecycle of MEPAL production.

This provides more data and insights on the afterlife of MEPAL products entering the thrift stores and highly contributes to the mission of creating the new recycled MEPAL trash bin CALYPSO. Furthermore, the client was also interested in whether old products can be gathered and recycled, which would contribute to the idea of the circular economy.

Moreover, the significant focus was on the types of plastic the products consisted of. The reason for that was the practicalities of the recycling process. Therefore, the following deliverables responded to the client's needs.

Product quality value and relevance

Theoretical research

The gathering of the needed insights was conducted in several steps. In corporation with five certified Kringloop thrift stores, in a 3-week collection phase, several MEPAL products were collected and analysed. This data was used to further investigate and answer the research questions of this project. Additionally, the project team has also analysed a separate quantity collected already during the summer in Dalfsen.

Before the planned workshop of disassembling the items, the database was created using the Excel software, where each separate collected product was signed in with the following features: assortment category, type of product, various types of plastic used and location of the store. The database was further used to answer theoretical questions. It was highly valuable to estimate the approximate sizes of plastic-type streams and construct the forecast in case of the upscaling of this project.

Research Questions

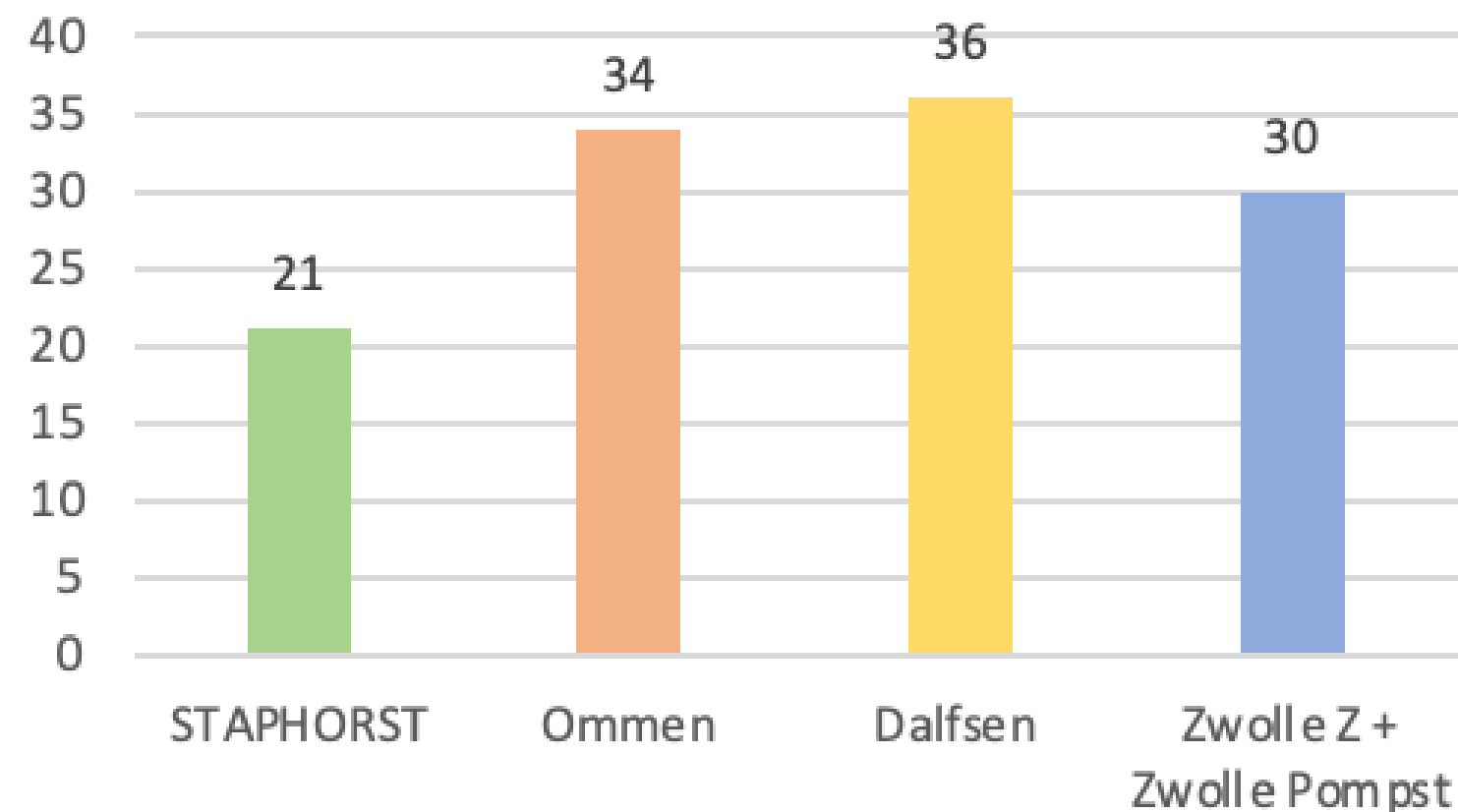
- Which Mepal products enter the thrift store?
(per product/type/design line)
- What is the composition of these products and can they be dismantled and/or sorted into different types of plastics (link to Mepal catalogue)?
- What is the potential size of the different plastic flows when scaling up (several stores regional, provincial or national BKN).

WHICH MEPAL PRODUCTS ENTER THE THRIFT STORES?

(PER PRODUCT/TYPE/DESIGN LINE)

In total, 122 MEPAL products were collected during the 3-week phase in five stores. Ommen and Dalfsen had the highest numbers, with 34 and 36 items, that covers around 50% of all collected items. On the contrary, ZwolleZ and Zwolle Pompst amounted to 30 items. Staphorst, with 21 products, is the location with the fewest (see Graph 1 "Collection items per location")

Colleted items per location



WHICH MEPAL PRODUCTS ENTER THE THRIFT STORES?

(PER PRODUCT/TYPE/DESIGN
LINE)



DALFSEN



DALFSEN



STAPHORST

WHICH MEPAL PRODUCTS ENTER THE THRIFT STORE?

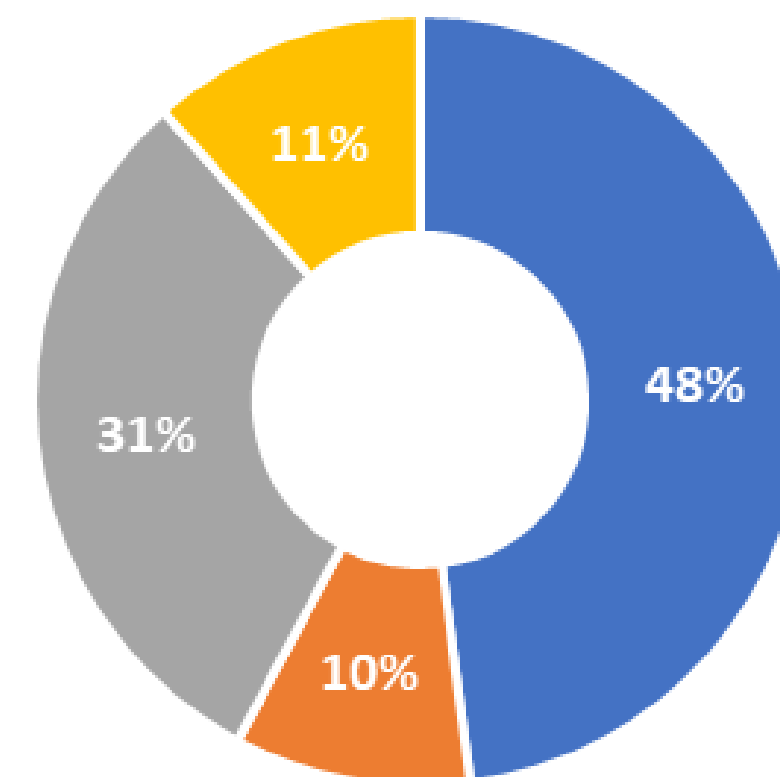
(PER PRODUCT/TYPE/DESIGN LINE)

The 122 collected MEPAL products are categorised in four segments. These categories represent the assortment of all MEPAL products. The company distinguishes the different hard plastic products between "on the table", "storage", "for children" and "on the go".

Almost 50% of the 122 items presented, pertain to the assortment "on the table". The second largest group, approx. $\frac{1}{3}$, are products for children. This data is relevant for MEPAL company to forecast what items will be collected.

Items per MEPAL assortment

- On the table
- Storage
- For children
- On the go



WHICH MEPAL PRODUCTS ENTER THE THRIFT STORE?

(PER PRODUCT/TYPE/DESIGN
LINE)

ON THE TABLE



STORAGAE



WHICH MEPAL
PRODUCTS ENTER THE
THRIFT STORE?

(PER PRODUCT/TYPE/DESIGN
LINE)

FOR CHILDREN



ON THE GO



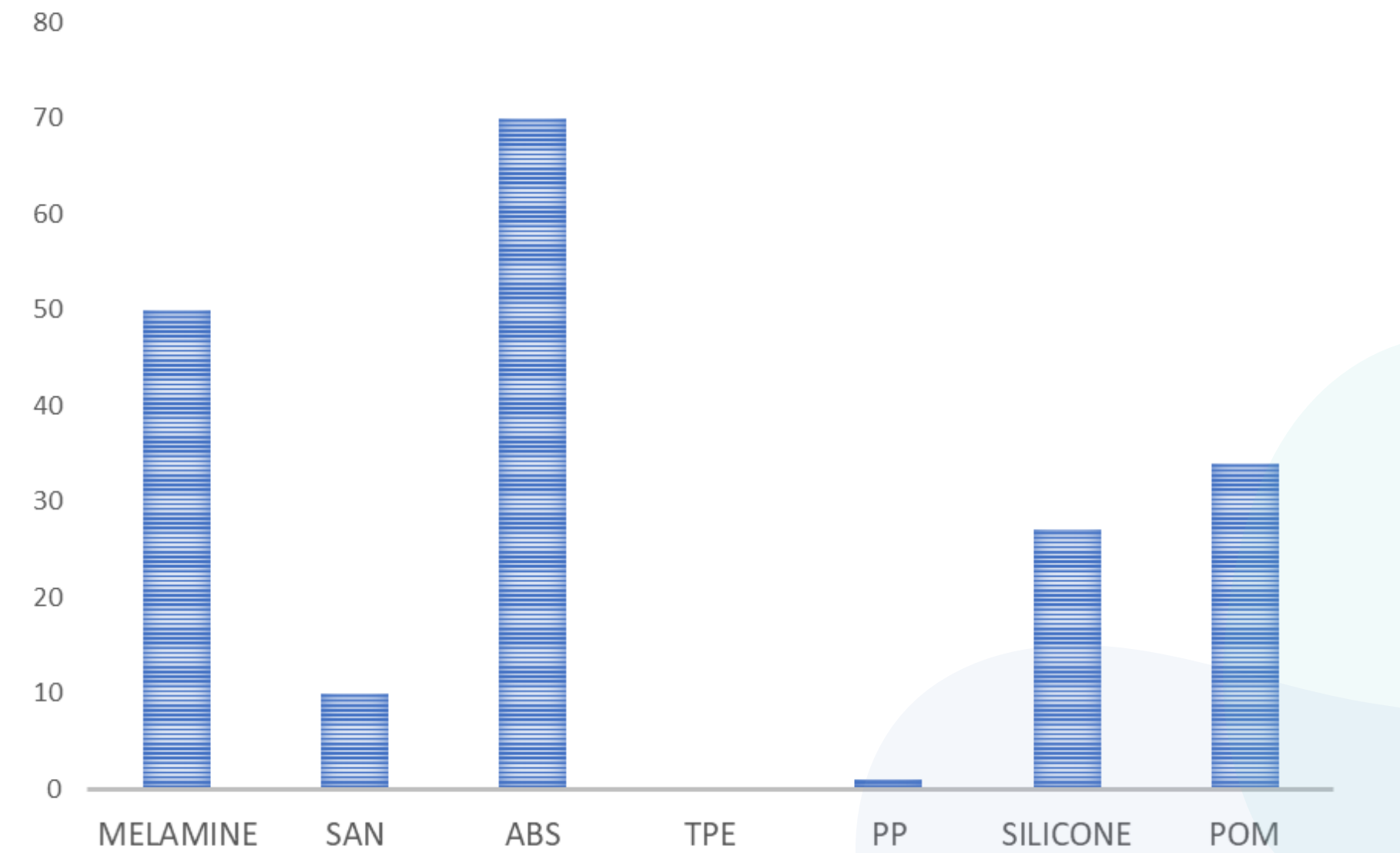
What is the composition of these products, and can they be dismantled and sorted into different plastics (link to Mepal catalogue)?

As shown in the graph "Composition of plastic types", of the 122 items, one-third (36%) contained components of ABS and around 26% of Melamine. The remaining parts exist of POM, SAN and PP. (the percentage does not distinguish between the size of the component):

Total composition of 122 collected items

- ABS - Acrylonitrile butadiene styrene, 36%
- MELAMINE, 26%
- POM - Polyoxymethylene, 18%
- Silicone, 14%
- SAN - Styrene-acrylonitrile resin, 5%
- PP - Polypropylene, 1%
- TPE - Thermoplastic elastomers, 0%

NUMBER OF ITEMS PER PLASTIC TYPES



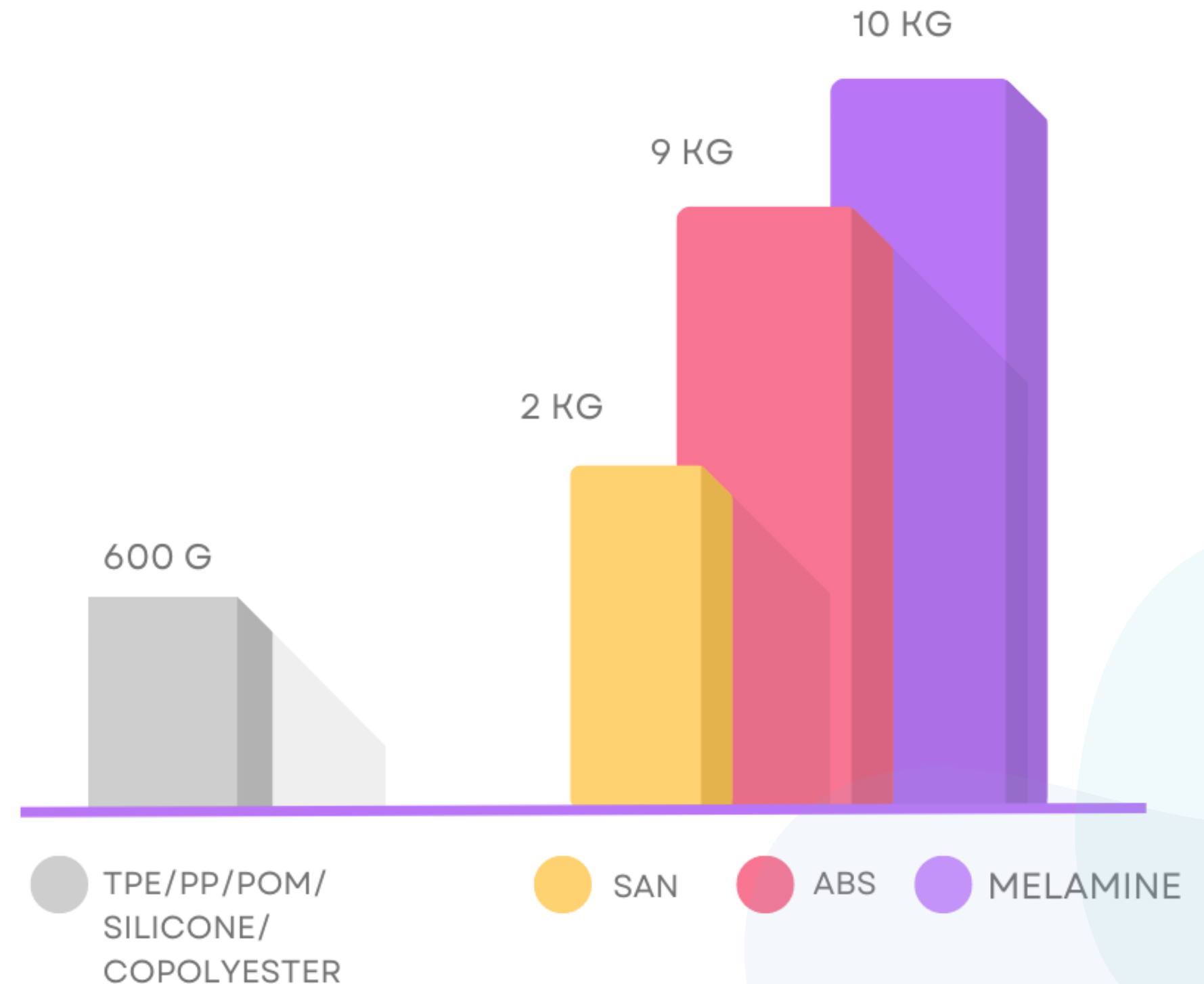
What is the composition of these products, and can they be dismantled and sorted into different plastics (link to Mepal catalogue)?

TOTAL
WEIGHT OF
COLLECTED
PRODUCTS
22KG

THE RECYCLABILITY OF DIFFERENT TYPES OF PLASTICS IS ELABORATED ON IN THE MANUAL FOR SORTING

WEIGHT OF PLASTIC

Amount of the plastic retrieved from the 3-week collecting period (5 shops) + 2 month collecting period (1 shop)



Can the products be dismantled and sorted into different plastics (link to [Mepal catalogue](#))?

The goal of the co-creation session was to explore whether the labour centre students could disassemble MEPAL products and sort it into the different plastic types.

The testing showed that students at Labour Centre are able to disassemble MEPAL products. Some products, such as lunch and storage boxes, were straightforward to dismantle. However, more complex products like the cups for children contain several small plastic components, which the students could still successfully disassemble and sort into the plastic types.

WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP

(SEVERAL STORES REGIONAL,
PROVINCIAL, OR NATIONAL
BKN)?



1. Geographical expansion

Despite its many advantages, the collection and sorting of MEPAL recyclable products are not feasible in all locations due to e.g. staff shortage, not enough space etc. These limitations/ requirements need to be taken into account to choose the right stores that collaborate. For instance, its application in terms of cost is difficult to justify when return logistics prove expensive due to low volumes or long distances. Therefore, it is strongly advised to investigate the possibility of collecting, transporting and sorting out desired items at each location separately to ensure the flawless flow of the items collected.

WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP

(SEVERAL STORES REGIONAL,
PROVINCIAL, OR NATIONAL
BKN)?

2. Involving more partners

Plastic flow can be exponentially upgraded by involving more partners in the cycle. Thus, establishing more collection points by cooperating with more thrift stores outside the Kringloop organization or even other manufacturing companies (besides MEPAL) with products made of desired materials.



WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP

(SEVERAL STORES REGIONAL,
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3. Seasonality

An idea would be to involve schools and kindergartens in the collection phase, with a "pop-up" collection bin at the beginning and the end of the semester, when most parents are clearing out old lunch boxes and drinking bottles. Since mainly those children's products were collected from Kringloops during the observation period.

WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP

(SEVERAL STORES REGIONAL,
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4. Educate/encourage customers

A good marketing/ awareness campaign can provide effective, positive and understandable feedback on why we should recycle. Transparency & motivation are the key messages with the involvement of social work stakeholders.

In addition, the Labour Center project can contribute to the CSR activities of company.

WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP

(SEVERAL STORES REGIONAL,
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5. Marketing

According to researchers*, the message that the product afterlife is something valuable has a positive effect on the brand and might help actual sales. Telling a positive story can inspire behavioural change, as result of awareness of the new concept.

Consider tie-ups with complementary products and discounts linked to the next purchase. Besides recycling the plastic from collected waste products, it would be wise to use the Afterlife Effect in place by offering a gift to those with a decent level of recycling.

*Source: Winterich, K. P., Nenkov, G. Y., & Gonzales, G. E. (2019). Knowing What It Makes: How Product Transformation Salience Increases Recycling. Journal of (Marketing, 83)

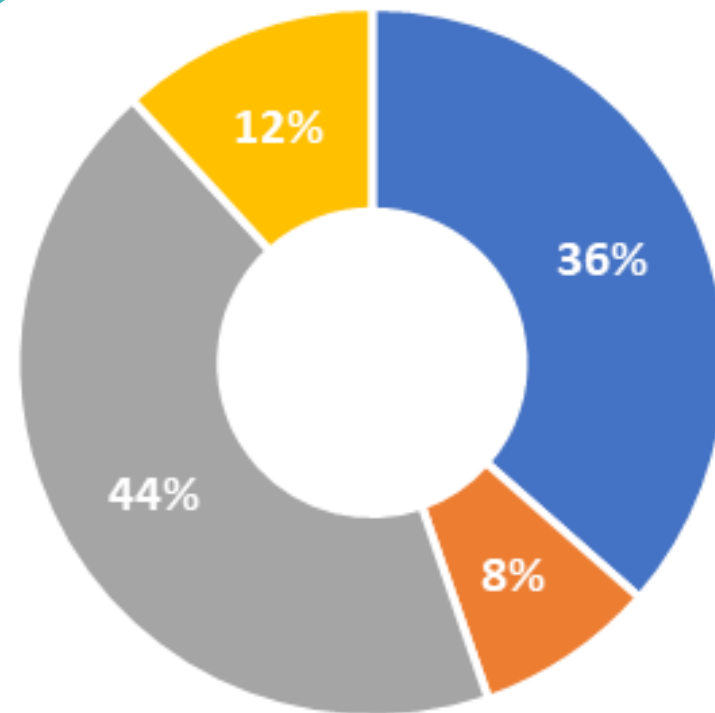
WHAT IS THE POTENTIAL SIZE OF THE DIFFERENT PLASTIC FLOWS WHEN SCALING UP (SEVERAL STORES REGIONAL, PROVINCIAL, OR NATIONAL BKN)?

Summer bin data study

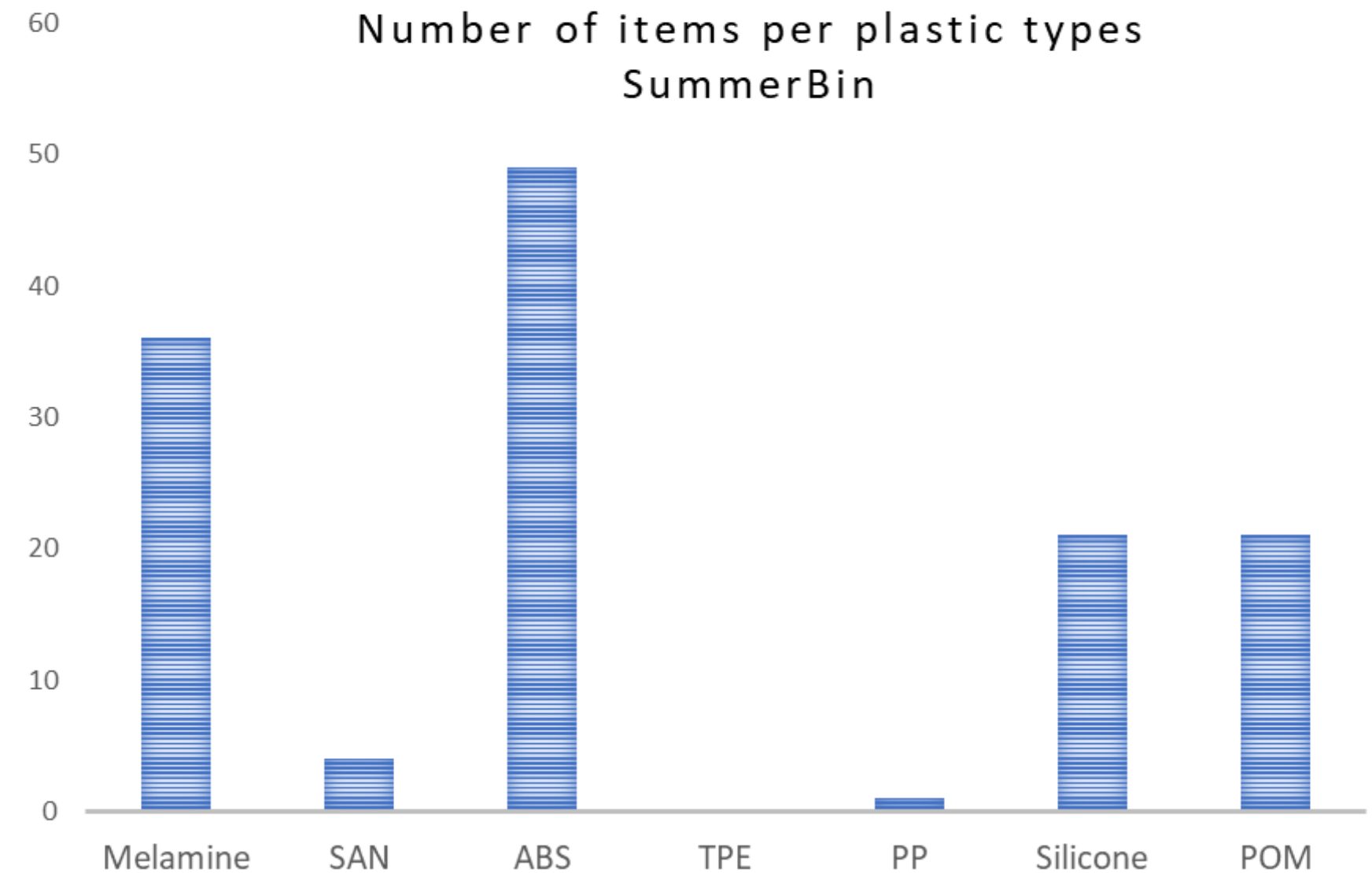
To give a little bit of potential for scaling up, we analysed the bin collected previously at Dalfsen store.

There were 85 items collected, out of which 44% tableware and 36 % children items (mainly cups).

As per material, ABS was present in 57% of the items, and Melanine was present in 42% of the items.

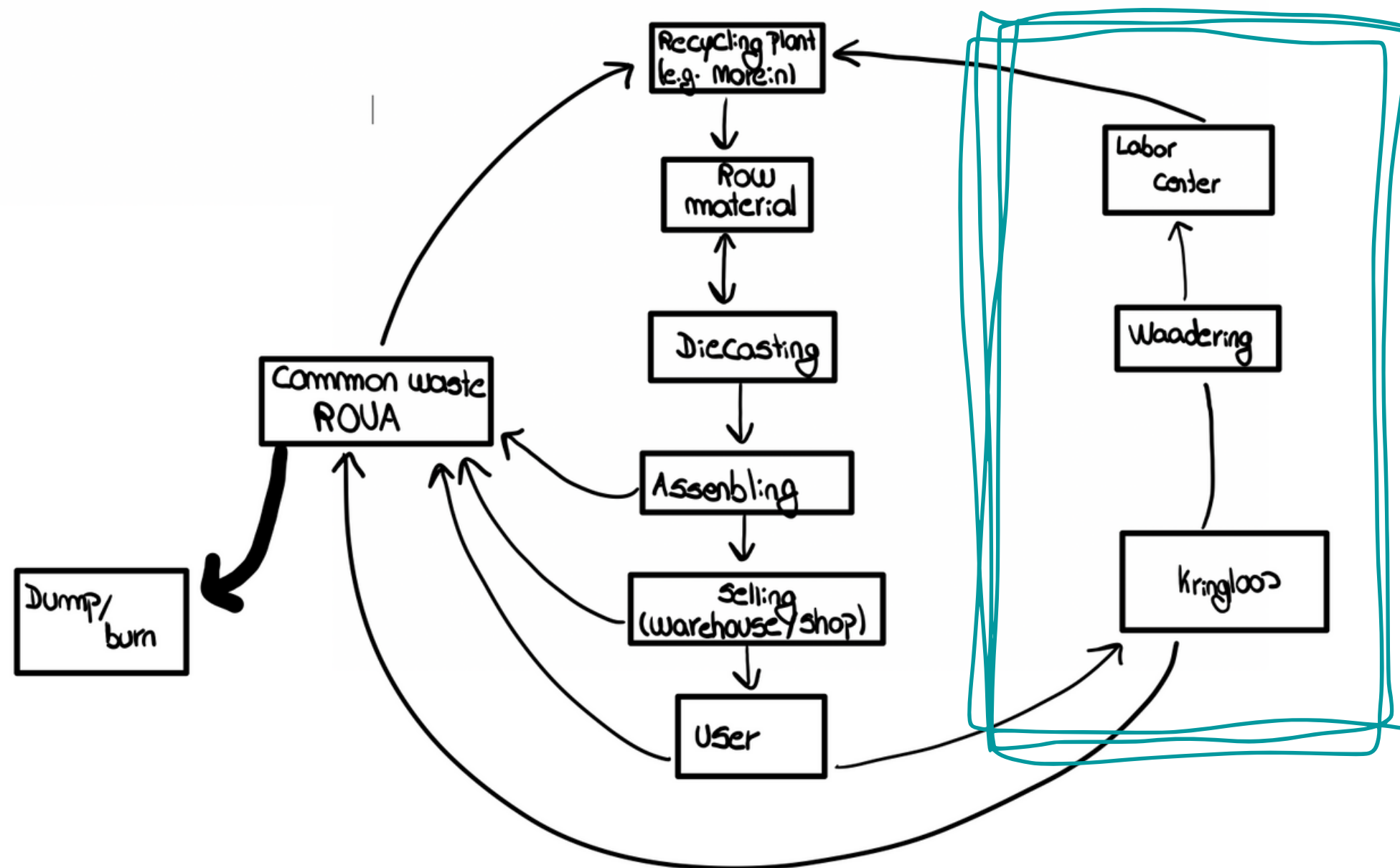


■ For children ■ On the go ■ On the table ■ Storage



Swiftly to new circular model of MEPAL products

The new circular model is to shift the product flow from ending up in a waste to collect, sort and recycle locally in a new process, providing local job opportunities and business potential.





Magic turns things into
other things.
SO DOES RECYCLING.