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Menstrual Cleaning

an easy and convenient solution for
menstrual cup sterilisation

Sophie West
2025

Declaration

Menstrual Cleaning: an easy and convenient solution to menstrual cup sterilisation

A thesis presented in partial fulfilment of the requirements for the degree of Master of Design at Massey University, Wellington, New Zealand

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2025

Abstract

Periods are a monthly occurrence for people with menstrual cycles, causing the need for period products which create large amounts of waste annually and cost an exorbitant amount. As a result, reusable period products have been designed to reduce annual product waste and create more eco-friendly products. These products are more environmentally conscious and cost less than disposable products like tampons and pads. There are a range of reusable products available, but the research and design focus is on the cleaning and sterilising of menstrual cups and discs. Cleaning and sterilising is essential to the use of these products, because of bacteria growth and potential health risks to the user, if left unsanitised.

The aim of this practiced-based design research project is to develop a cleaning product for menstrual cups and discs that improves current user experiences, encouraging the use of these reusable products. Ease of use, convenience, and comfort provides the focus for elevated user experience, aligned with achieving sanitary performance. Users can dread the cleaning tasks associated with menstrual products, and it is this aspect of product design and experience that needs to be addressed, if the benefits of reusable menstrual products is to be realised.

The convenience, ease of use and sanitary performance, will change the outlook on these tasks and encourage people to regularly sterilise. Development of this product will provide opportunity to encourage discussions and provide solutions for a better and more sustainable way to manage menstruation.



Fig. 1

Acknowledgements

I'm appreciably indebted to friends, family, academic and technical support staff, who have assisted me through my study.

In particular:

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glossary

Cleaning	The process of cleaning a reusable menstrual product while menstruating
Cleansing	Means both Cleaning and Sterilising
Cups	Refers to reusable menstrual cups
Discs	Refers to reusable menstrual discs
Disposables	Refers to single use menstrual products, such as pads and tampons
People	When talking about periods, I state 'people' or 'users' for inclusivity, as not everyone who has a period identifies as female
Reusables	Refers to reusable menstrual cups and discs
Sterilising	The process of sterilising the reusable menstrual product, either before or after the menstrual cycle
Users	See People
Wearables	Refers to wearable products that are reusable, such as period underwear and pads

scenario map



Fig. 2

To explain the cleansing tasks for reusables, scenario maps have been used to show the process. These three scenarios: Cleaning at Home, Cleaning when Out, and Sterilisation, use the most common practices of reusable cleansing to highlight user pain points, although this does not cover how all users may clean their reusable. Within the three scenarios a menstrual cup is shown, but these processes also cover the cleansing of menstrual discs.

To provide further context of reusables in relation to the female anatomy and why cleansing is important, diagrams show where menstrual cups and discs sit in the vaginal canal when worn.

Cleaning at Home

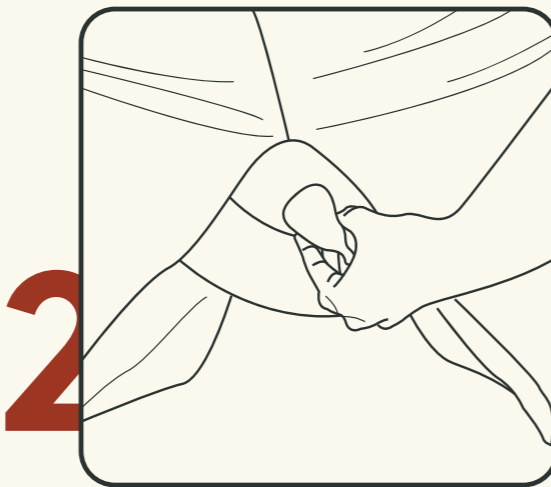
Go to bathroom

When cup needs emptying or removing for the day, go to bathroom and make sure to wash hands first.



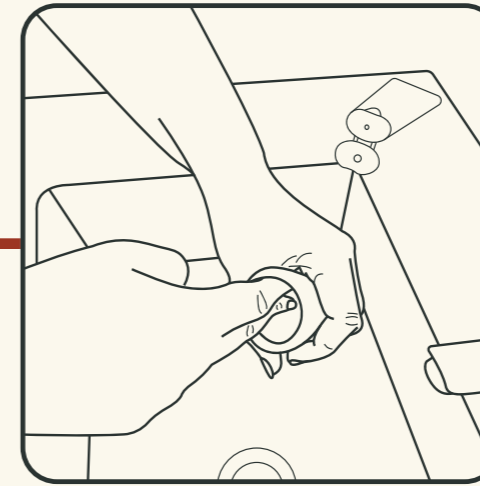
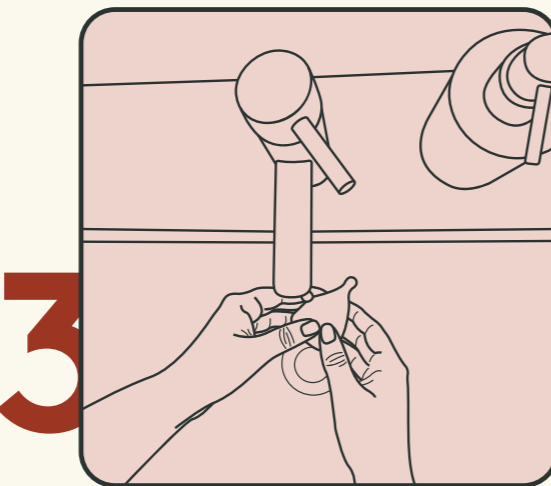
Remove cup and empty

Pinch cup to remove from vagina, then empty blood into the toilet.



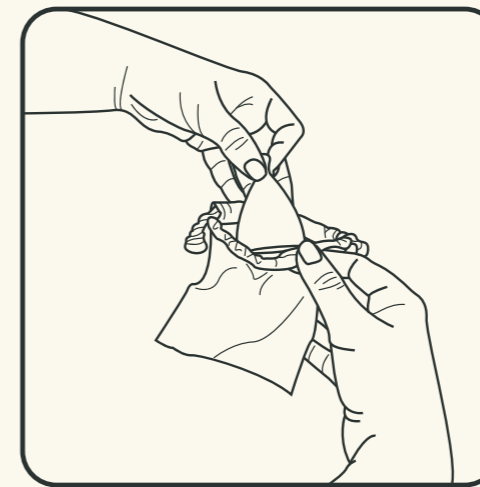
Rinse cup with water

Move or reach over to the sink and rinse cup with water.



Clean with wash solution

Thoroughly wash cup with wash solution, then rinse with water.



Store cup for next use

When clean or finished using with, place cup in a breathable fabric bag for storing in a dark place.

User Pain Points

- Sink can be out of reach, so must move to sink for rinsing (pants down shuffle to sink)
- Not everyone one wants their blood touching them
- Wash solution is an added product for cleaning, not everyone has, but ensures longevity of reusable

Fig. 3

Cleaning when Out

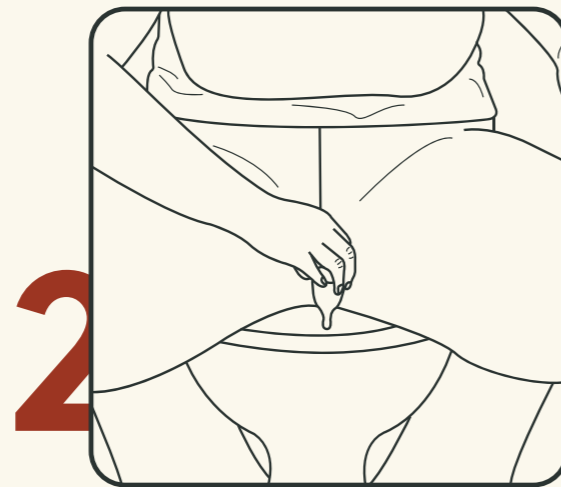
Go to bathroom

When cup needs emptying, go to bathroom and make sure to wash hands first.



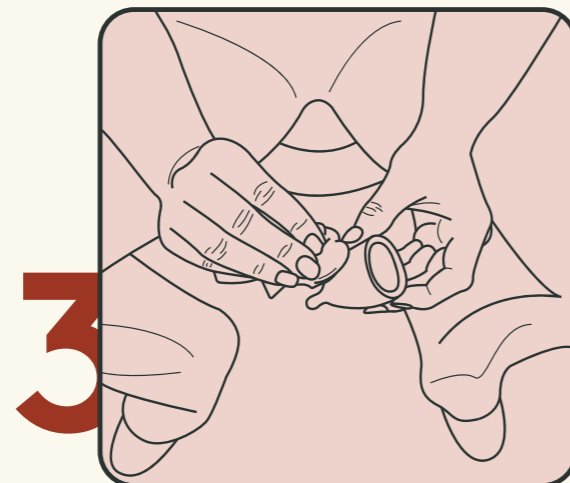
Remove cup and empty

Pinch cup to remove from vagina, then empty blood into the toilet.



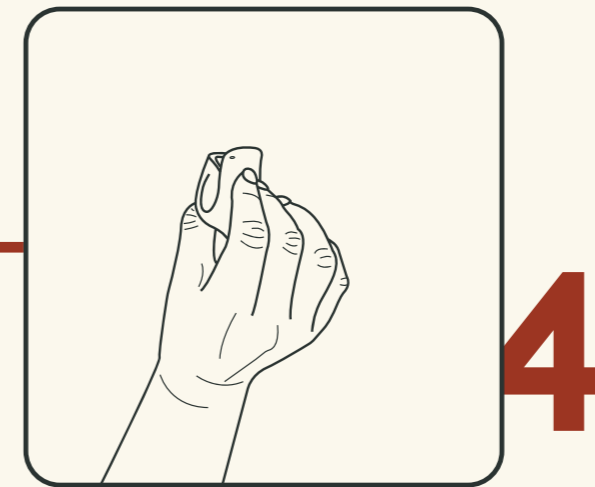
Wipe with toilet paper

Remove any excess blood with toilet paper, ensuring none is left on cup surface.



Cup ready to re-insert

Fold cup and re-insert into vagina.



User Pain Points

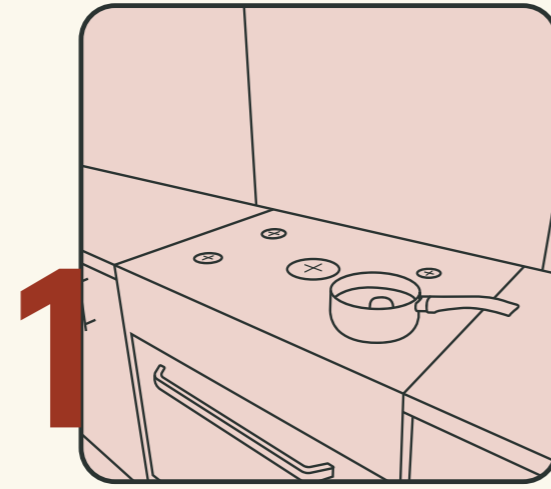
- Must be careful it does not touch anything, unclear how clean bathroom stalls are
- Commonly no sinks in stalls for rinsing
- Use of toilet paper for cleaning does not feel after

Fig. 4

Sterilisation

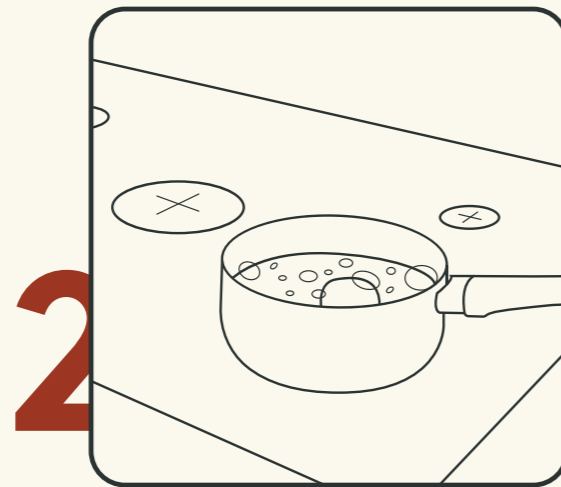
Put pot with water on stove

Using pot for cup sterilisation, fill with water, place washed cup in pot and place on stove.



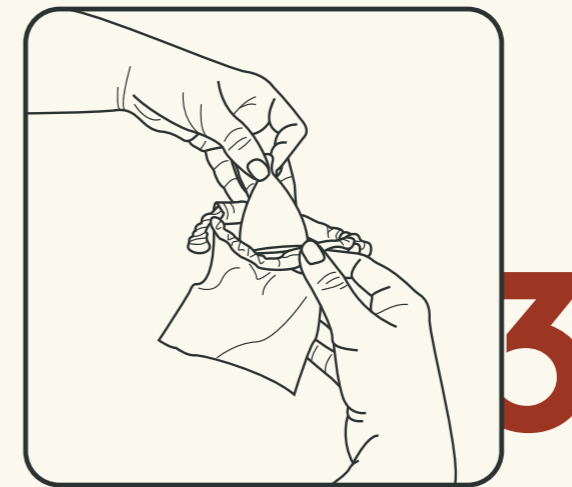
Boil for 3-5 minutes

Once water reaches rapid boiling, boil cup for 3-5 minutes.



Store cup for next use

Place cup in a breathable fabric bag, storing in a dark place for next use.



User Pain Points

- Separate pot needed often stored away from kitchen
- Completed in visible shared space
- Needs constant monitoring
- Uses space where kai/food is prepared

Fig. 5

Anatomy Positioning of Reusables

Menstrual Cup

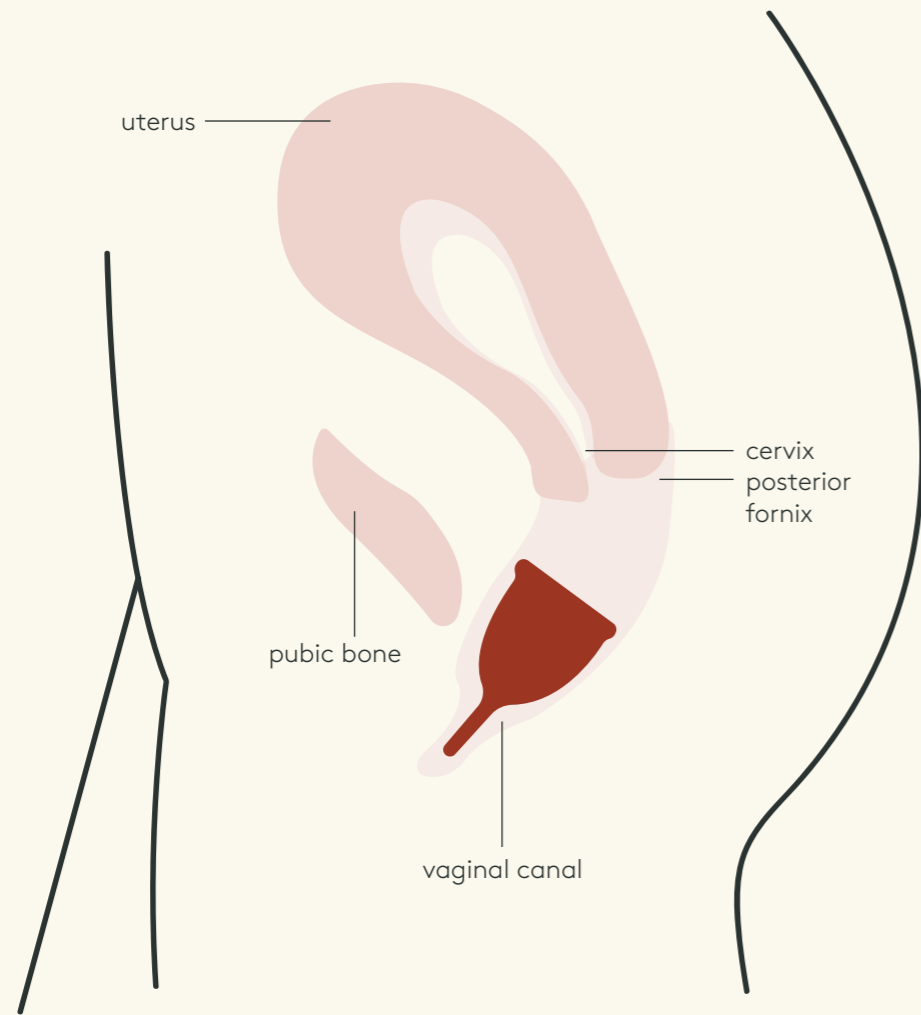


Fig. 6

Menstrual Disc

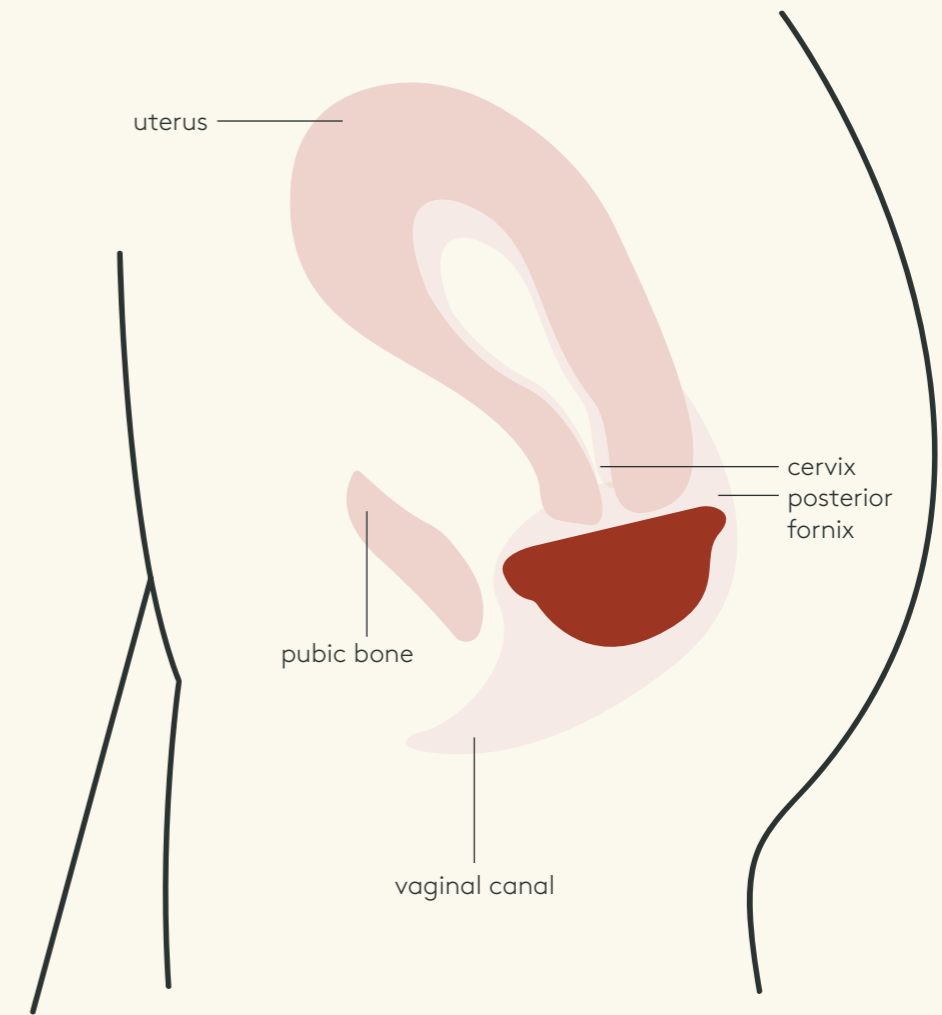


Fig. 7

chapter one



Fig. 8

Introduction

Menstrual cups and discs are reusable period products which provide users with economical solutions compared to using costly disposable products. However, reusables come with the added task of cleansing during and before next use. For many people the sterilising task is often done in the kitchen, and the cleaning task, while out and about, is often undertaken in public toilets.

These tasks can be challenging for users, and this prompted me to re-think how cleansing was performed for reusable menstrual products as a conceptual system, undertaken in my Bachelor of Design (Hons) (2023 Ref to Appendix A). This project, identified a growing trend toward using reusables and detailed the issues and frustrations people had with using reusables (2023 survey Ref to Appendix A). The conceptual system, referred to as Arla Concept was designed as an easier and more convenient system for cleansing cups when at home and while in public. The final critique of the 2023 design project identified Arla Travel, with the greatest potential to leverage the benefits of Arla Concept.

Arla Concept

Arla Concept was developed in 2023 as a cup cleaning system, to provide greater comfort and convenience to users for the cleansing task. It consisted of two cleaning products and two accessories, giving choice of when and where to clean and sterilise the cup.

The two cleaners were:

- Arla Home: the in-bathroom ultra-sonic cleaner with UV light for sterilisation.
- Arla Travel: the portable shaker cleaner also with UV light for sterilisation.

The accessories were the Arla Base for charging and running the cleaners, and Arla Carry, which was a waterproof bag for transporting Arla Travel.

Benefits of Arla

Arla Concept addressed the usability of cups in communal and public spaces by providing users with a cleaning product that reduced the visibility of the task and created a much easier and more private experience.

A key benefit of Arla Concept was knowing the cup was safe to use and that users could feel comfortable completing the sterilising task before reuse.

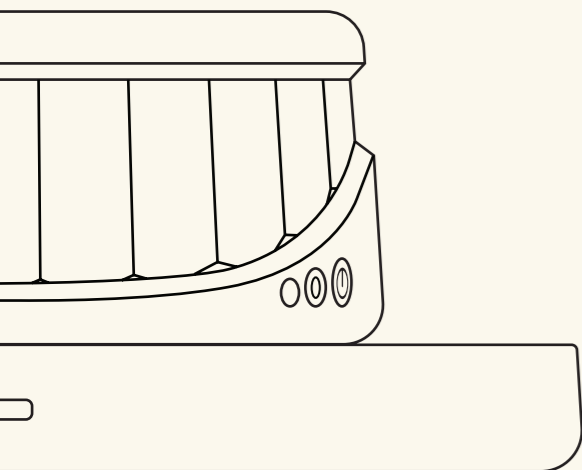


Fig. 9



Fig. 10

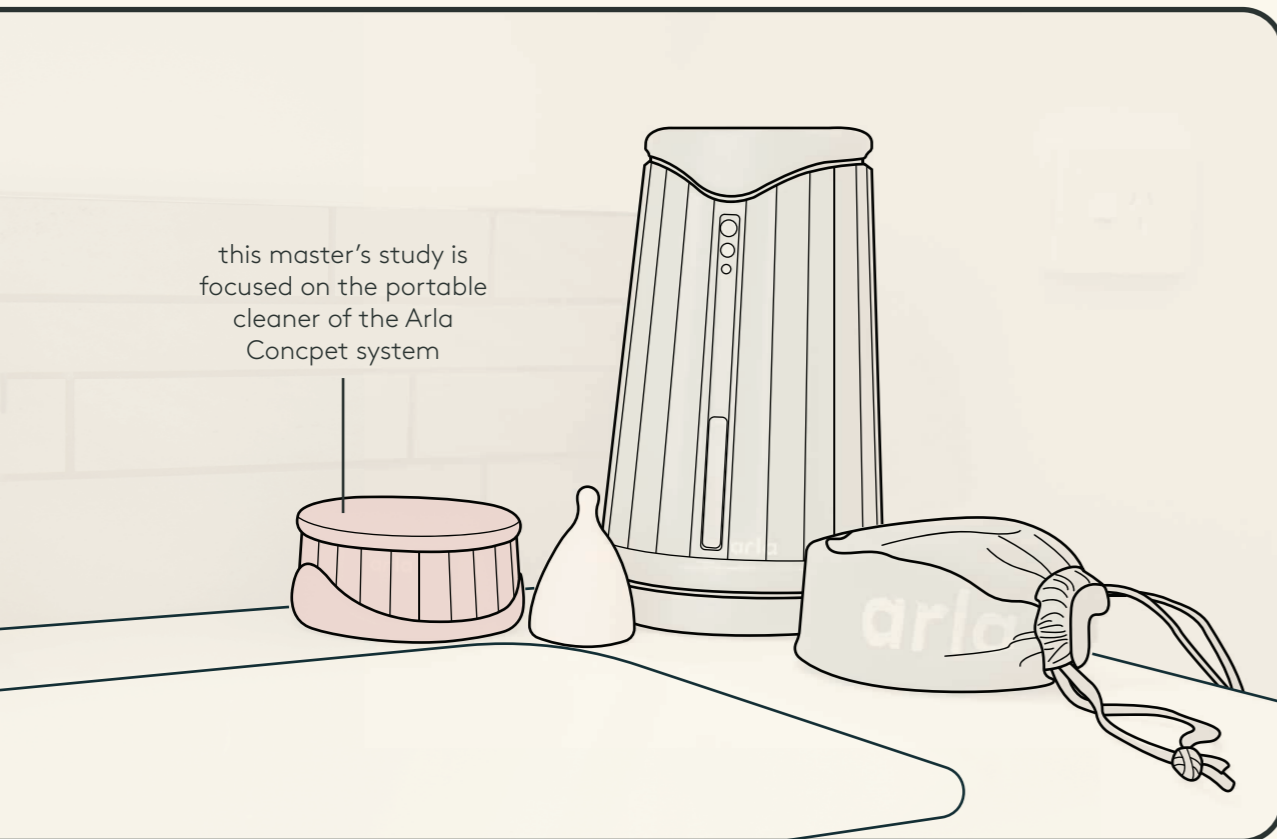


Fig. 11

Design Evaluation

This product concept focused on the locations of use and how users could feel more comfortable cleaning and sterilising their cups. This was considered through the two cleaning products. However, this approach required a number of components to be stored, which could be challenging for those with limited storage.

The cleaning time, although unmonitored, was longer than current practices and it was unclear if the UV light would effectively sterilise. The sterilisation method needs further exploration to ensure this is both effective and can reduce the required cleaning time.

A key question raised from the evaluation was whether the location and cleaning needs can be consolidated into one product? Also, the user experience of Arla Concept needs further development, as while the cleansing process has been considered, the user experience and interaction with the product, such as buttons, operation of the expandable cup, and water release details have not been fully resolved.

Master of Design Study

This study focuses on the design development of one component of the Arla Concept product system; the portable cleaner, Arla Travel. It focuses on the detailed design and user experience of cleaning and sterilising to make these tasks less onerous and more comfortable for people.

Problem and Aim

The large amounts of waste created through period product use, especially disposables, is a serious problem, it is estimated that 25,000 tonnes of menstrual product waste is produced in the United Kingdom annually (Ramsay et al. 23), highlighting the need for change to reduce the amount of period waste. While there will always be period waste, this can be significantly reduced by using reusables and wearables.

Cups and discs are two common reusable period products, but there is stigma with using and cleansing these products which is one factor that may limit their use. It is important that people feel comfortable when using and talking about period products and this research considers how to achieve this by improving the cleansing process for reusables through development of a product to make this task easier.

Key objectives of this masters research project is to minimise the stigma associated with cleansing reusables, and to change the perception of this task being difficult through design innovation.

The project scope is to research and develop an innovative product that will improve the user experience and reduce the stigma associated with cleaning and sterilising of reusable cups and discs, and in particular to provide:

- A cohesive system for ease of managing the cleansing of reusables
- Dignity to those menstruating
- A solution that will address concerns about use in public and shared locations
- Encourage greater use of reusables as an alternative to disposables

This project will follow the double diamond design methodology (Design Council) as an overarching approach to further develop and critically review aspects of the product. The research methods used to better define the issues and opportunities include a user survey, task analysis, product testing, and user experience analysis.

Current markets, trends, and existing products will be explored to gain further knowledge before considering user experiences using tools such as task analysis and discussions with people. Broad user engagement, including with those who use disposables, is key to the development of this research project. This engagement will be used to better understand the current issues with cleansing, test the user experience of the developed product and to highlight issues.

This research project will be guided by insight-driven investigation leading to a user-centred outcome that optimises experience and habit forming for ongoing product use. The aims of this research project are to reduce period stigma associated with cleansing reusables and to create a supporting cleansing system that will encourage greater use of reusables instead of disposables.

Initial Research Questions

- When sterilising reusables, what is the best method for maximum result?
- Is ultra-violet (UV) light sufficient for sterilising reusables?
- What is the difference between cleaning and sterilising, and can both tasks be developed into one product?
- What feelings does the product need to evoke in users, and how could the tasks be simplified to encourage use?
- How small can the product be, while performing the required tasks effectively?

chapter two



Fig. 12

Relevant Literature

Literature regarding stigma, period products, menstrual and product perceptions, and a women's health framework were explored to better understand aspects of menstruation.

Menstruation and Cultural Perceptions

Menstruation is the monthly shedding of the uterus lining which can last between three to seven days (Cleveland Clinic). For those menstruating this is commonly managed by using products such as pads, tampons and other reusable options.

“On average we will use 12,000 tampons in our lifetime and spend approximately \$18,000 (pounds) on products” (The Little Pomegranate). This highlights the financial burden that menstruation has on people.

The approach taken to manage menstruation is diverse and can differ for a variety of reasons, including cultural, ancestral practices, user preference, what you were taught and product availability.

The western management of periods is quite individualistic and is taught as being your own problem to deal with (First Blood). This way of thinking reinforces people not discussing menstruation and making those who are menstruating feel like they must hide their monthly bleed from others (Watson,13), further stigmatising periods as shameful and dirty.

Among other cultures, such as Ojibwe People and Ambubachi Mela, menstruation is celebrated (Mckenne) and can be a happy moment symbolising womanhood (First Blood). These practices show periods can be considered as ‘not gross’ and that people can be supported when they are menstruating.

Although there are celebratory period care practices, there are many traditions that shun or shut out people who are menstruating (Mckenna) suggesting there are still large numbers who don’t view menstruation as something to celebrate.

For Māori, blood represents life, death and the power of regeneration and renewal (Watson, 18), and is considered very tapu (sacred, restricted, unsafe) and must be treated with care (Native Daughter).

Wāhine (woman) avoided certain activities or places while they were menstruating to ensure their (and others’) tapu was maintained (Watson, 18). Also, the mana and tapu of menstruation was taught to girls and boys, so everybody understood its importance and how special it was. This was particularly important for boys to learn, because it was the men who took care of the household so the woman could rest (AWWA). This tradition of teaching everyone the importance of menstruation destigmatises the feelings people have around menstruation.

The influence of western norms of menstrual management have changed how other cultures view periods and how these are managed. Traditionally, ikura (menstruation) was talked about openly as a celebratory symbol of life, but many Māori today feel whakamā (shame and embarrassment) about their periods as Māori femininity and menstruation practices have been seen as inferior to Pākehā (New Zealand) norms (Watson, 19).

It is evident that menstrual management varies between people and can be preferential or culturally based. However, discussions regarding menstruation are still very often taboo but, hopefully will become more common making others more comfortable with the topic and within themselves about periods.

Period Stigma

Even though periods are experienced by well over a billion people worldwide, many still feel uncomfortable talking about menstruation. The Office of the High Commissioner for Human Rights (OHCHR) noted that *“because of social taboo and gender stereotypes that stigmatise menstruation as dirty, many people experience menstruation with shame and without access to the resources needed to manage their menstrual health safely”*. This remains a barrier and reduces people’s confidence in managing their periods which can magnify period stigma.

Furthermore, cleansing of reusables, and in particular boiling these in the kitchen to sterilise, has a negative perception amongst users due to its high visibility and as it is a food preparation area. This can also create stigma where people may feel uncomfortable using reusable cups and pads (Garcia) and shows how perceptions can contribute to the choice of period products people use.

This stigma is further magnified for people who may need to wash reusables and wearables in shared or public spaces where often there is inadequate menstrual management facilities and spaces for washing and drying these products (Medina-Perucha et al. 12). Again, this feeds the cycle of period stigma where people may feel the need to hide and/or feel uncomfortable with the cleansing of these products.



Fig. 13

Period Products

There is a range of disposable, reusable and wearable options for managing menstruation. While the products used will depend on user preferences to some extent, key considerations will be comfort, convenience and even environmental and cultural concerns.



Fig. 14

Disposables

Disposables, such as pads and tampons, are single-use products and contain large amounts of plastic, and these can take up to 500 years to decompose (Harrison and Tyson). The disposable nature of these products can be appealing to users as they are convenient and involve minimal cleaning time. However, the environmental impact of the period product waste, while inconsequential for an individual on a monthly basis, on a global scale is significant with over 500 thousand tonnes¹ created annually.

A new study in 2024 has raised concerns about detected toxic metals (lead, arsenic, and cadmium) in several tampon brands (Proulx). This is alarming given up to 80 percent of people who menstruate will use tampons for several hours a day (Proulx). The identification of these toxic metals raises concern about potential health issues for the millions of people who use disposables and clearly shows an opportunity for reusables to give users safer options.

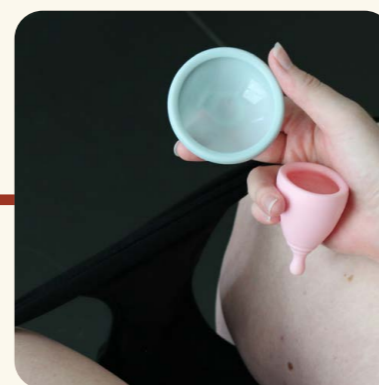


Fig. 15

Reusables

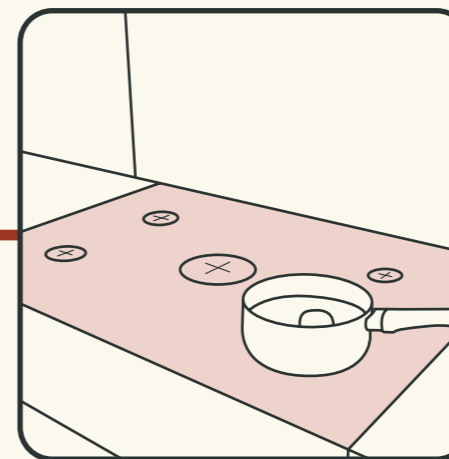
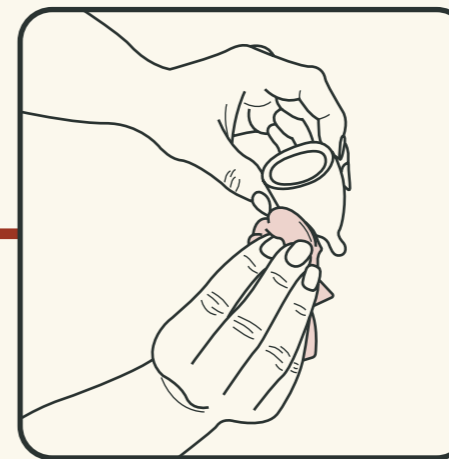
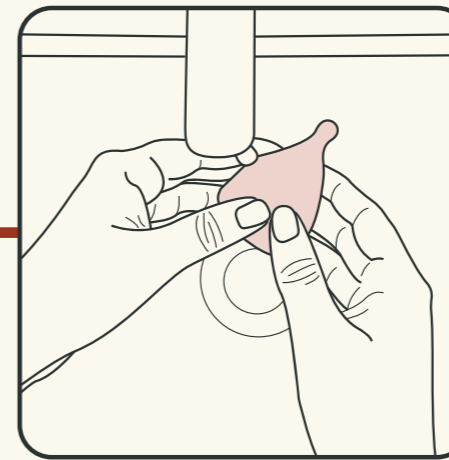
Reusables are defined as 'products that can offer long-term cost and environmental benefits to those menstruating' (Ramsay et al. 23). There is a growing range of wearables and reusables including period underwear, pads, liners, cups and discs. The common factor with using these products is the added task of cleaning and sterilising to ensure the product is sanitised for next use.

¹ This has been extrapolated from 2023 World Bank population data for woman aged between 15 - 64 in the OECD versus the UK, and UK data where 25,000 tonnes of period waste is estimated to be created annually (Ramsay et al. 23)

Product Perceptions

There is a perception of reusables and wearables being hard to use, especially among those who have not used them or have only done so a few times; in particular the cleansing burden may disincentivise use (Ramsay et al. 23). This highlights how the added cleansing task is not enjoyable, with some users choosing the convenience of disposables instead. It was also said *“the idea of having to boil a product that goes into your body or having to take out an object that is filled with blood seems off-putting or unsanitary”* (Garcia) suggesting a need to change how information is shared about cleaning and sterilising to make people feel more comfortable about reusables.

When discussing menstrual cups, users said the most important characteristics were comfort, protection from leakage, and environmental sustainability. Also important was cost, confidence with using the product, and ease of mobility (Ramsay et al. 23). A common factor in these characteristics is the need for security, with users wanting to feel protected and know that the product will work.



“Perceptions on menstrual products, related **fears and structural barriers** for menstrual management, **especially in public spaces**, were identified in qualitative data.”

(Medina-Perucha et al.)

“Participants perceived **reusable products as being difficult to change outside the home** (75%), including those who had ever or were currently using reusables (70%).”

(Ramsay et al.)

Fig. 16

Use of Reusables

Managing reusables includes cleaning and sterilising to ensure safe use, and the storage of the product to keep it sterile until next use. Boiling is a common method of sterilisation, with a specific pot often used for this task, which is then stored away from kitchen pots to avoid inadvertent use in the kitchen.

To ensure the sterilised reusable stays sterile for next use the reusable needs storing in a breathable pouch in a cold dry location such as a vanity drawer to protect the cup from dirt and germs and to allow proper drying time before next use (Anderson).

The experience of reusable management is different from disposables as it can be more labour intensive to ensure product safety. The additional cleansing tasks can discourage the use of reusables, but the developmental opportunity is a purpose-built product allowing easier management, therefore changing the experience had.

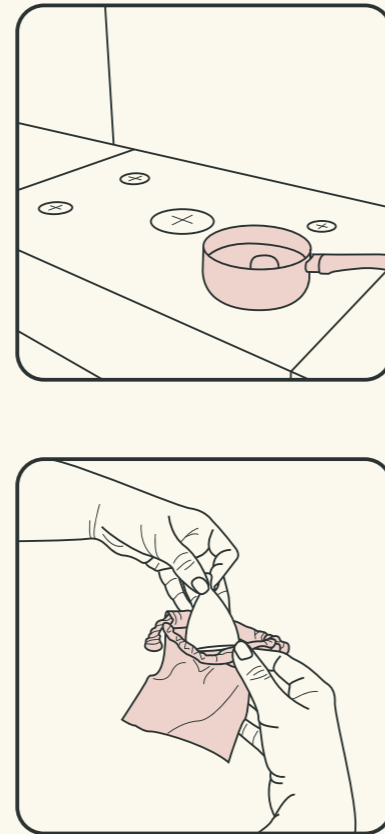
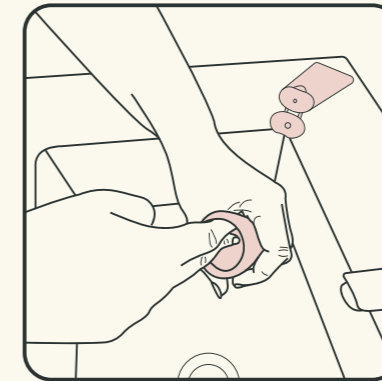


Fig. 17

Menstrual Cups and Discs

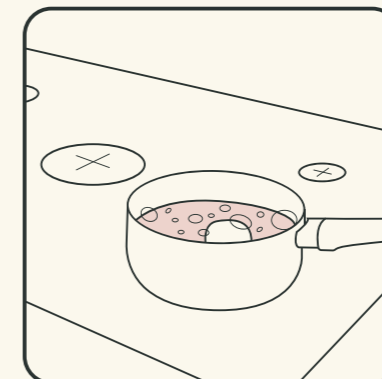
Cups and discs are part of the reusables product range and are a vessel designed for collecting menstrual fluids. Due to their reusable nature, cleaning and sterilising is essential to their use.

Cleaning



A key difference between cleaning and sterilising is that the former task is performed regularly throughout the menstrual cycle. Cleaning involves daily washes, often done with wash solutions, to remove surface bacteria, odour, and buildup (Anderson).

Sterilising



Sterilising is done once (either at the start or the end of a menstrual cycle) to remove bacteria and sterilise the reusable product for next use (Anderson).

Fig. 18

Why is Sterilisation Important

Reusables require sterilisation to be done once, either before or after each cycle to keep the cup sanitary. However, this task can be forgotten or more often ignored, especially when it needs to be done in the kitchen. While sterilising is important for reducing health risks, it also prolongs the life of the reusable. When these are not properly cleaned bacteria, odours, stains, and erosion can occur, which can lead to irritation, or, in more rare cases, infection (Anderson).

Women's Health Framework

In 2014 the Women's Health Action Trust released a document outlining the benefits of having a women's health strategy and in 2023 the Ministry of Health (MoH) released its Women's Health Strategy.

Women's Health Action Trust

The Trust's document outlined the benefits of a women's health strategy for New Zealand, to recognise sex and gender are basic determinants of health, giving rise to different health outcomes and care needs for women and men. This examined why a health strategy is needed and provided a set of principles to guide this strategy.

Women's Health Action believed it was essential that Aotearoa New Zealand develops a health strategy to guide woman's health services, including to help achieve:

- Health equity between women and with men.
- Analysis of gender in health care policy and research, and understanding gender as a key determinant of health.
- Greater understanding of how women's health needs differ with life stages.
- Equitable access and safe services, including culturally diverse health services for specific populations such as Māori, Pasifika, older, teen, disabled, rural, Lesbian, Bisexual, Transgender and Intersex people.

(Women's Health Action, 4-7)

Encouraging greater uptake of reusables (instead of more costly disposables) would provide a tangible step towards more equitable access to period products.

New Zealand's Women's Health Strategy

The MoH has set long-term priorities in Aotearoa New Zealand to guide the health system with progressing towards equity and healthy futures for women. Their strategy recognises the strength of women, their whānau and communities. This is a step towards supporting the health and wellbeing of all women by ensuring that they can be heard, have choices, and live longer and healthier lives.

MoH has outlined four strategic priorities to give clear direction on the changes needed over the next 10 years to move towards achieving a fairer, stronger, more sustainable, and responsive health system for women:

- Priority 1: A health system that works for women
- Priority 2: Improving health care for issues specific to women
- Priority 3: Better outcomes for mothers, whānau and future generations
- Priority 4: Living well and ageing well.

(Ministry of Health)

These priorities will improve the care women receive in New Zealand health facilities by acknowledging the unique health care needs for each gender and to start addressing current inequalities. As these priorities are introduced the hope is these will encourage woman to seek help in the health system.

The Women's Health Strategy provides a framework for encouraging awareness of woman's health needs and issues, including menstruation.

Consistent with these strategies, there is an opportunity for a cohesive product, like Arla, to encourage discussions, and provide solutions for a better and more sustainable way to manage menstruation. Developing a system of use that provides dignified use of reusables will help address the inequity that exists for period care.

chapter three



Fig. 19

Context Review

Current cleansing product markets, product trends, sterilisation methods, and user experiences were explored to assess areas of opportunity for Arla and user experience needs. Potential options for technology were also considered for the preferred sterilisation method.

Market Overview

The cleansing product market for reusables can be broken down into two segments one for cleaning and the other for sterilising.

- Cleaning products for washing the cup while using during the cycle include wash solutions, sterilisation spray (this is not designed for end-of-cycle sterilisation), wipes, and shaker cups.
- Sterilising products to prepare the Reusable for use next cycle include UV light, microwave and steam sterilisers. Sterilisation tablets are also part of this segment.

Case Studies

Emanui

Emanui is a cleaner and steriliser for cups. While this allows cleaning to be done in locations comfortable to users, sterilisation still requires access to a microwave, often in the kitchen. Currently this is the closest available product to what Arla will provide, but will not work with discs, whereas Arla will also accommodate discs.



Fig. 20

Saalt Steamer

The Saalt Steamer is described as a quick convenient product for sterilising reusables and can be used in the bathroom. However, this product only sterilises and requires a one hour cool down period, lengthening the time the steamer is visible.



Fig. 21

Saalt Sanitiser

The Saalt Sanitiser is a compact collapsing container that allows sterilisation to be done where there is access to a microwave. This can be used as a shaker cup to clean between uses when out and about, or where the handbasin is not located near the toilet. Sterilisation with this product will still take place in the kitchen which raises the same locational concerns.



Fig. 22

Compact UV Steriliser

This compact steriliser utilises a battery powered UV light for sterilising cups and does not require access to water. This product reportedly kills 99.99 percent of bacteria and odours. To use this product the cup needs to be completely dry which adds additional steps to the sterilising process.

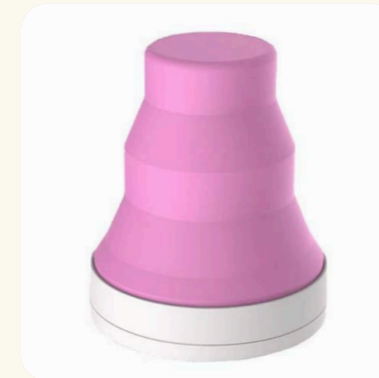


Fig. 23

The full case studies can be found in Appendix B.

From these case studies, portability was identified as a consistent feature providing clear benefits to consumers as it allows the product to be used where users need and where there is access to supporting equipment like a microwave. Not all the case study products fit the range of cups and discs sizes available. Indicating a lack of information in this area regarding specification and or strategic decisions made by manufactures of market perceptions and ranges they were accommodating or targeting. Access to a microwave was a need for both Emanui and Saalt Sanitiser, limiting where this product can be used and to those with a microwave.

Learnings from these case studies for Arla are that it should be portable and useable in many locations, able to cleanse cups and discs to both maximise market share potential and reduce product waste if users switch products. It also needs to function without the use of other equipment or spaces.

I am aiming for Arla to innovate by consolidating both market segments into a single product that will allow people to perform both the cleaning and sterilising tasks. This approach will simplify the user experience and potentially influence market attractiveness due to the delivery of this new benefit to users.

Market Trends

To identify the current cleansing product market trends, product assessments and perceptual maps were used. By exploring current products against a range of criteria, such as cost, cleansing, portability and reusability, gaps have been identified for where a new product could fit into the market.



Fig. 24



Fig. 25

Product Trends

The cleansing product market has seen an increase in both cleaning and sterilising products for reusables since the initial research that was done in 2023.

The largest trend recently has been the expansion of microwave sterilisers. This is generally a silicone container that sterilises cups by using the microwave to boil water. During initial research only one branded product was found, but in 2025 there were a further seven branded products. This shows a trend towards easier and more portable methods of sterilising to better meet the needs of users, and a commercial focus on the opportunity and benefits reusable products provide in this market segment.

Another sterilisation method that has become more popular is steaming. In my initial research there was only one unbranded product available, but in 2025 there were a further five found, with two from large period brand companies. This trend shows the growing use of steam for sterilisation and that brands are beginning to support this method.

The other sterilisation trend that is emerging is the use of UV light. In my initial research no UV light sterilisers were available, which was a gap in the steriliser market. In 2025 one unbranded UV steriliser was found, suggesting a slight trend towards this method.

All the trends described above indicate that users are after products to help them with sterilising their reusables, and an emerging industry responding to this expanding demand.

Perceptual Mapping

To see how the identified range of cleansing products for reusables compare, I have used perceptual maps across a range of criteria:

- Cost vs Cleaning/Sterilisation
- Cost vs Reusability
- Portability vs Reusability
- Portability vs Cost

All perceptual maps and findings can be found in Appendix C.

Cost vs Cleaning / Sterilisation



Fig. 26

Portability vs Reusability



Fig. 27

From these perceptual maps I have found:

- Product portability is a high priority for most of the products.
- The product costs were broad, depending on the technology used and the complexity of the design. The branded products tended to be more expensive, often reflecting better quality materials used.
- There is a clear differentiation between cleaning and sterilising products. And while some products can do both tasks, they typically favour one task over the other. A good example is the silicone shaker/steriliser, which is marketed as a microwave

- steriliser but can also be a shaker cup.
- Product reusability featured more for sterilisation, with many of the cleaning products, such as wash solutions, needing to be replaced after use.

In conclusion, portability and cost effectiveness will be important attributes to make the Arla cleansing solution successful.

Sterilisation Methods

There are several methods for sterilising reusable products:

Boiling

Currently boiling is the most used sterilisation method. Boiling water (which often uses a pot on the stove) is used for around five minutes to kill and stop any bacteria growth to make the cup or disc safe to use. While this method is not particularly time consuming, it does require the user to be present during the process. It usually requires using the kitchen stove, which is normally used for food preparation, and also makes the sterilising task highly visible.

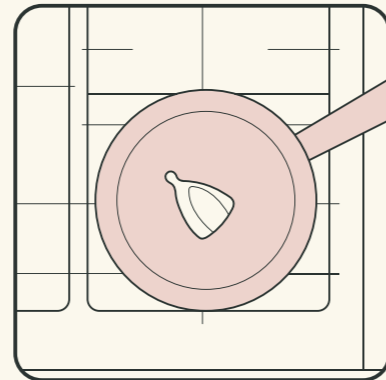


Fig. 28

Microwave

The microwave is another method of sterilisation, with this used to boil water with the cup or disc to sterilise it. At least one period product brand has raised concerns about how this method can damage the structural properties of reusables, so the microwave should only be used for boiling the water, prior to sterilising the product (Asan Cup).



Fig. 29

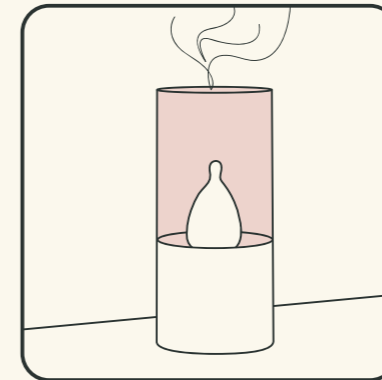


Fig. 30

Steam

This is another newer sterilisation method, which uses steam in a confined space to sterilise the reusable. This method takes up to four minutes for sterilisation but requires a cool down period of around an hour, which lengthens the time for the task. While this product can be used in the bathroom, the longer cleaning time does mean the steamer is visible for a longer period.

UV Light

This is a relatively new method for sterilisation, utilising UVC rays to kill the bacteria. Currently this method cannot guarantee 100 percent sterilisation and can degrade the menstrual cup material properties reducing its life span (Diva).

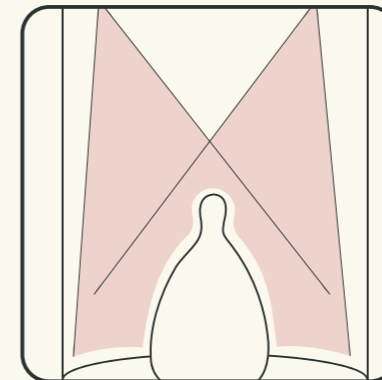


Fig. 31

There has been a trend towards products that use a microwave or UV light for sterilisation, however, for longevity, the use of steam or boiling for sterilisation is considered better as these methods maintain the structural integrity of the reusables. For Arla, I have opted to use boiling as the method of sterilisation is simple and requires less time to complete the task.

Technology Options

As Arla will function as a boiler for sterilisation, this section discusses the technology options for boiling water.

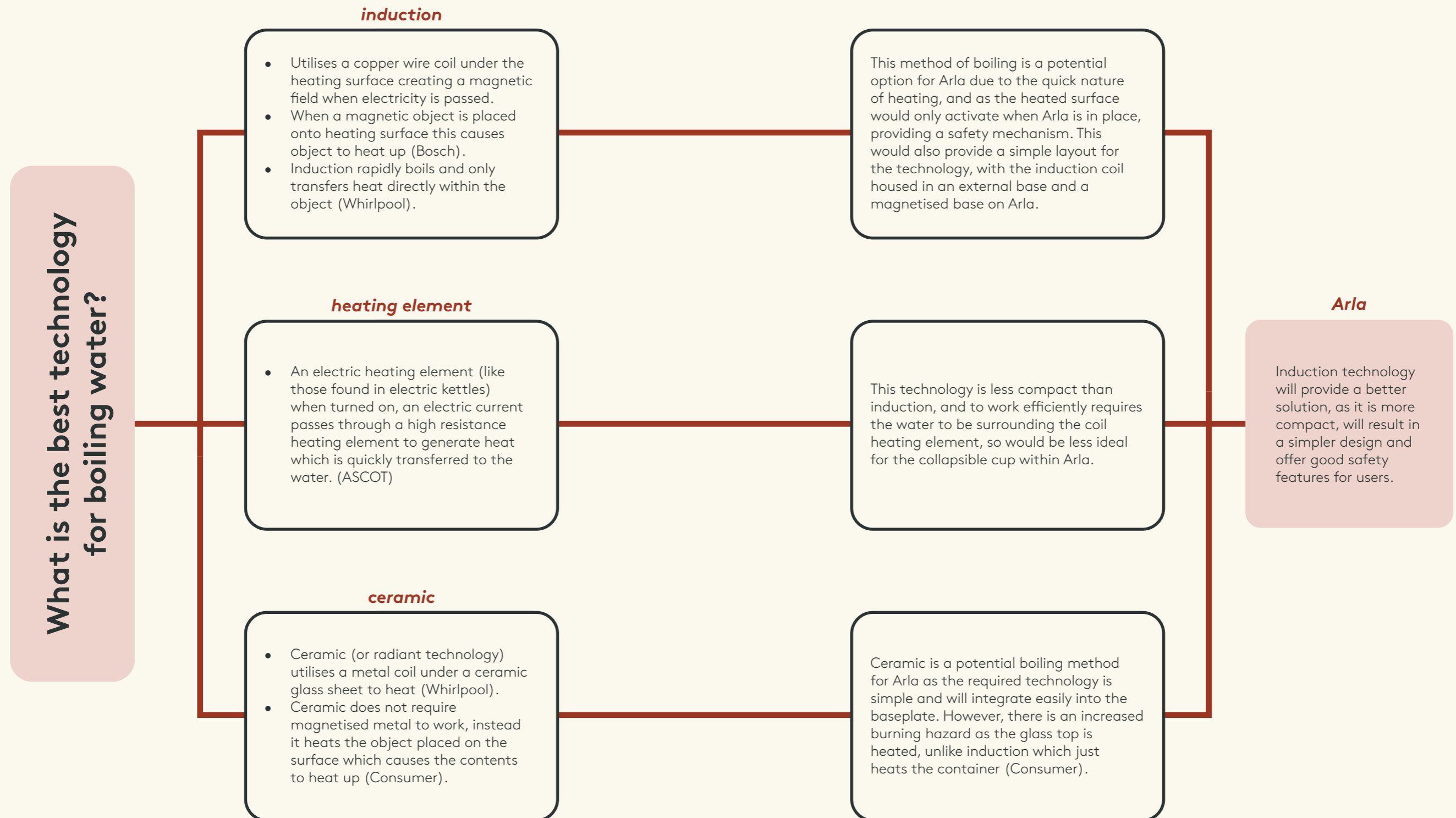
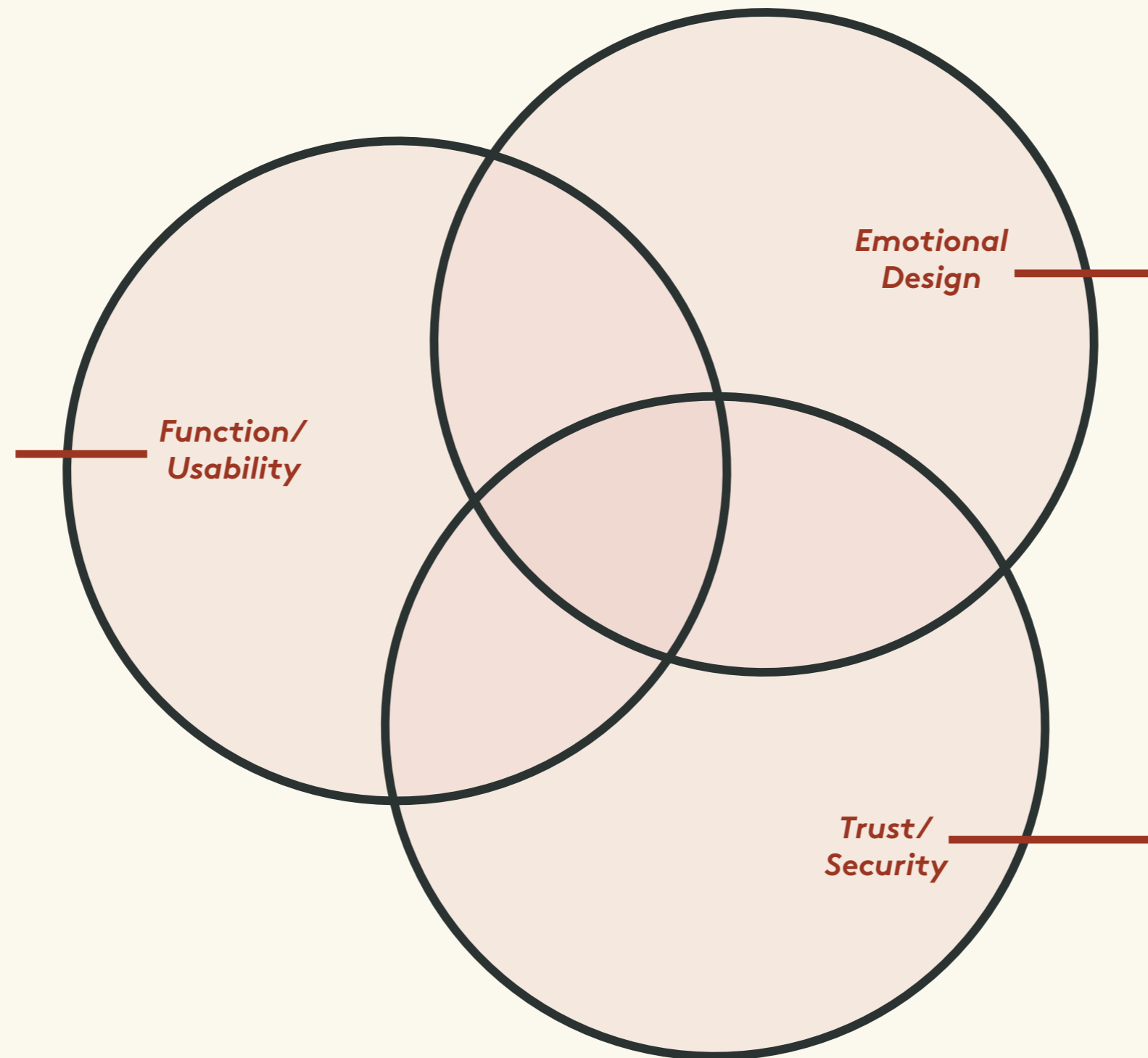


Fig. 32

User Experience

User experience is a broad term referring to the integrated affect, cognitive and physical experience users may have when using a product and can be anything from navigation, ease of use, or the relevance of content (Product Plan). Through user experience I will be exploring how emotional design, trust and security, and function and usability will inform the user's experience of Arla and how to maximise the design to provide a good user experience.

- Two strategies for design new products are: finding what causes us pain and trying to eliminate it, or reinforcing what we already do with new objects that makes it easy to become second nature. (Kuang, 96)
- Tasks dictate design. Make the design fit the task and the product works more smoothly and effectively across a wide range of users and uses. (Norman, Emotional Design, 58)
- *"On the face of it, getting the function right would seem like the easiest of the criteria to meet, but in fact, it is tricky. People's needs are not as obvious as might be thought."* (Norman, Emotional Design, 70)
- The human-centred design philosophy starts with a good understanding of people and needs intended to meet through the design. People themselves are often unaware of their true needs or difficulties they are encountering, so this understanding primarily comes through observation. (Norman, Everyday Things, 9)



- Considers how products evoke emotions to give positive user experiences (Interaction Design Foundation)
- Cognitive Responses:
 - Visceral* – Users first impressions of a design,
 - Behavioural* – Users subconsciously evaluate how a design helps them achieve goals and how easily,
 - Reflective* – Users judgement of its performance and benefits, including value for money.
 (Interaction Design Foundation)
- *"The experience is not a first impression experience only, but one that evolves over first impression, usage, and ownership."* (Desmet et al. 154)
- Design that focuses on layers can evoke multiple 'layers' of emotion and an understanding of the various layers that combine product experience enabling the design of rich and desirable products. (Desmet et al. 154)
- Three factors that impact the trust humans place in systems: reliability, functionality, and helpfulness.
- For ongoing reliance and use management of trust is needed.
- *"Distrust can come from frustrations with product performance, unreliable communication and broken expectations"*
- A set of design criteria can build resilient objects reducing risk of miscalibration of trust and encourage continued engagement. (Krige)

Fig. 33

Function and usability will ensure products behave and fit user needs for specific tasks while also addressing a wide range of other uses. Trust and security are needed for ongoing use and user engagement with products. Emotional design is the experience either thoughts or feelings evoked by product interaction.

For Arla to be successful it must balance these three aspects to ensure the user experience provides the functions needed, in a way that evokes trust in using the product, along with an emotional connection to ensure continued use. It is important that the *“User experience should support the entire user journey, not just a single moment or interaction”* (Kuang and Fabricant, 323), which means for Arla that its use over the cycle should be fully considered, rather than the individual tasks of cleaning and sterilising.

Revised Research Questions

- What are the pain points of the current user experience and how can this be changed to better fit user needs?
- What feelings does the product need to evoke to encourage its use?
- How can the tasks be simplified to encourage the use of reusables?
- How small can the product be to perform the tasks needed effectively?
- What trust and security do users want and need in the product?

chapter four



Fig. 34

Methods

This chapter explains the general design process, methodology and framework used in developing further knowledge and insights into the cleansing issues faced by users. A social lens informed by the Women's Health Framework (Ref to pg 38-39), further guides the project to ensure the design outcome will fit user needs and addresses wider inequities in the health system. The research methods used are a user survey, task analysis, product testing, and a user experience analysis.

Methodology

The guiding innovation process for this investigation is the double diamond method described by the Design Council. This design process will operate alongside considerations from the women's health strategies.

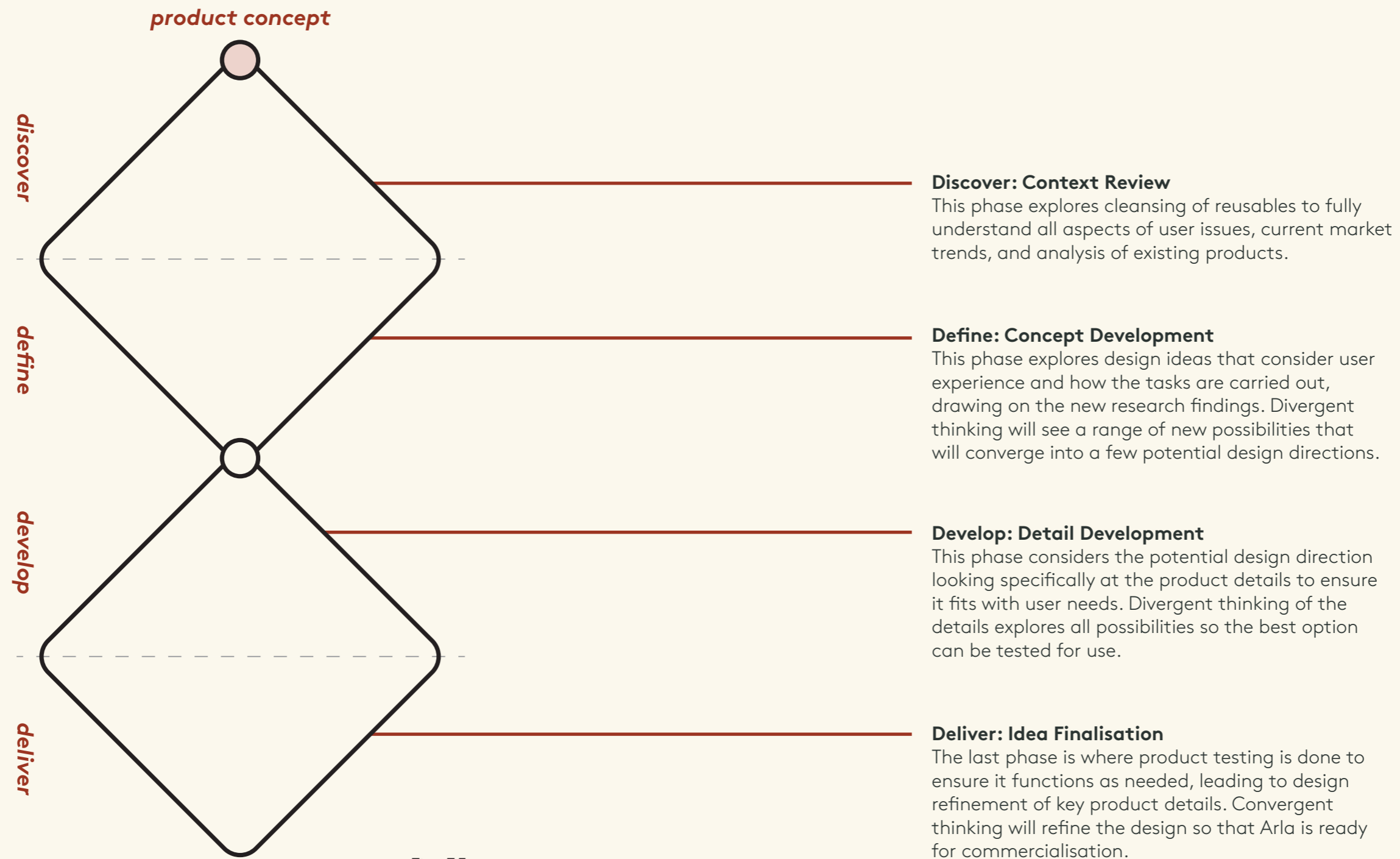


Fig. 35

Research Methods

To gain further knowledge of the issues with cleansing reusables, a user survey, task analysis, product testing, user experience analysis, case studies, and perceptual mapping were undertaken.

A Low Risk Human Ethics application covering the investigation across the research methods was approved through the Massey University Human Ethics Committee (Appendix I).

User Survey

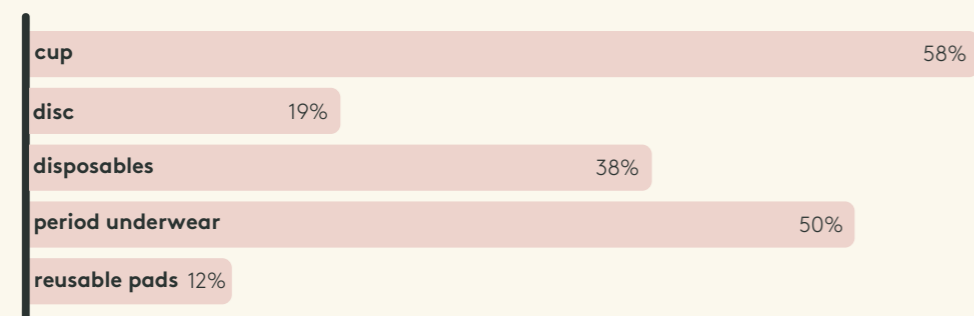
A survey with a mix of multi-choice questions and written answers was used to gain insights from users on the issues and frustrations they experience with cleansing, what cleaning practices they use and the benefits or features they would like in a cleansing product.

The survey was anonymous and shared through social media, specifically Facebook groups (Welly Gal Pals, Aotearoa Sustainable Periods, Women in Business NZ) and Instagram stories collecting 105 responses.

The narrow focus of the selected groups may have skewed the survey results as they were specifically picked and targeted to seek feedback from current reusable users. These results may not accurately reflect how the broader populations of people menstruating may feel about reusables or how a cleansing product would help them.

The full survey results can be found in Appendix D.

Products Used



Respondents were asked what products they use to manage their periods. The findings showed disposables are still highly used, but reusable products were more popular among respondents. Products are used in conjunction with each other showing the need for a range of different products to fit user needs during their period.

Fig. 36

Cleaning Issues and Frustrations

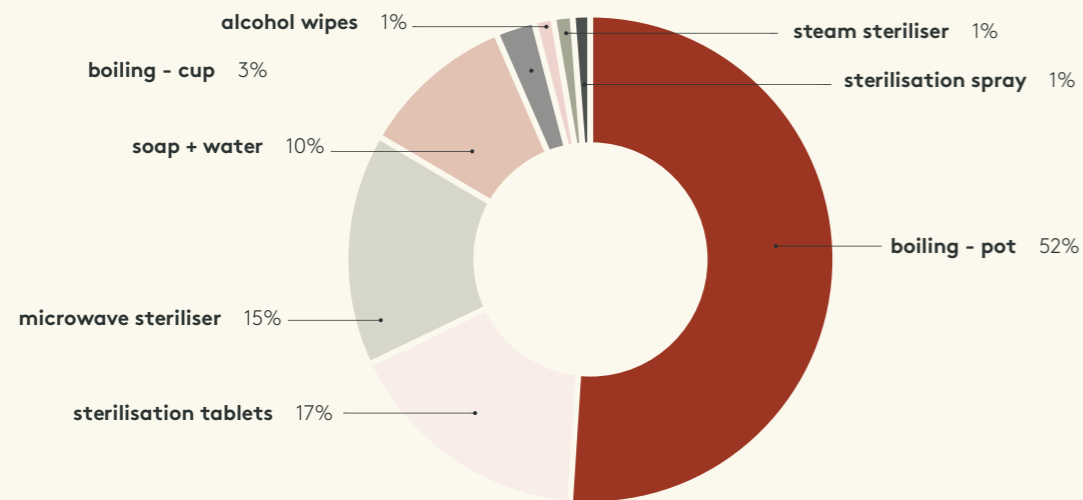


Users were asked what issues and frustrations they have with the cleansing of reusables. The key findings were:

- Staining was the most common frustration. While this is an unavoidable issue, proper cleaning and sterilisation will reduce this.
- Location was a large frustration. The kitchen (shared space or flat where people can see), public toilets (sink access can be limited) and sterilisation when away from home (hard to transport the sterilisation pot and water access can be limited such as when camping).
- A separate sterilisation pot is needed for boiling. Often stored away from the kitchen.
- Time was a large issue as people wanted the task to be quick and easy, but pot sterilisation needs constant monitoring.
- Lack of discreteness and convenience was also raised as an issue.

Fig. 37

Sterilisation Method

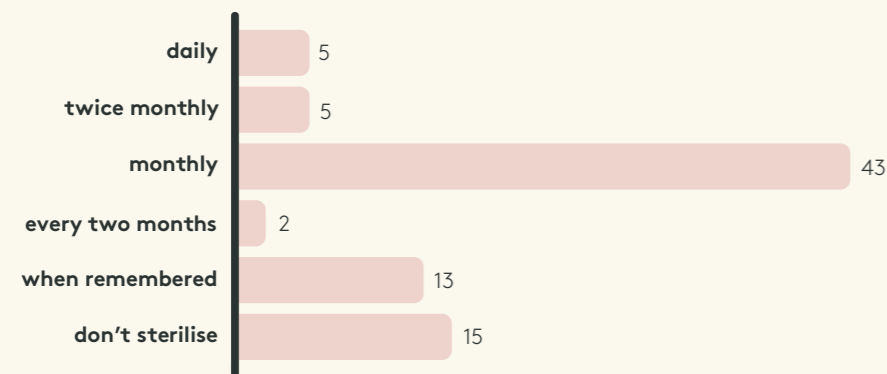


To understand current sterilisation methods, users were asked how they sterilise their reusable. Boiling with a pot was found to be the most common method, but microwave sterilisers were also quite popular which further reiterates this trend towards microwave sterilisation (page 45). A surprising find was the use of soap and water as a sterilisation method because it is more convenient and can be done in the bathroom. None of the respondents used an UV steriliser, and one used a steam steriliser.

Additional feedback on how much respondents might pay for a product like Arla indicates that people don't like spending significant amounts on a product for sterilisation.

Fig. 38

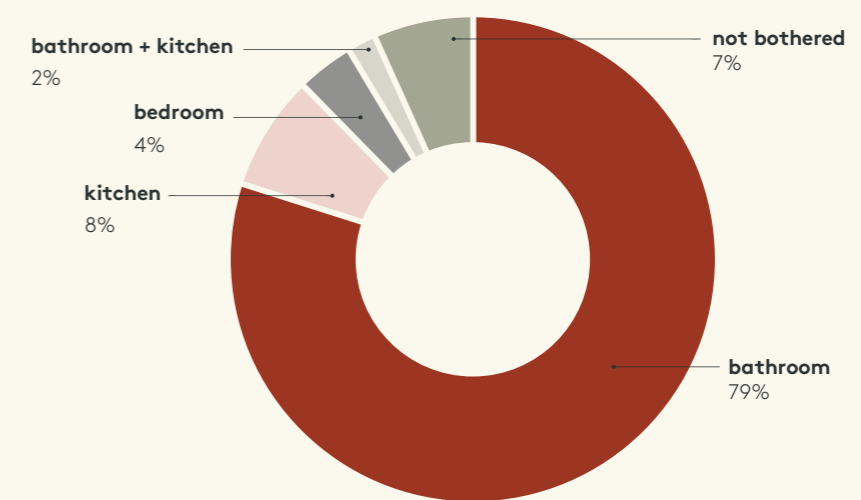
Sterilisation Frequency



Sterilisation is essential to the use of reusables, so users were asked how often they sterilise their reusable. Monthly sterilisation was found to be the most common, which aligns with the recommended frequency. Some users sterilised daily during their period and others said they do this infrequently when they remember. This shows a need for a product to make this task easier, to encourage more people to sterilise their reusable product.

Fig. 39

Preferred Location of Use



The survey reaffirmed sterilisation in the kitchen can be a frustration for many, users were asked where their preferred location would be. The key findings were, the bathroom as the preferred location, but some would like portability so this can be used in multiple locations. Some respondents said they do not like cleaning their reusable in the same place as food/kai is prepared, adding weight to the need for a portable product.

Fig. 40

This survey allowed user perspectives, issues, frustrations, and product desires to be collected to help inform the development of Arla. From these findings I can conclude Arla must: be usable in multiple locations including away from home, the task needs to be simpler than current methods, it must encourage sterilisation of reusables, while being discrete and convenient for users.

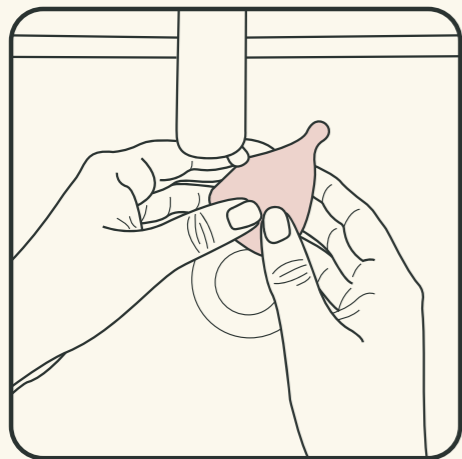
Task Analysis

This was used to find pain points and understand the issues faced when cleaning and sterilising reusables at home and in public. An analysis of the situations was done to compare current practices versus doing the tasks with Arla to see how the user experience might be improved.

The full task analysis can be found in Appendix E.

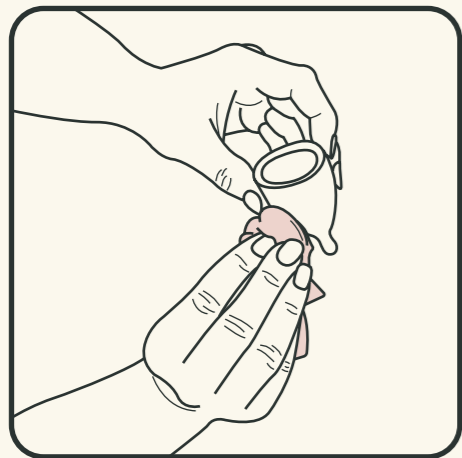
Pain Points of Cleansing

Reusable cleansing is split into three tasks: cleaning at home, cleaning in public, and sterilisation. These tasks ensure safe use of reusables, but task analysis of current practices has found many pain points.



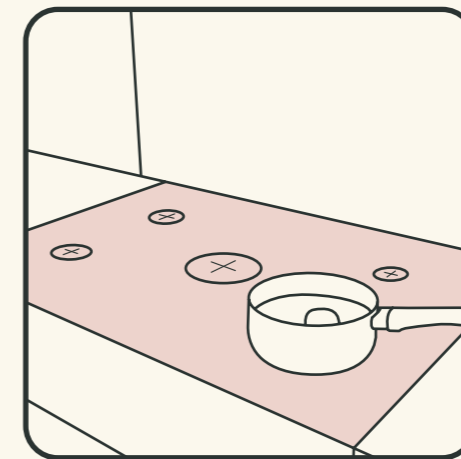
rinse cup with water

Lack of sinks in reachable positions. Public toilet stalls commonly do not have sinks in them and some bathroom layouts at home do not have the sink near to the toilet.



wipe with toilet paper

Wiping does not feel clean. The use of toilet paper for cleaning when in public does not create confidence that the reusable is clean.



boil cup on stove

Separate pot needed. To complete sterilisation a separate pot is required and this needs to be stored away from the cooking pots.

Sterilising done in kitchen. This is a highly visible and communal space where food/kai is prepared and not everyone will be comfortable with completing this task in this space.

Boiling needs monitoring. To ensure the reusable is sterilised for long enough and so it doesn't disintegrate continuous monitoring is needed.

Fig. 41

Arla will seek to address these pain points through its portable nature and its ability to easily sterilise and clean reusables.

Product Testing

Testing was done on competitive products to understand their challenges and limitations. These learnings were used to seek inspiration with designing Arla to ensure the final design will address the issues identified on these products.

Functional testing was undertaken separately on the technology and cleaning processes that will be used for Arla, to ensure the design will perform as expected.

The full product testing results can be found in Appendix F.

Testing Products with Blood

Until recently, period products were only tested with saline or water, but a new research study in 2023 tested a range of disposables and reusables with red blood cells. The product absorbency testing by manufacturers with saline will not give the same result compared to menstrual blood as this contains vaginal secretions and endometrial cells in addition to the blood (DeLoughery et al. 24). Although red blood cells are not equivalent to menstrual blood, they are closer than saline, and this new testing showed most products had less capacity than manufacturers reported (DeLoughery et al. 24). This study highlights how period products react differently with blood compared to saline. Ideally, future manufacturer testing should be done using blood.



Fig. 42

Emanui

Emanui is the closest available product in the market to what Arla aims to do, so a detailed evaluation and testing was done.

Emanui is a portable product designed to clean and sterilise menstrual cups. It utilises a shaking and squeezing motion for cleaning and is a microwave vessel for sterilisation. The product design doesn't fit all cup shapes, with some cups easily dislodged from the toggle holder. Also, the silicone material picks up dirt and fluff, needing more frequent cleaning, which needs to be a consideration for Arla. Emanui does have a good indicator for opening the base and a system for holding the base allowing a free hand if needed.

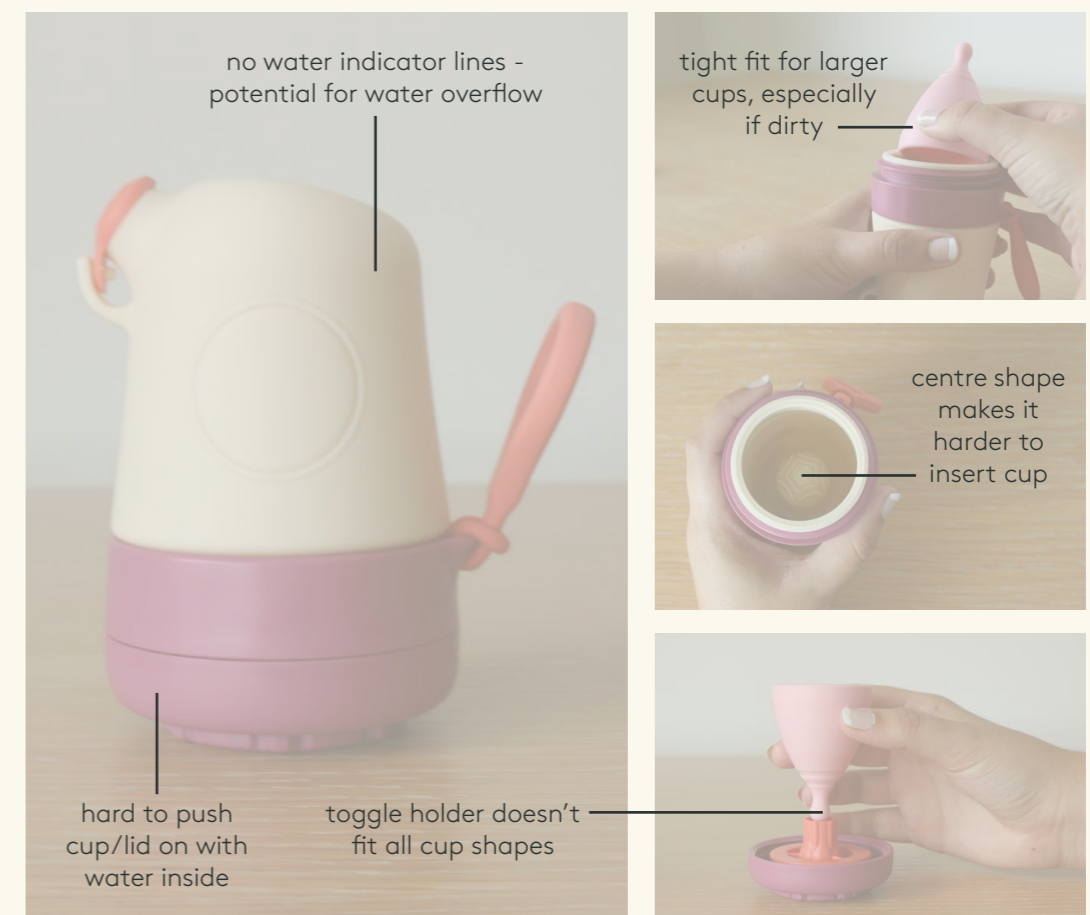


Fig. 43

The testing with Emanui had some interesting finds, but the main points which need consideration with Arla are the opening size for easy accessibility during use and the internal cleaning space to allow for both cups and discs. Arla will provide a similar cleaning function, but unlike Emanui, will also provide a standalone sterilisation solution.

Cleaning testing

Volume and shake testing was done to assess the quantity of water needed for ensuring the reusable is clean after shaking. For these tests fake blood¹ was used to simulate menstrual blood, as a reasonable substitute.

Volume Testing

This used two different size jars to find the ideal volume and shape for shaking reusables. Testing consisted of three water amounts; 50ml, half volume, and full volume and was tested with both cups and discs. Each volume was tested in both jars three times to ensure accuracy of results and was tested using three different shaking time intervals (5, 10, and 15 seconds). This assessed the ideal volume and length of time needed for shaking.

Each test was assessed using a cleanliness scale: no change, less particles, few particles, and no particles. All tests had the same result, with no particles showing, even with the minimum 5 second shaking period. While this is a good result, the tests used fake blood, so further testing will be needed to confirm what will be the ideal shaking time.



Fig. 44



Fig. 45



Fig. 46

Test result findings:

- 50ml is enough water to clean reusables, but space is needed to ensure a full clean.
- 250ml capacity is an ideal size for cleaning, however, a new shape would improve user experience as the reusables did get stuck at the bottom of the jar.
- In the half-filled jar, water was felt moving more, creating a higher sense of trust of the cleaning task.
- The shaking created more noise than expected. However, testing was done in a glass jar rather than the final silicone material. Further testing will be needed with the final materials to reassess noise levels.

Shaking Testing

Further testing with a silicone cup concluded the shaking time and cleaning results are consistent even with the material change. Testing used a similar designed cup to the final design which has a larger space inside which meant the reusables did not get stuck inside, which helped with removal after cleaning. The noise was also lessened due to the softer material, and while it does not completely dissipate, it can be made quieter with softer shaking.

¹ This was a glucose powder mixed with water and coco powder, to give a blood like consistency

Induction testing

The chosen method of boiling for Arla is induction technology. To ensure this method will work, testing was done to assess how induction will integrate into Arla and to see how it reacts to boiling in a silicone cup.

Initial Induction Hob

The key question for induction boiling is how long it will take to boil through the metal base and the silicone cup. This initial testing used an existing silicone cup, in a fry pan, on an induction hob to see if the water will boil.

While this test proved this technology will work, the test had a small surface contact area (silicone cup to fry pan) and had residual heat from the fry pan below. The time to boil was quite long, so further testing will be needed with the design of Arla to assess the boiling time.



Fig. 47

Further Induction Testing

Additional testing confirmed this technology will boil water needed for sterilising reusables. Large bubbles were formed on the base of the silicone cup within 10 minutes proving the heat will transfer through the base and silicone cup.

The testing used a saucepan providing less residual heat and used the cup design of Arla which has a larger surface contact point than the silicone cup used in the initial testing.



Fig. 48

User Experience Analysis

This focused on trust and security concerns, and was done to find out what users would want in a product. This was done through survey questions with post survey analysis on what people considered to be important and how it could be incorporated into Arla.

Product Attributes for Trust

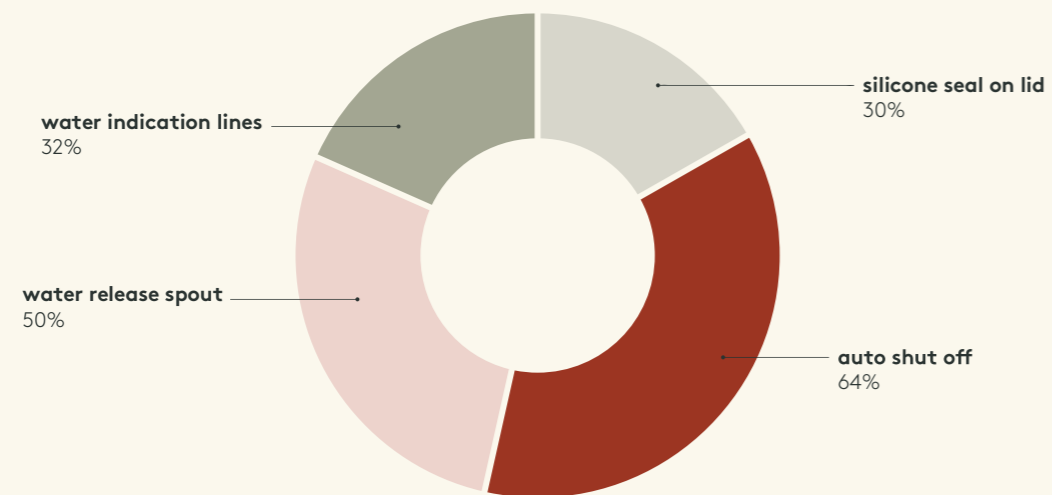


Informed by factors of trust (Krige, 2), a user survey asked what attributes people consider trust to be in regards to reusable cleansing products. The results showed research evidence/tried and tested and chemical free were the highest-ranking attributes for users. But, reliable, easy and comfortable processes, ensuring the cup is clean/safe for human use, and no damage to the cup/disc were also important attributes.

These findings of trust attributes are key to the development of Arla as they indicate what users desire and will give them confidence to trust it.

Fig. 49

Features for Trust



To ensure Arla meets user needs, respondents were asked what features they would like in a product for reusable cleansing to make them trust it more. The respondents had little knowledge of Arla or its functions but were able to select options from a list. Auto shut off and a water release spout were the preferred features. Water indication lines and silicone seals were also features that some respondents wanted in the product.

Fig. 50

The findings from the user experience analysis provides good insight into the key features that should be addressed when designing Arla:

- Reliable, easy, comfortable and discrete operation
- Ensure no leakage, and minimal contact with contaminated water
- Efficient cleaning and sterilisation
- In built safety features

Addressing the features in the design will provide users with the experience they are seeking and assurance that they can trust Arla.

chapter five



Fig. 51

Design Process

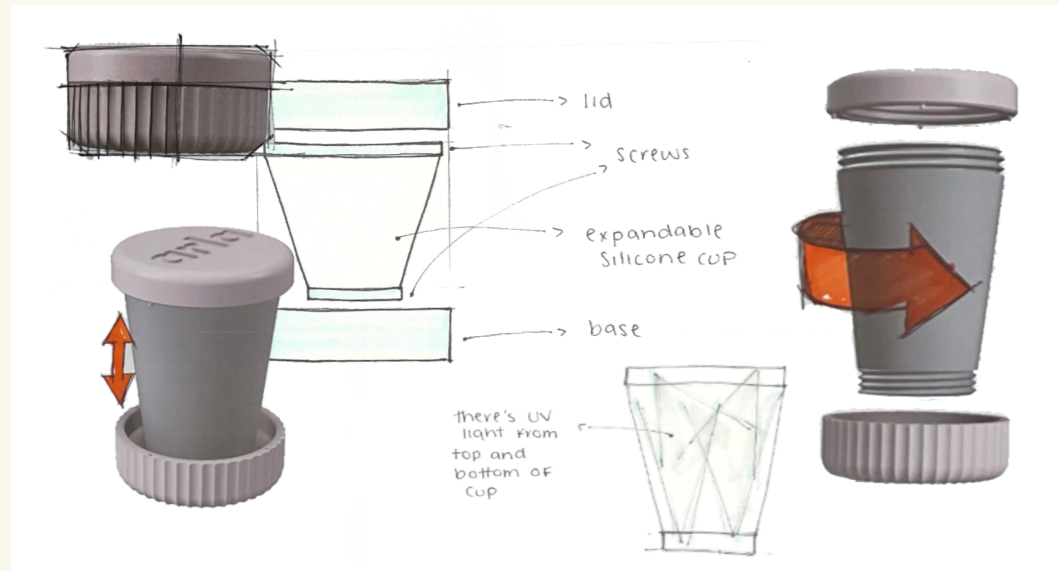
A design criteria was developed to inform the design of Arla. Through a process of sketching, 3d modelling, and detail testing with prototypes, Arla was iterated to meet the design criteria.

Initial Design Criteria

- Clean and sterilise reusables
- Fit both menstrual cups and discs
- Be as small as possible for best cleaning results
- Aesthetically hide its function and not look like a cleaning product
- Create a comfortable, easy, and convenient user experience

Concept Development

The UV light for sterilisation concept development explored water pouring and where the light sources could be positioned.



The concept development explored a water release lid with a grid design, a double screw system to allow UV light from top and bottom, and a silicone cup for water tightness. The double screws attached to the silicone cup created a modular design allowing individual pieces to be replaced when they wear out.

To understand how the double screw design would function, a test was created using 3d printed shells and screws along with an existing silicone cup. This provided tactile feedback showing the structural integrity of the cup was weakened and twisted when collapsing. There was also risk of one screw undoing while using the second screw which would be an issue when the cup is filled with water.

The design findings from this concept identified a double screw will not work for the function of Arla, due to the risks of water leakage. Also having the UV light in the base and top of Arla complicates the supply of power for charging both light sources.

Fig. 52

Concept Evaluation

Through research into sterilisation methods (pg. 48-49) it was concluded UV light is not the best method of sterilising as it can damage cups and discs, leading to the change of sterilisation method to a boiler with induction technology (pg. 50-51). This changed the function and needs for the design of Arla.

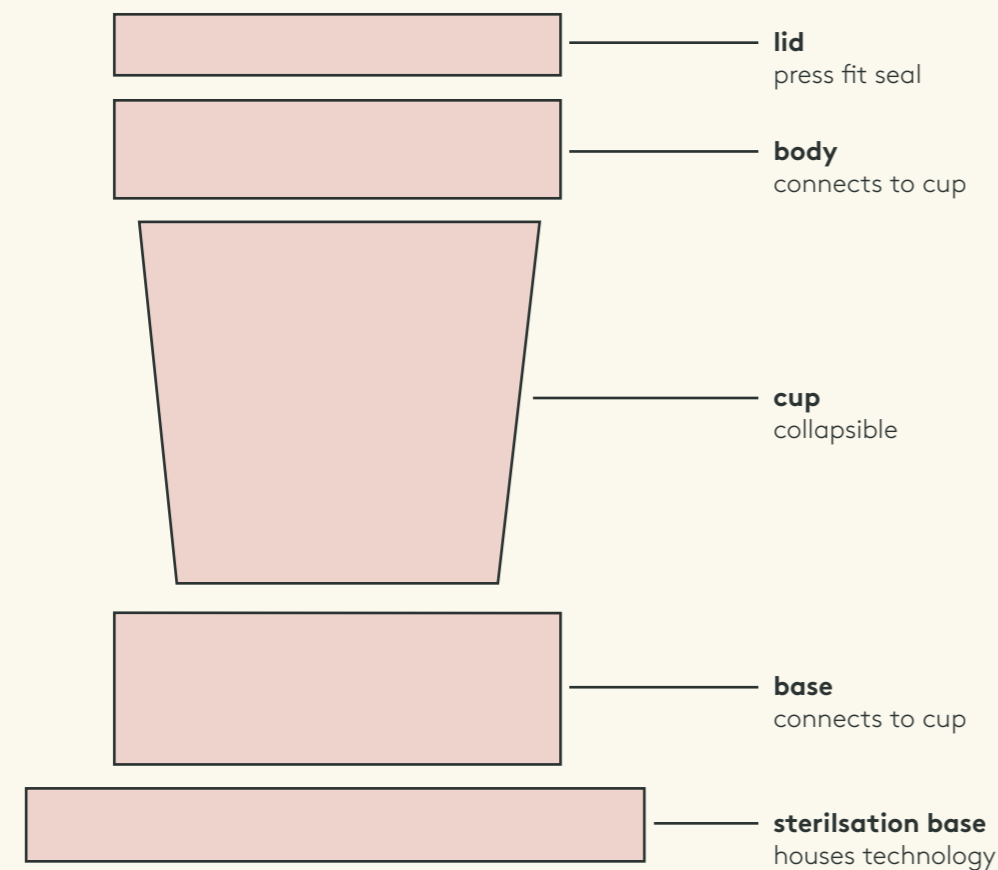


Fig. 53

The sterilisation method change, has also shifted the design of Arla to best suit this technology and user needs. The redesign has two parts; the induction base which houses the technology, and portable shaker cup which has three sections (lid, body, and base) with a collapsible silicone cup inside.

Updated Design Criteria

- Clean and sterilise reusables
- Fit both menstrual cups and discs
- Be a boiler for sterilisation and shaker for cleaning
- Utilise induction technology for boiling
- Be as small as possible while providing the best cleaning results
- Aesthetically hide its function and not look like a cleaning product
- Create a comfortable, easy, and convenient user experience
- Be useable in many locations
- Allow users flexibility to sterilise quickly, easily and as frequently as they would like
- Ensure the product is easily cleanable after use
- Utilise a set and forget method for boiling with auto shut off

Design Exploration

This explored the boiler design through shape and section splits, the press fit lid function, and initial induction base ideation.

Shape and Section Split Exploration



Fig. 54

These initial sketches explore shape and functional section splits. The design utilises a press fit lid which users need to open. Tabs and angles were explored to evaluate how this could be opened. Distinguishing the section splits and function is key to the design, this could be explored further with texture.

Shape and Section Split Evaluation

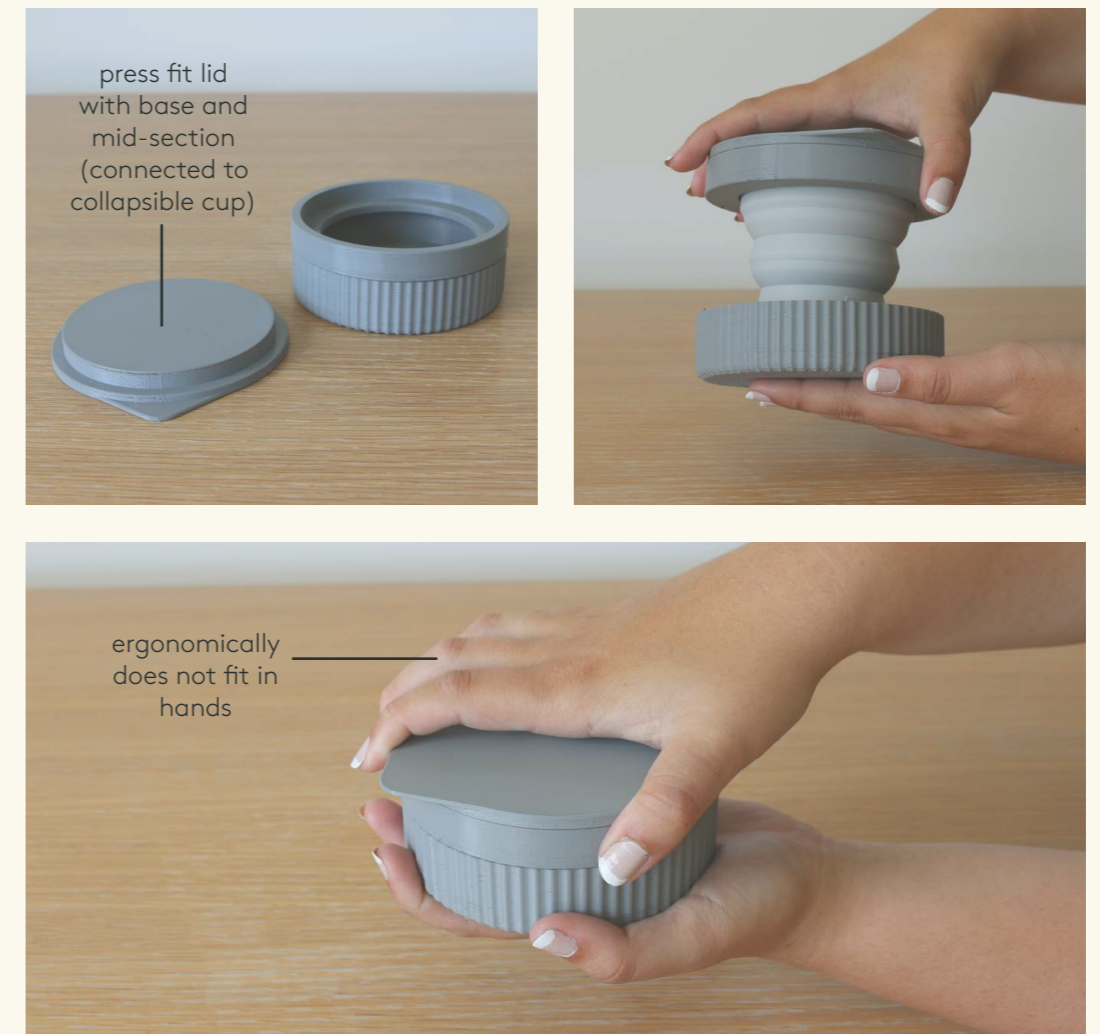


Fig. 55

Using one of the section split ideas, a model was developed in CAD and 3d printed to explore shape, texture, and lid design. From this the feel and function was assessed to develop a more detailed understanding of the user experience.

In this case, it became apparent that anthropometrics of hand size was a factor in being able to span the lid to open and seal the product. Consequently, the potential arises for users with smaller hands having difficulty using the product, raising concerns about reliability and ease of use, therefore reducing trust in this product.

Further development of product internal structure needs to be done to reduce overall product size. Also, to visually understand the split lines better, the lid could be inset.

Lid Exploration

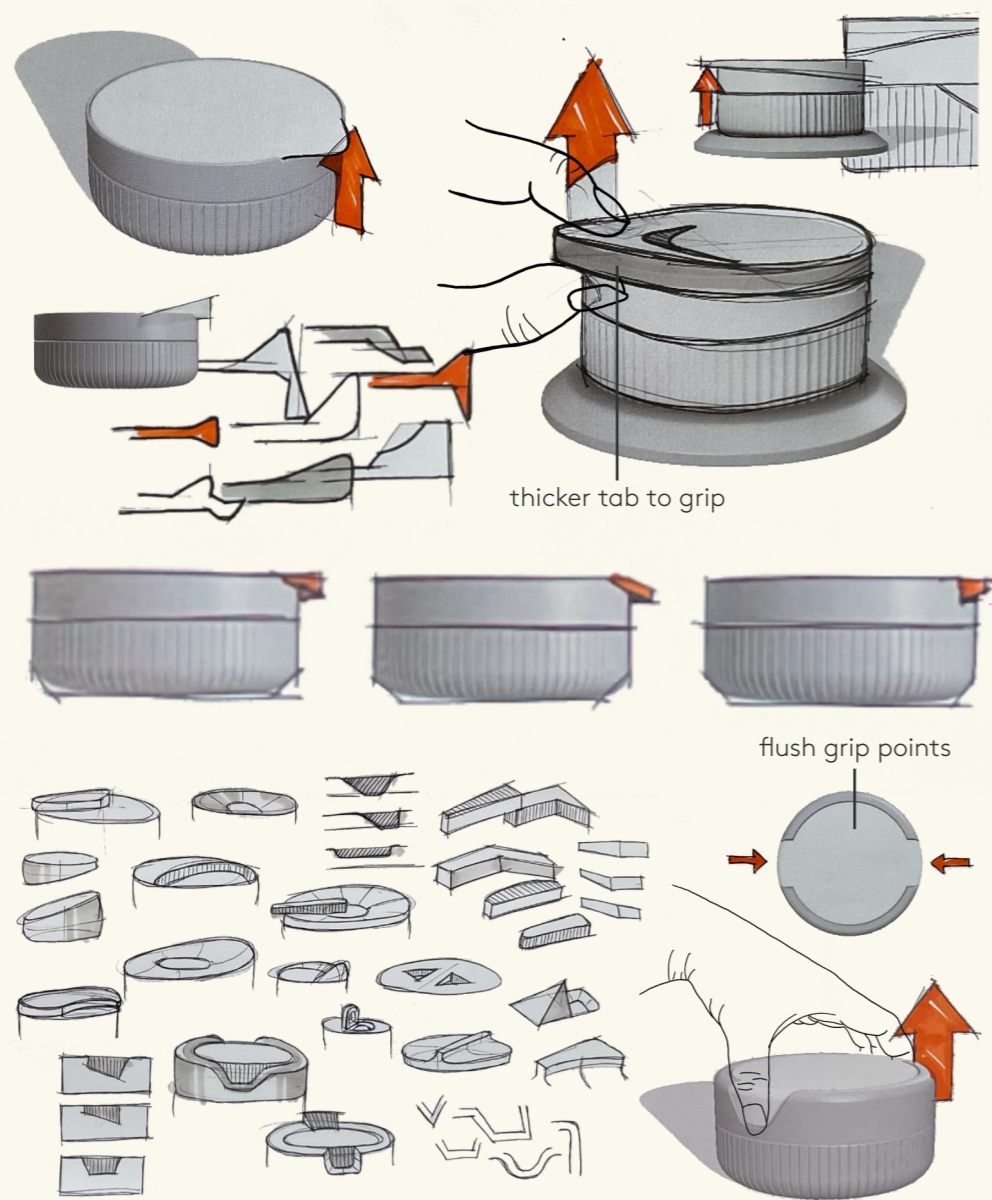


Fig. 56

Through sketches and CAD modelling, the flush lid design was further explored looking at tabs and grip points to aid usability. Material thickness and hand positioning were considered to create an easy opening experience.

The tab design was rejected as this extends past the product body, with the risk that this could get caught or inadvertently opened when travelling. Instead, a two grip point lid was developed to create trust that the lid will stay closed and provide visible indicators for how to open the lid.

Flush Lid Evaluation

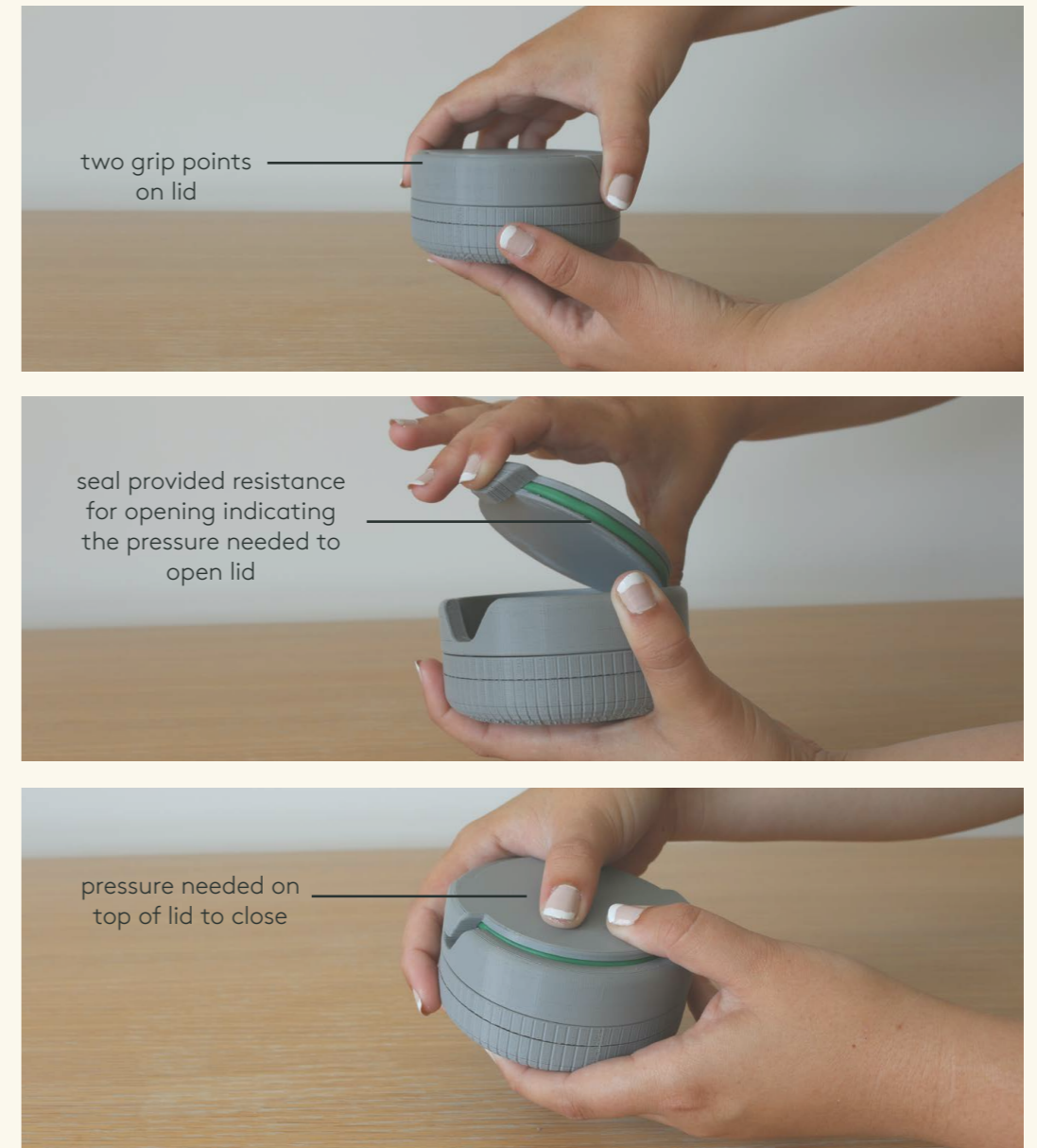


Fig. 57

This 3d model used a rubber seal to test how the press fit design would work.

Only one finger could fit onto the grip points, making it harder to grip and requiring a bit of force to open the lid. A hand is also placed underneath when using, with two hands needed to push the lid on tightly, so the product must comfortably fit into users' hands. The grip point is an integral feature of the flush lid design, providing an indicator for how to open the product, while ensuring it cannot be accidentally leveraged opened.

Induction Base Exploration

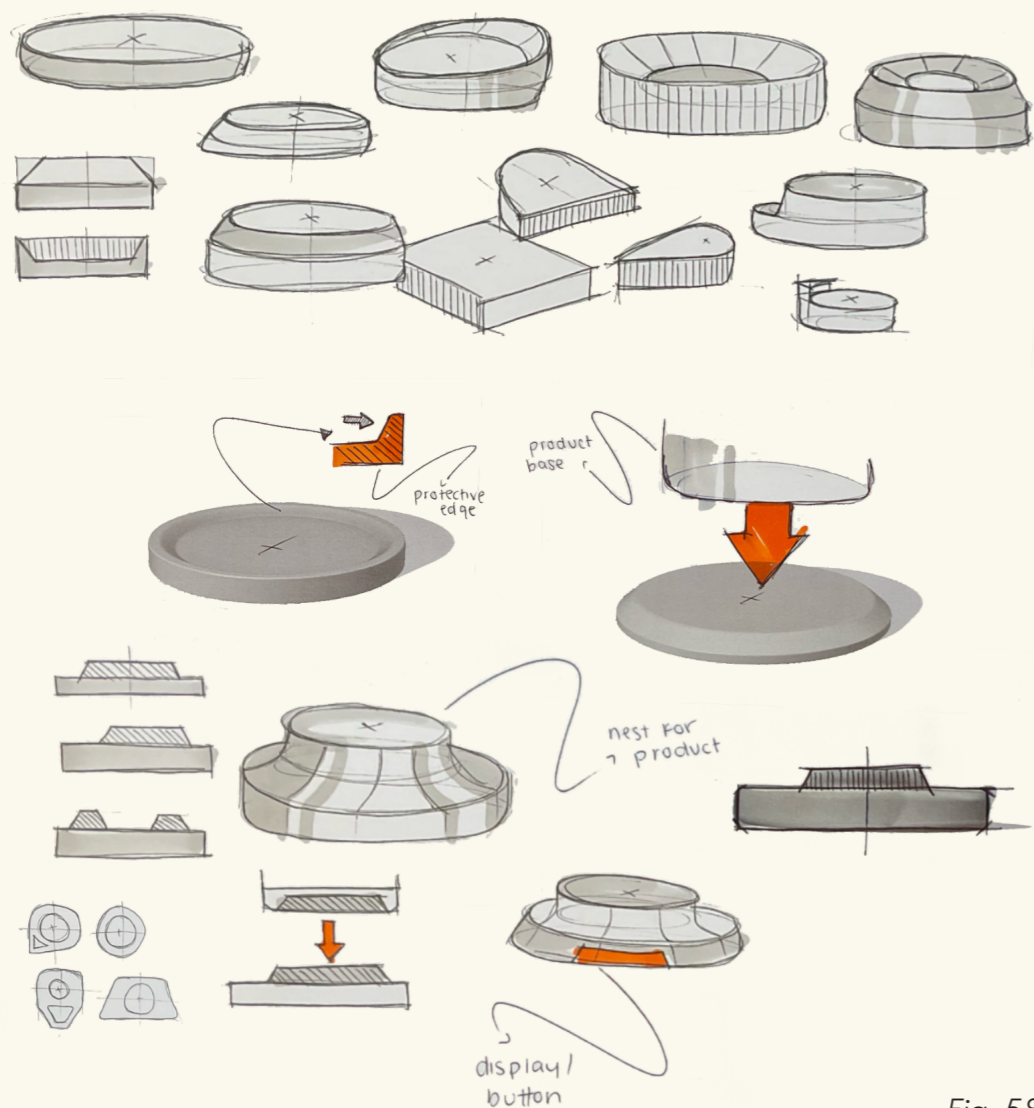


Fig. 58

These initial sketches explore the induction base through shape, size, and chamfers. The induction base sits underneath the shaker cup, so needs to compliment the design, while considering the security of the product during boiling. A locking nest is explored for easy connection and security.

Through this exploration it was found that the product needs to fit comfortably into users' hands, especially since a little force is needed when opening the lid and expanding the cup. The lid needs clearly identifiable grip points for all the Arla functions, and the induction base design needs to consider safety to ensure the boiling task can be set and forget.

The cleansing functions and touch points of Arla help provide a solution and dignity to the use of reusables which are factors that address key points of the Women's Health Framework. Building on this the next stage of development will ensure this product is a cohesive system for managing menstruation with trust integrated through the design touch points.

Design Development

Further detailed exploration of the function and section splits, collapsing silicone cup, induction base, lid release mechanism and design aesthetic through colour and texture has been developed.

Grip Size Development

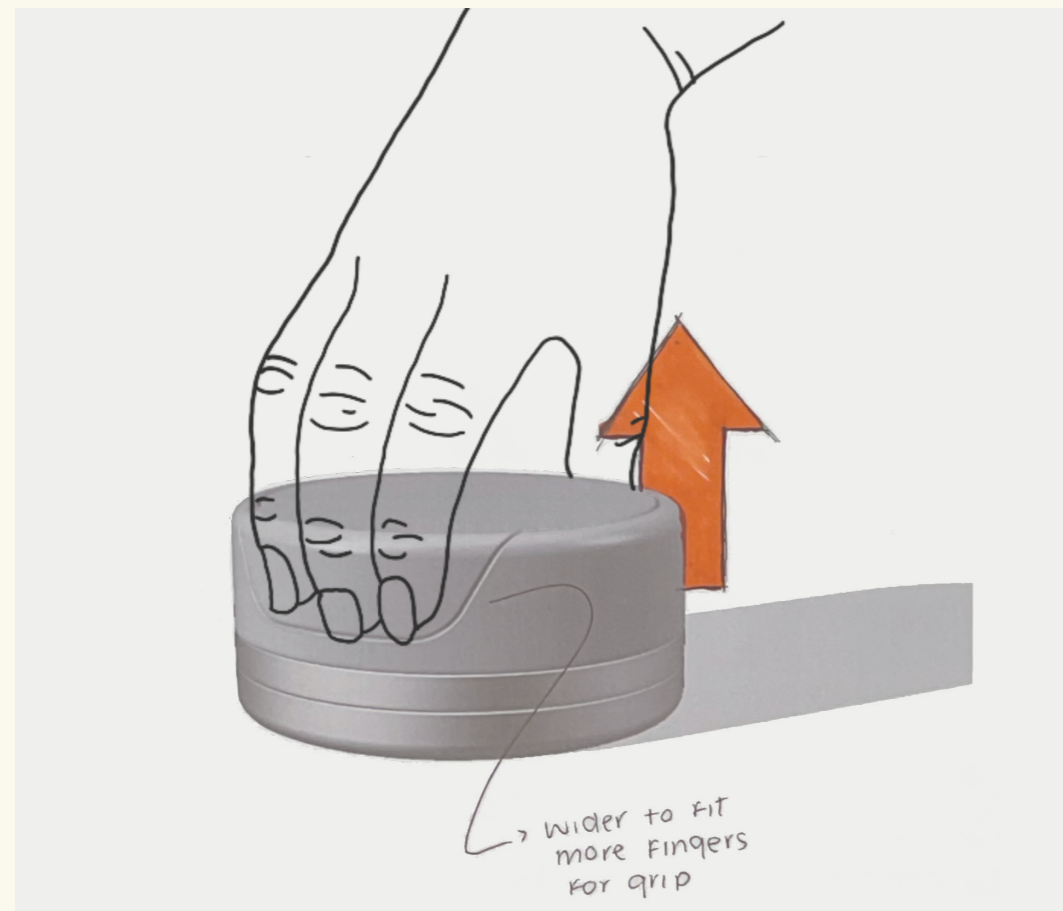


Fig. 59

The grip point was widened to allow more width for fingers to grab the lid. Affordances will need to be considered for all the functions along with how users might hold the product.

Section Connections

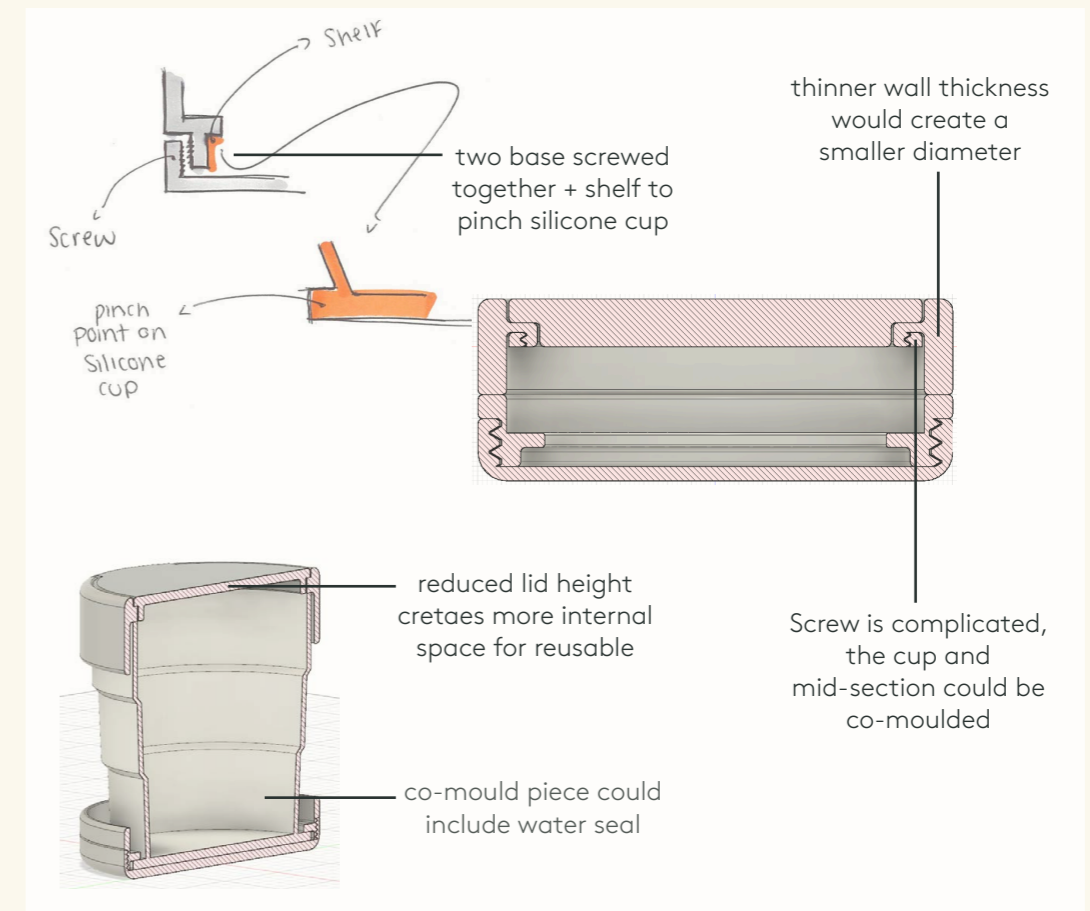


Fig. 60

The explored section connections ensure the product functions easily, provides optimal cleaning and stores well. The base is in two pieces with a screw connection, which creates a lip for the silicone cup to be pinched under to hold it tight.

The connection development utilises a co-mould design for the silicone cup and mid-section, with a thinner screw for the base pieces reducing the product wall thickness. The layout of these connections creates a more sustainable and interchangeable design, as individual pieces can be replaced as needed.

Silicone Cup Development

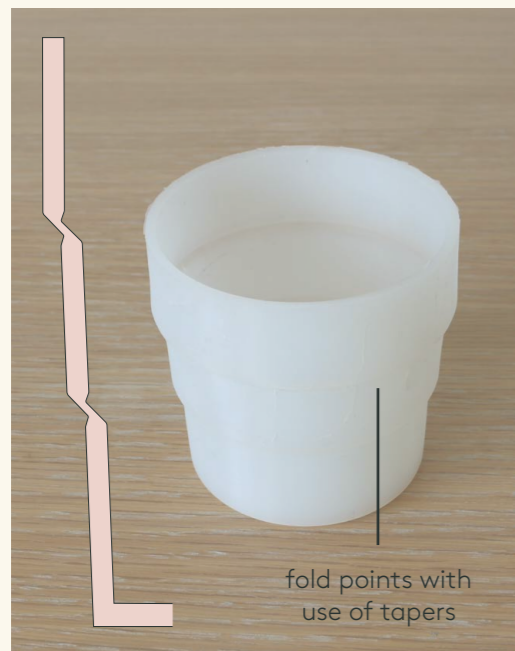
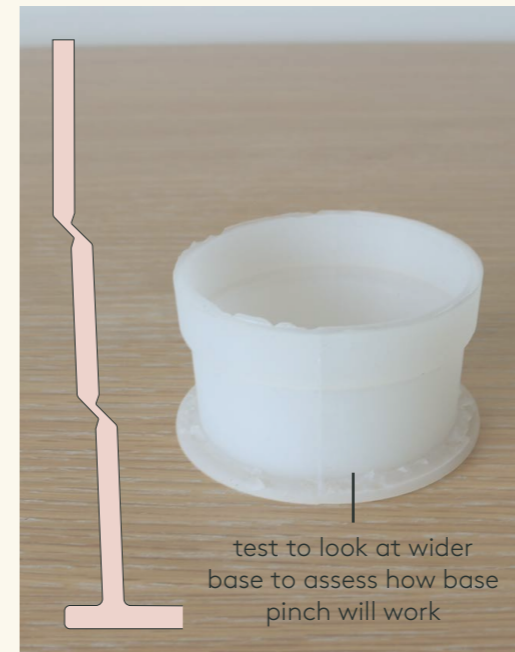
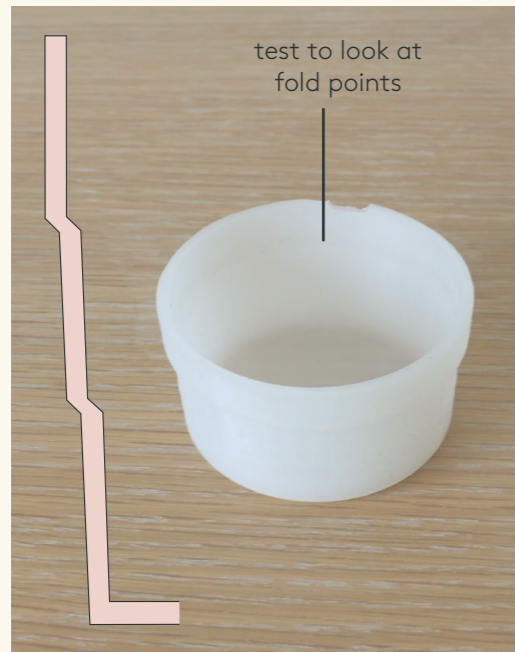


Fig. 61

The development of the silicone cup looked at how the internal shape could fit both cups and discs, while minimising the volume needed for cleaning. Fold points and tapers were explored to see how the collapsing action functioned and if it would stay collapsed. The pinch feature was also tested to understand how it integrated with the base pieces when collapsed and expanded.

Water and Steam Release Exploration

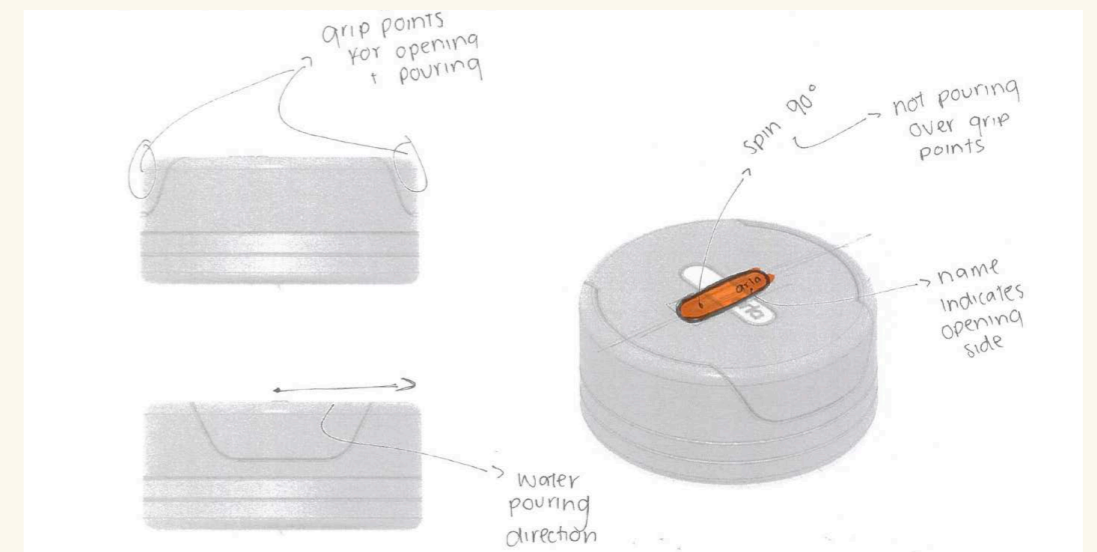
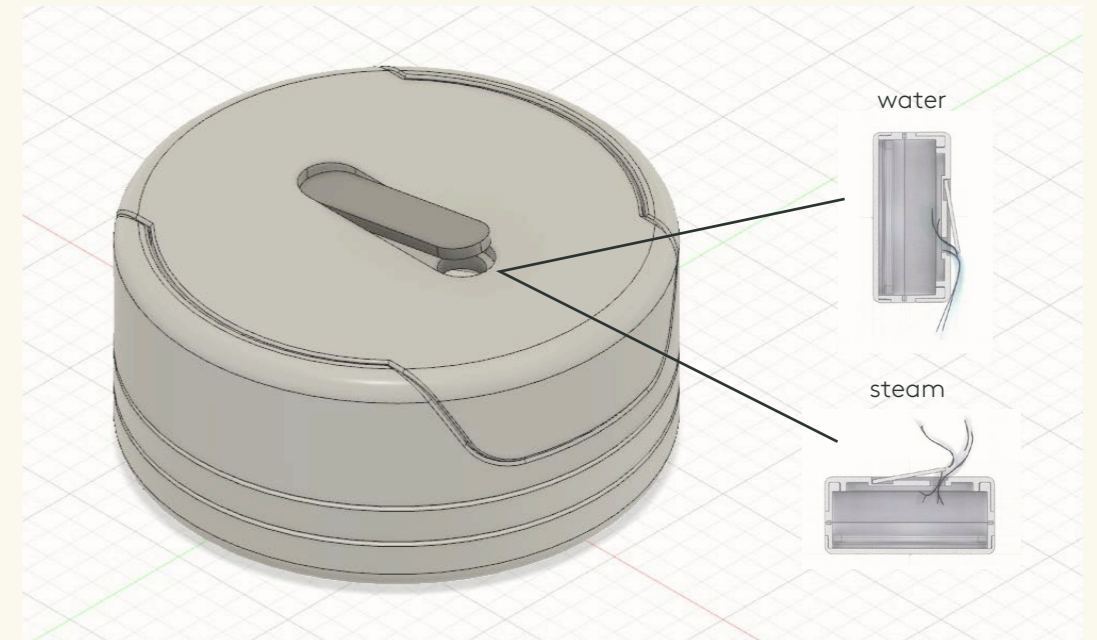
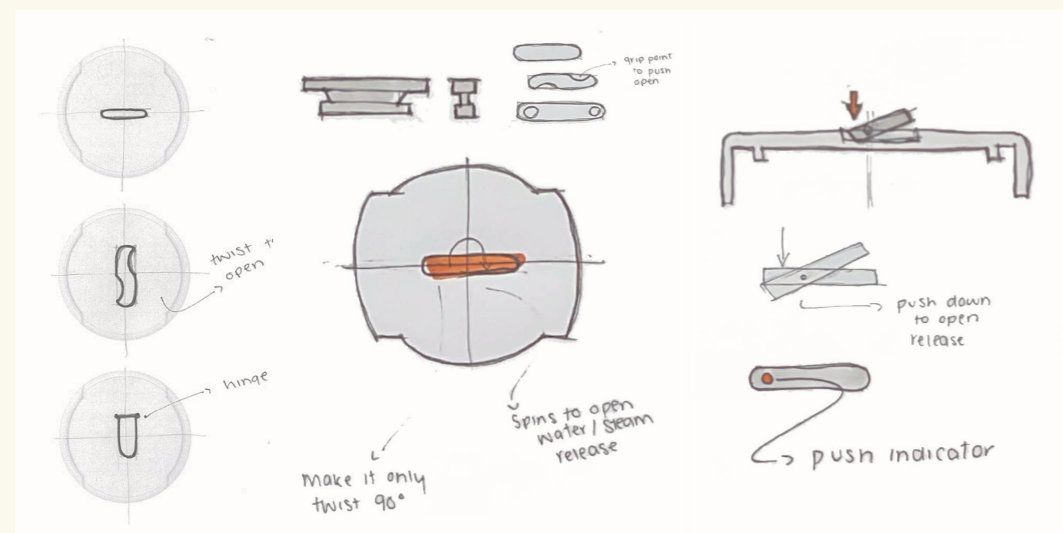
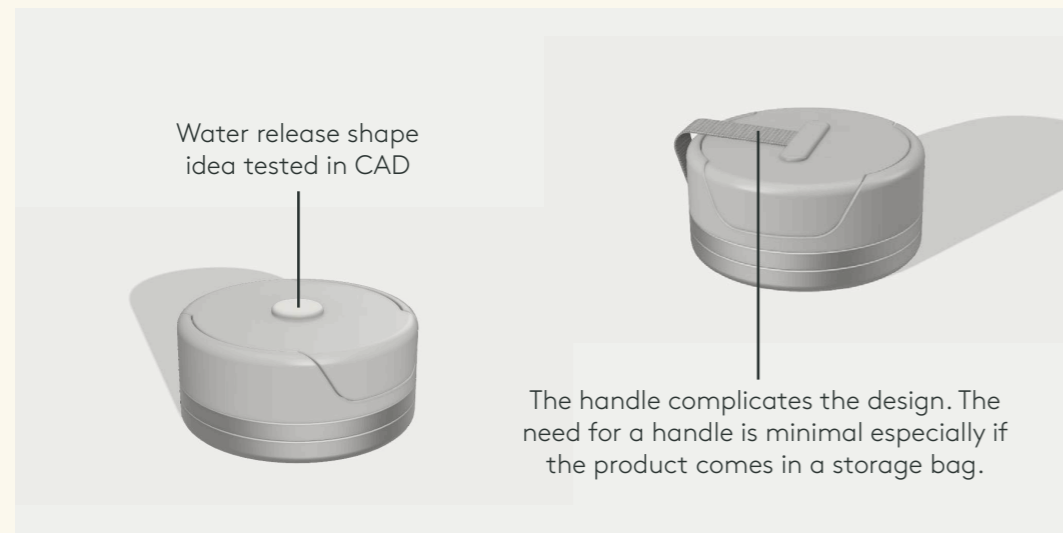
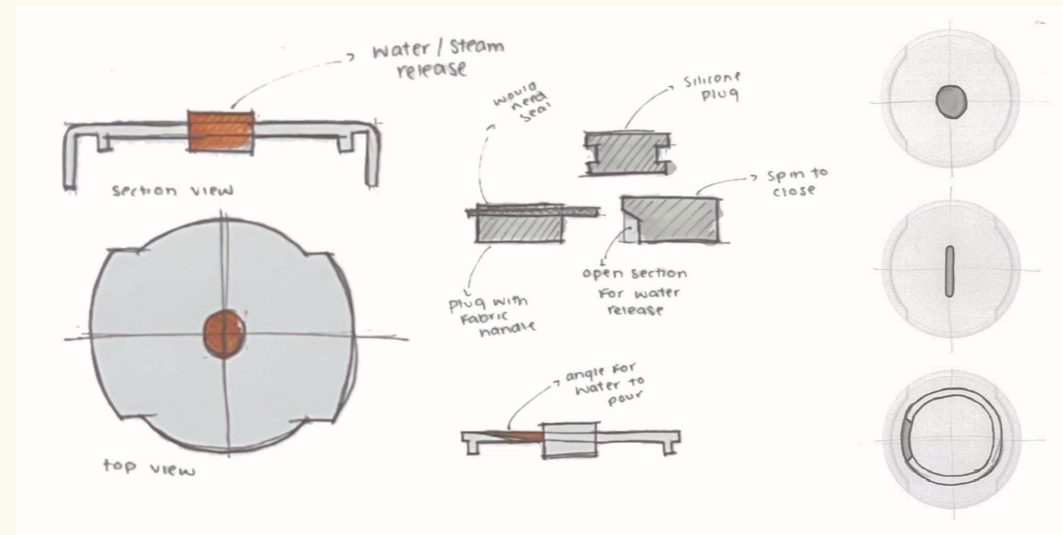


Fig. 62

This release mechanism provides two functions: water release point after cleaning, and steam release point while boiling. Initial sketches and CAD modelling explored potential shapes and mechanisms for this function. The rounded rectangle push button mechanism was found to best fit the needs of both functions and its purpose is easily recognisable to users.

A direction change for the water release mechanism means water is not poured over the grip points, with the current grip points able to be used for both pouring and opening.

Base Development

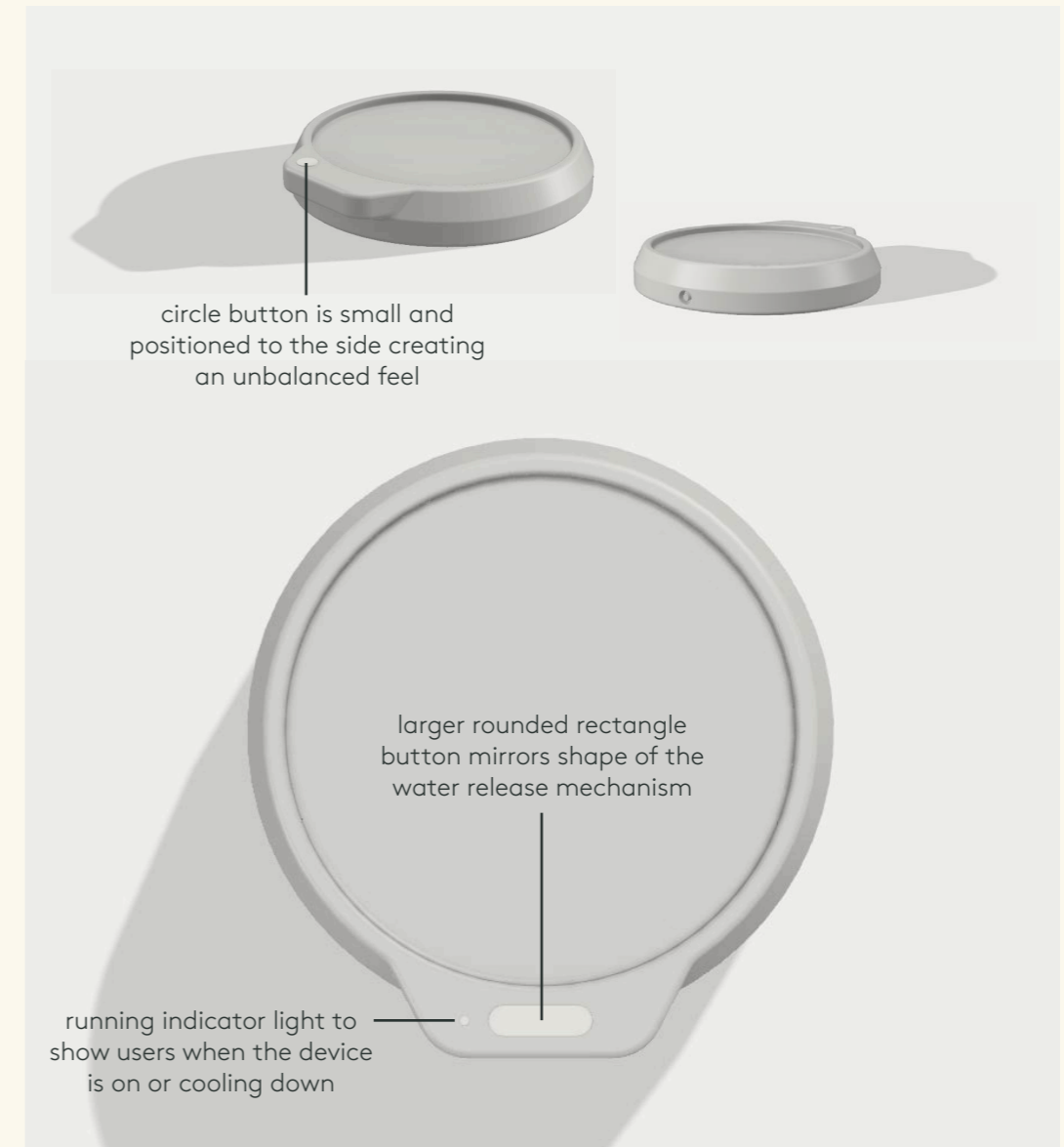
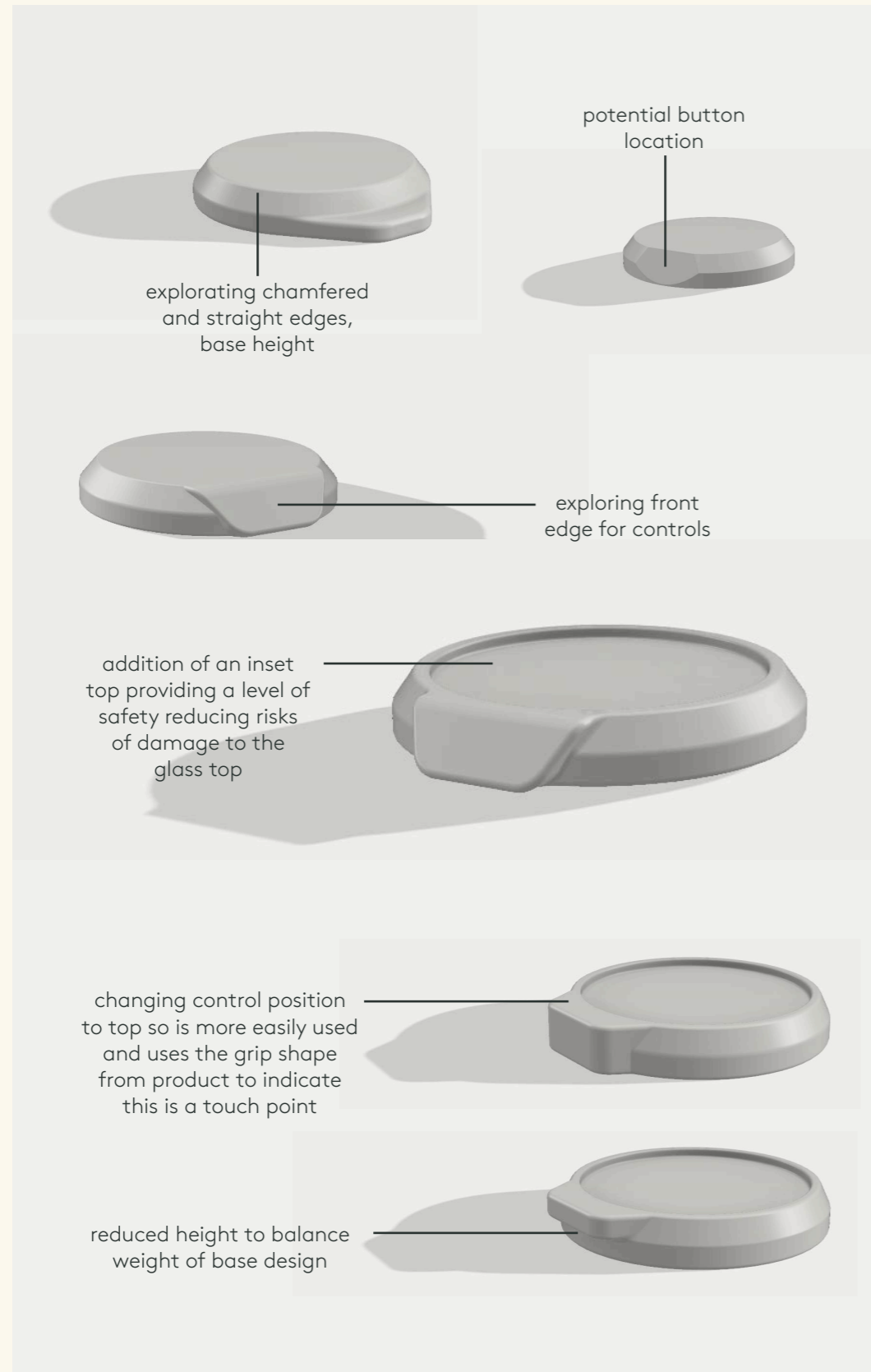


Fig. 63

This development focused on the functionality of the induction base, and how it will integrate with the shaker cup. The chamfer and straight edge combination provides a balanced look to the design while not detracting from the function. The inset top adds a level of safety by giving an edge for the product to nestle into and minimises the risk of damage to the induction glass top. The use of the rounded rectangle button mirrors the water release mechanism implying the components work together.

Texture Exploration

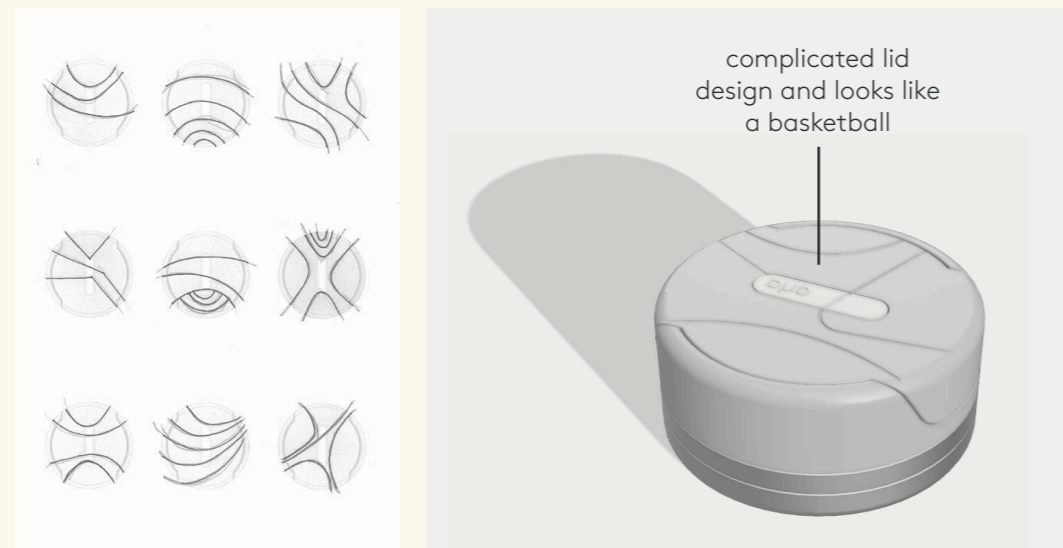
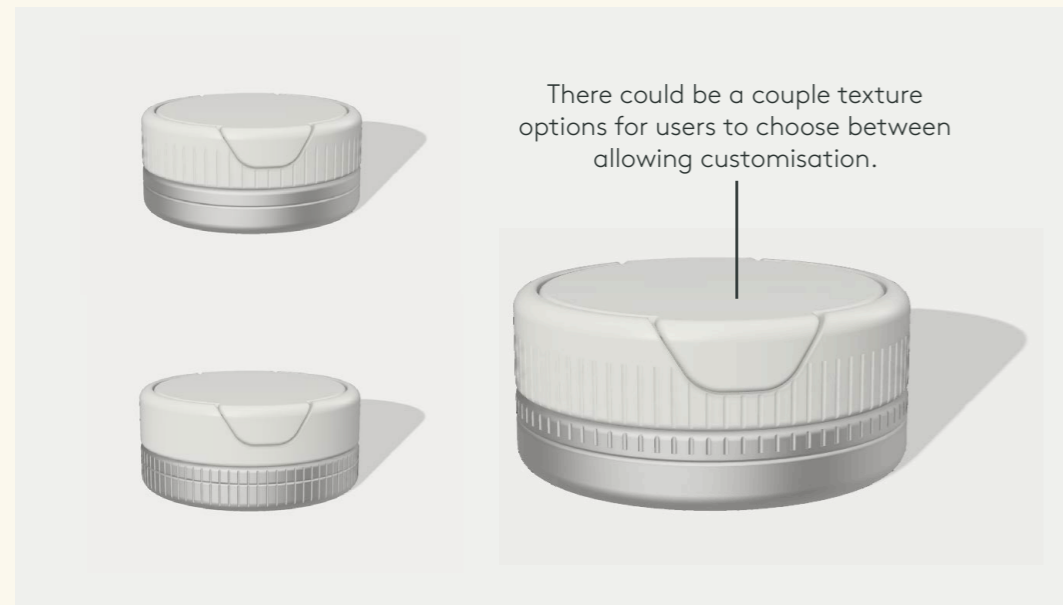


Fig. 64

Texture has been explored to test potential positionings and assess the product feel. The texture could be used to indicate where to hold outside of the grip points or could be used to indicate the direction water is poured from the lid.

Affordance Grip Development

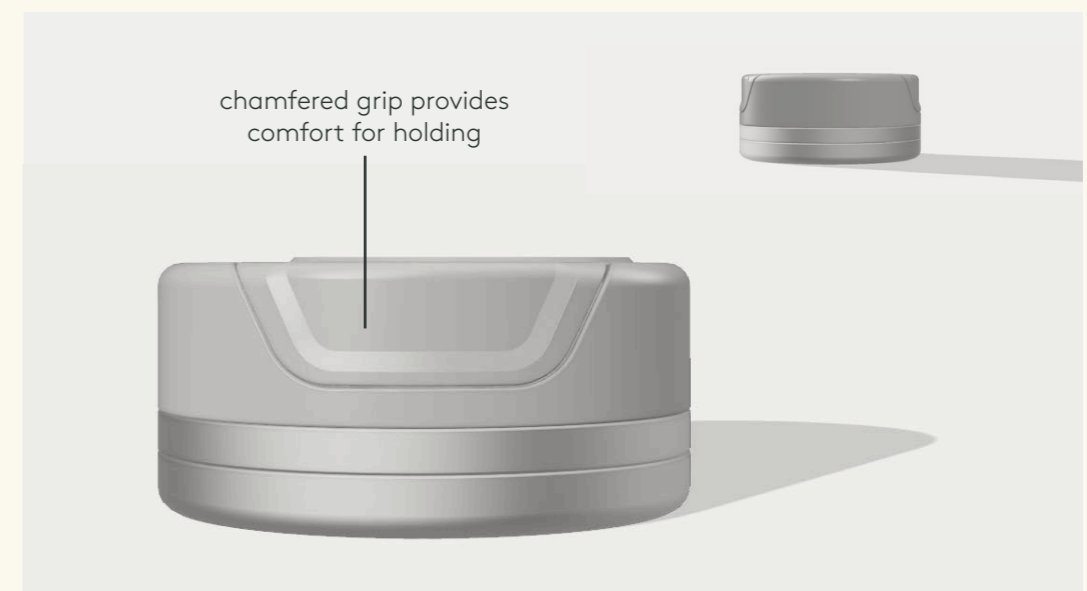
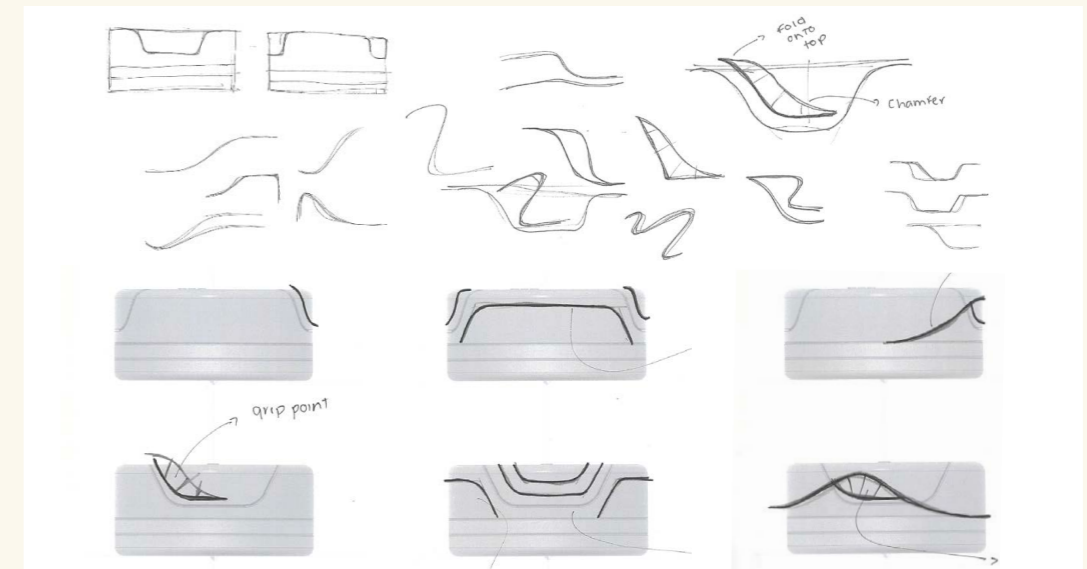


Fig. 65

Sketch ideation of grip point affordances were developed, with potential ideas explored to assess the product grip points. Understanding how these affordances sat on the surface was key to determining where fingers needed to grip the lid and where the affordances should be placed.

The chosen affordance has a chamfered edge to guide users towards where to hold the lid. The wider grip size allows users to hold Arla from above or the side depending on how they need to hold the product for each task (such as pouring or opening).

Waterspout Development

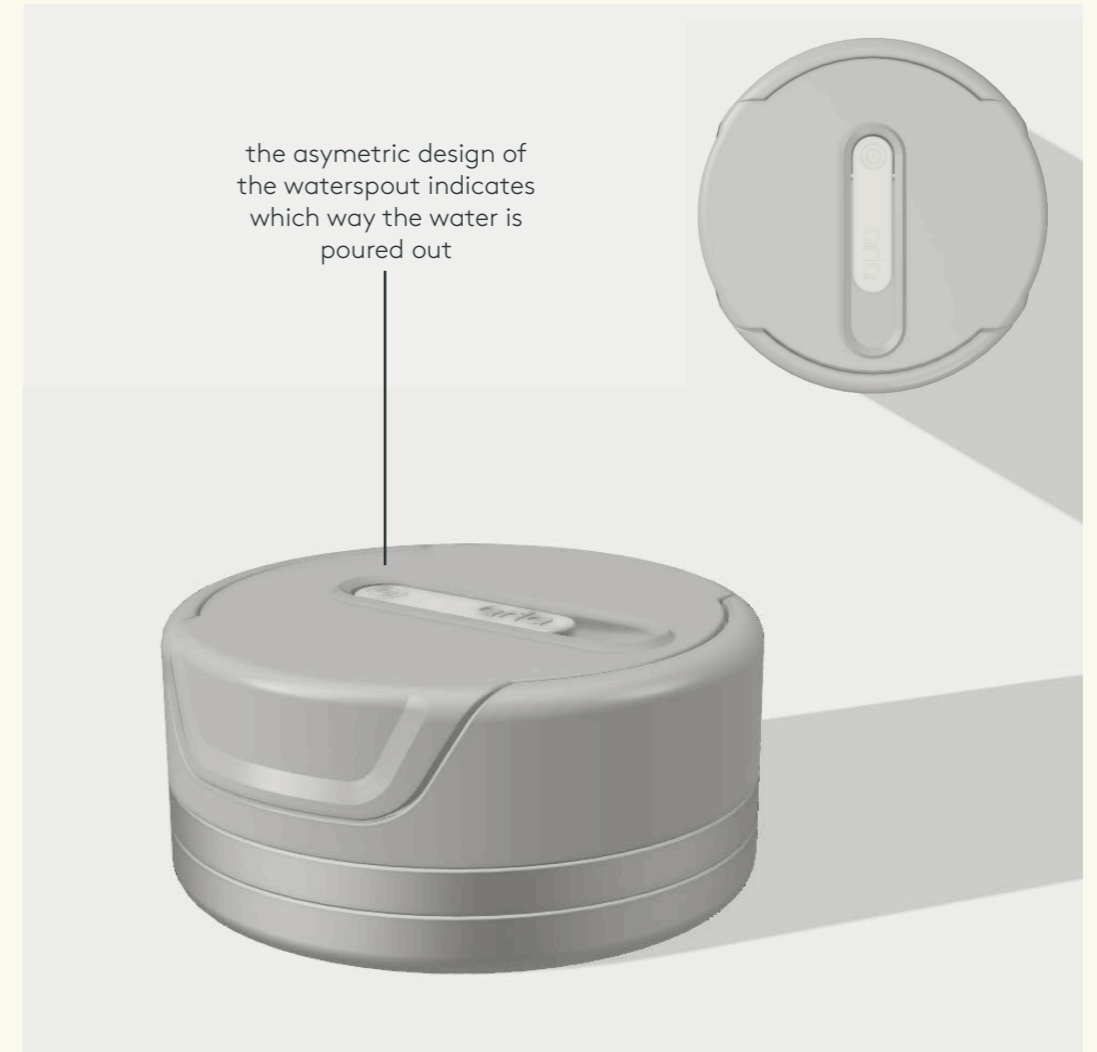
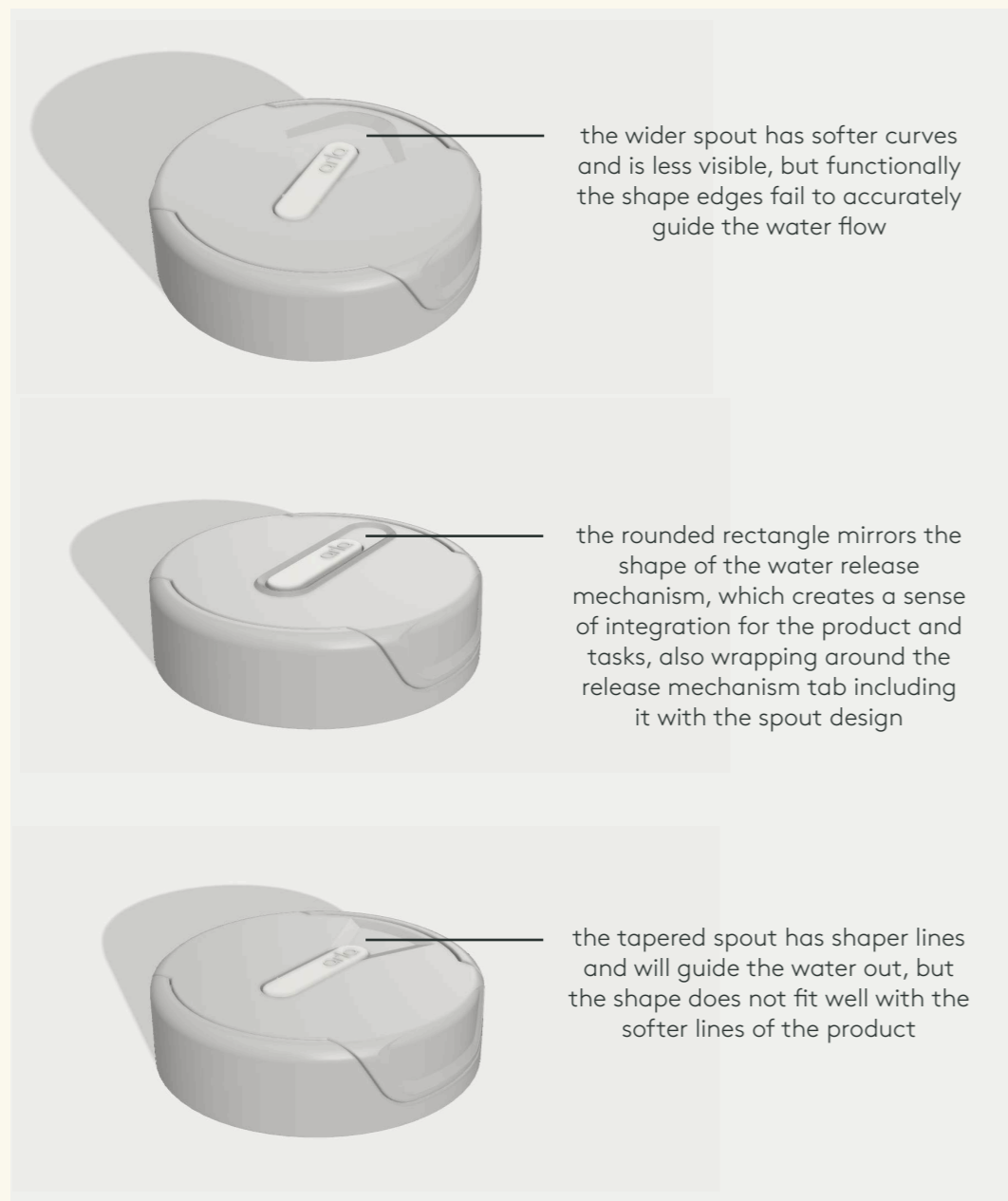
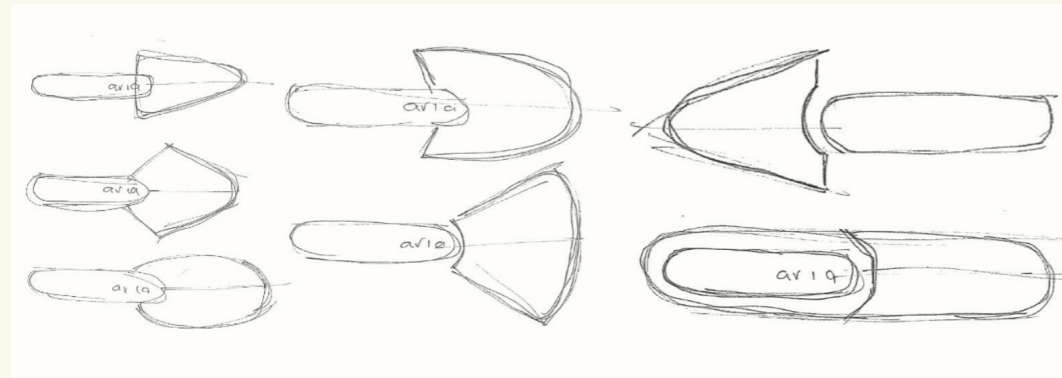


Fig. 66

Sketches of the waterspout integrated with the release mechanism explored shape, size and potential directional positioning. Three waterspout ideas were considered through CAD to assess how they would functionally fit with the design and product feel. The spouts will create asymmetry to the design, while indicating which way the water is to be poured out.

The rounded rectangle waterspout shape was chosen as it fitted best with the design (through mirroring the water release tab on the lid) and as it creates a guide for how to pour the water from the cup.

The rim around the spout also creates depth to the otherwise flat lid and provides an edge when water is being poured. The water needs to flow over the lid edge, so the rim will help minimise water spillage.

Product Integration



Fig. 67

The induction base and the shaker cup proportionately work well together and feel balanced. However, the expanding silicone cup needs further adjusting to allow full closure of the product sections.

User Interaction



Fig. 68

The user interaction with the product has been simplified with two larger grip points, which allows it to be held in two positions for the different tasks. Also, the water release tab can be pushed down to open it and has a tapered angle for pouring water out.

Logo Development



Fig. 69

Initial exploration of logos for Arla looked at letter arrangements and curved lines to create the logo. These did not grasp the aesthetic of Arla and had connotations of trees which does not indicate the function.

Further exploration was done looking at the 'A' of Arla and how this could be the logo. The font has soft curves which aesthetically fits with the design of the product; however, the thickness was overpowering. A medium thickness font was explored which has better balance and does not distract from the name.

The 'A' shape was explored with different angles and a flat base, but these created an unbalanced logo as only one 'A' was changed. So, the chosen logo was the medium thickness adapted font as the simplicity best fit the aesthetic of Arla.

Colour Exploration



Fig. 70

The initial colour exploration for Arla explores a potential colourway and how different colours can be integrated. Customisable colourways would allow users to personalise their product. Further exploration of the colours will create a range that will allow users to creatively "mix and match" Arla to personalise this.

The key findings from design development were that:

- A wider grip will provide one grip point for multiple tasks.
- An inset induction glass top will provide a level of security to the design, while reducing risk of damaging the glass top.
- Adding a handle feature was omitted due to the complexity added and as it was not needed in addition to the handle on the drawstring bag.
- Further refinement of the product aesthetics, including texture and colour and product function details will finalise the overall product design.

Design Refinement

Product refinement has focused on the functional details of the release mechanism and water seals, the silicone cup and how it will co-mould, and the product aesthetic through colour and texture.

Release Mechanism and Water Seal Development

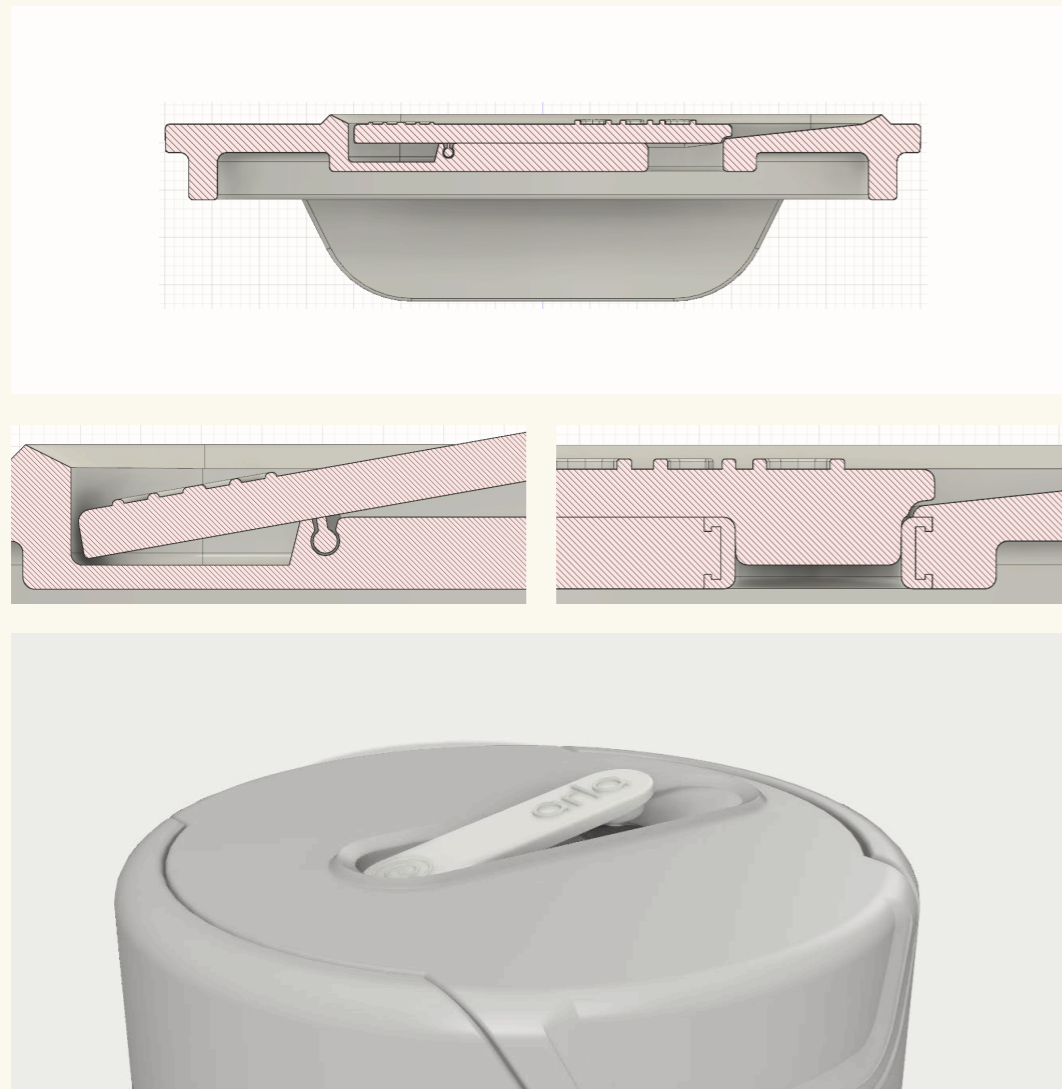


Fig. 71

The development of the release tab and how it can pivot open for water or steam release. The pivot point connects to the lid in a shell and has click points to hold the tab open or closed. A water seal was also developed, connecting to the lid, ensuring watertightness when shaking.

Induction Base Detail Development

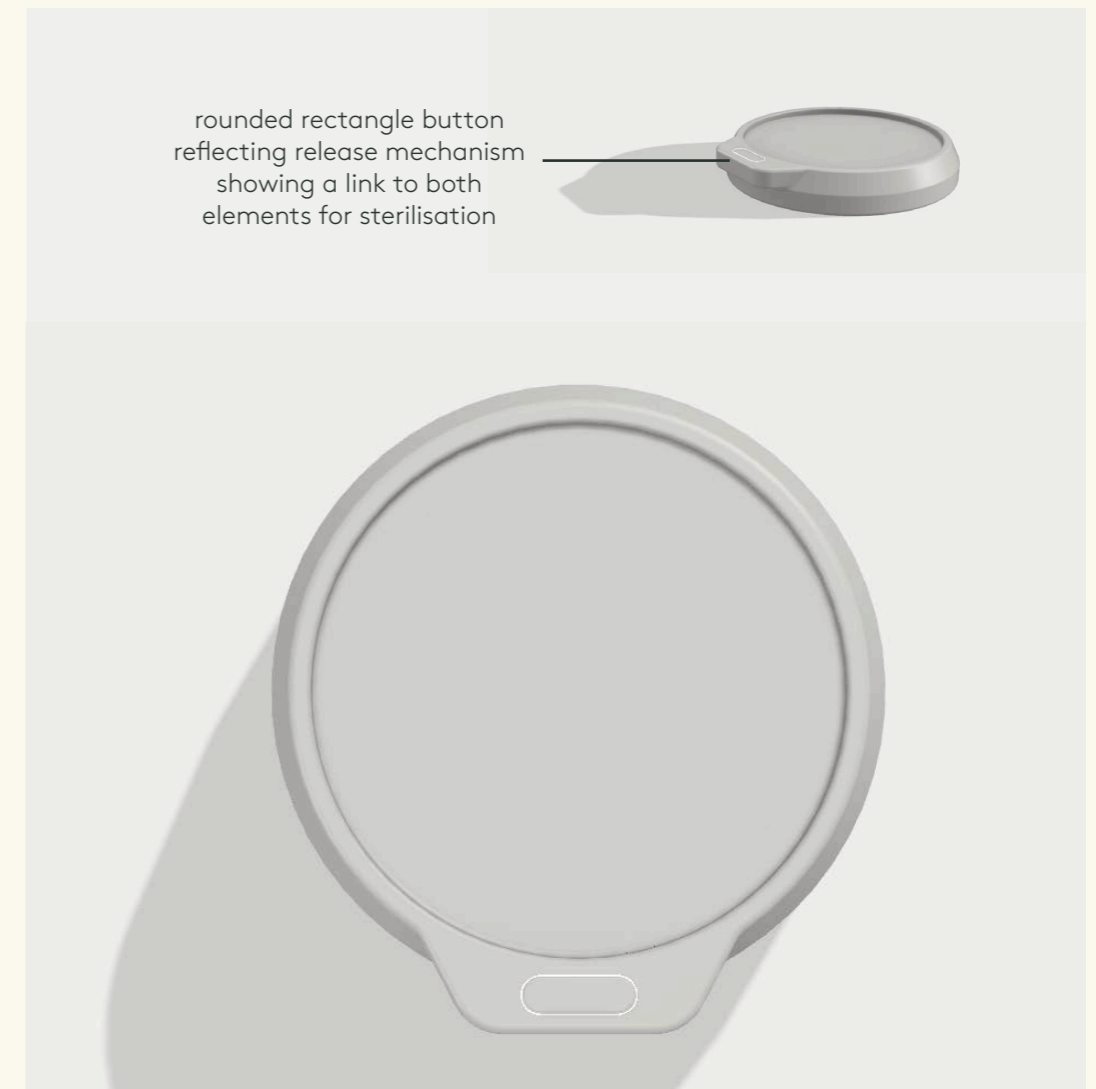


Fig. 72

The induction base development looked at the button and running indicator light. The button reflects the shape of the release tab, creating a cohesive feel to the product. The indicator light has been developed to light around the button with the intention of changing colour depending on the stage in the sterilisation cycle.

Silicone Cup and Water Seal Development

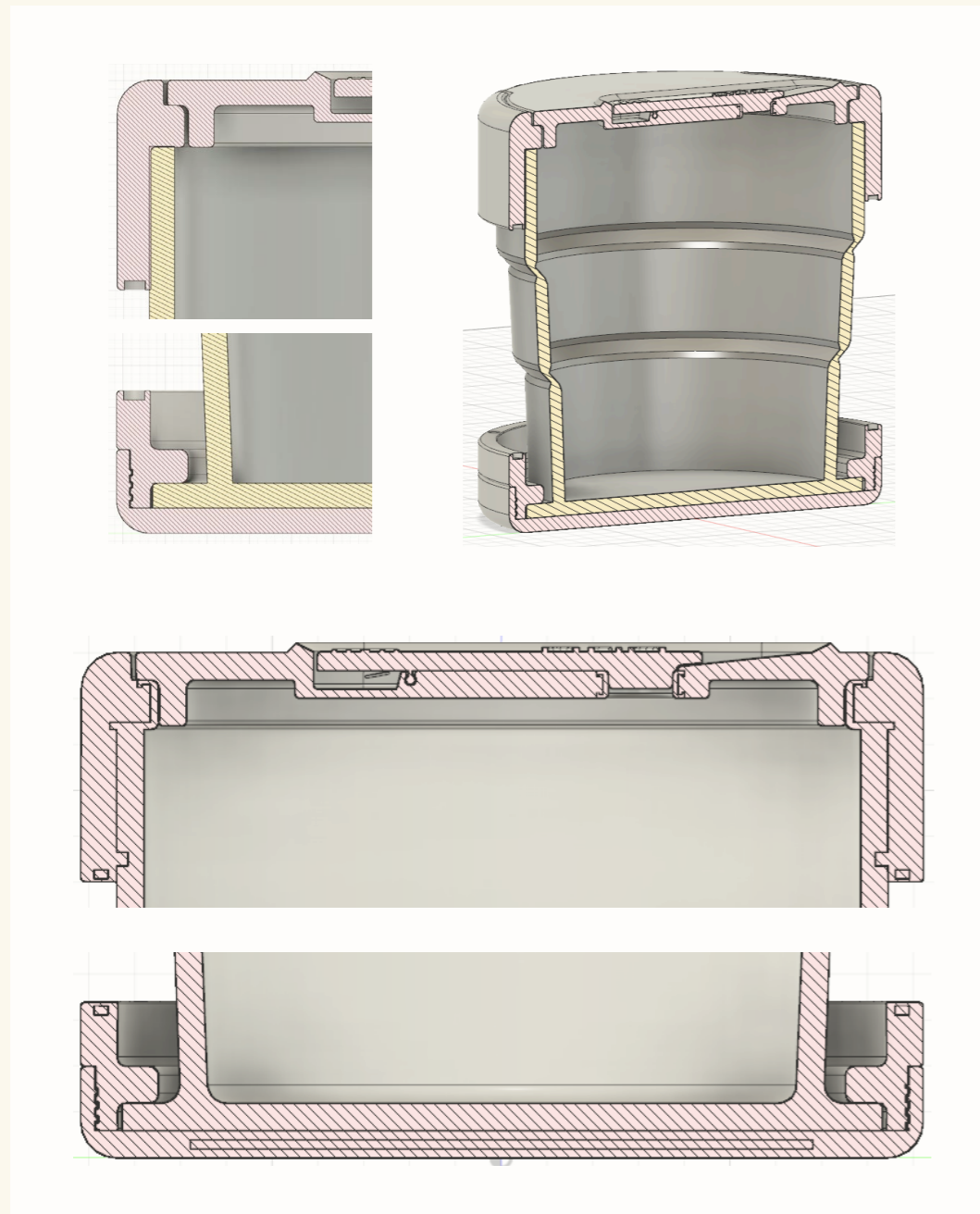


Fig. 73

The silicone cup has been changed to a co-moulded part with the mid-section, fusing these together to ensure the joints are strong and will not wear down. The bottom lip on the silicone cup has also been developed to be slightly thicker than the gap in the base pinch point to ensure the cup will be held tight. Lastly a water seal around the lid has been integrated as a part of the co-mould, removing the need for another component in the manufacturing process.

Texture and Colour Development

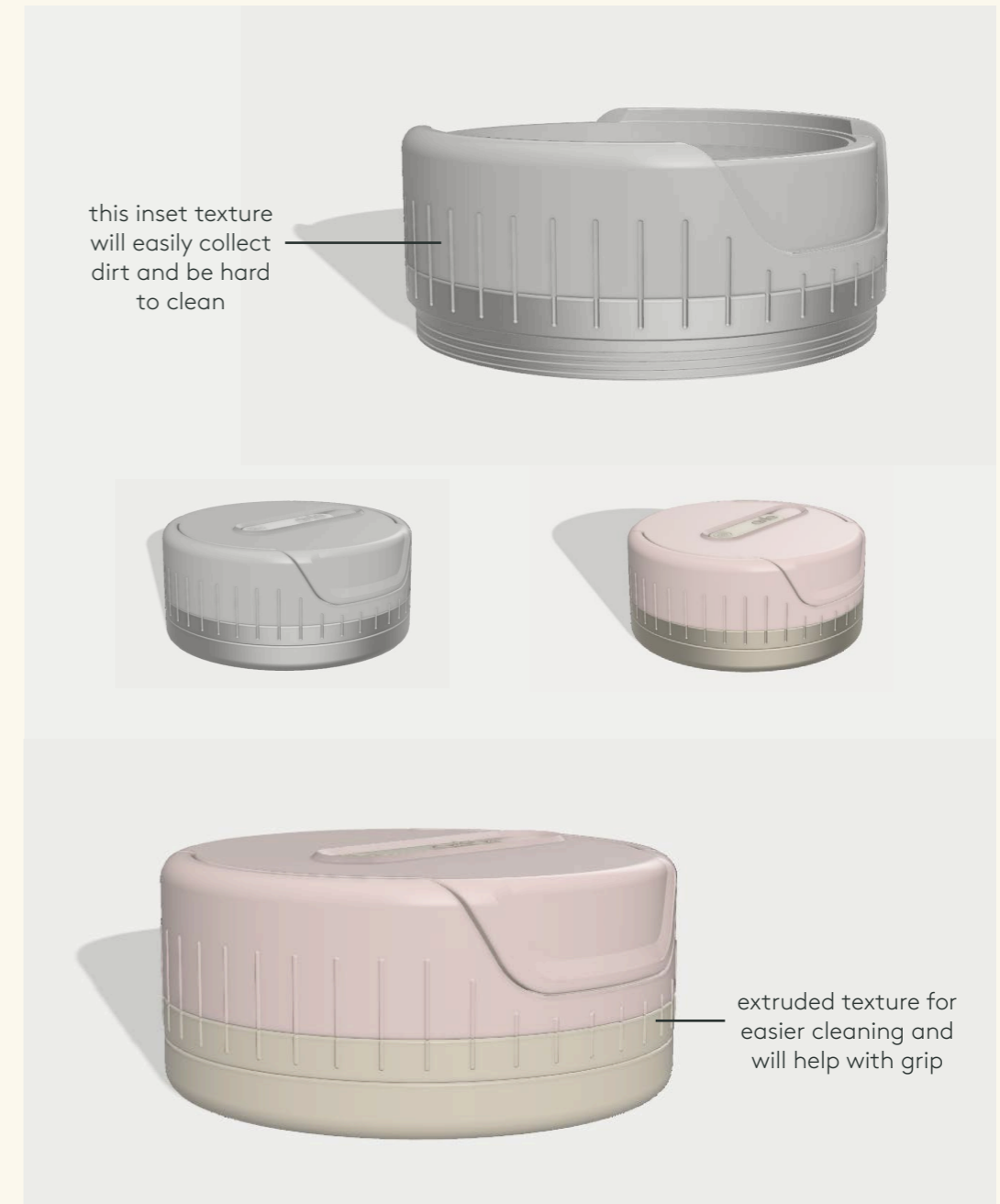


Fig. 74

Further textures have been explored over the section split for the expanding cup as this indicates alignment when closing and provides grip for holding. The inset texture would be harder to clean and grip, so a rounded extruded texture has been selected.

chapter six



Fig. 75

Final Design

The final product Arla closes the loop in the menstrual cup and disc system, further promoting the adoption of reusables. Driven by user insights the product addresses a highly intimate task through changing cleansing rituals, while fitting into a range of contexts. It enables hygienic practice of reusables, regardless of location, empowering confidence in ongoing use.

Arla has been designed with the objective of addressing an underrepresented area within design practices. As a woman I felt I had the right attributes for designing a cleansing product, strengthening conversations and increasing precedence in this space.



Fig. 76

Design

Arla is an integrated single product system with two functions. The expandable cup acts as a shaker cleaner for in-between use, cleans on the go and when placed on the base acts as a vessel for monthly sterilisation. Arla is portable, ergonomically designed for size, and will completely change the dynamic for how these cleansing tasks are performed, while making the user experience easier, more convenient, and comfortable. The expandable shaker cup does not house any technology, removing the need for power when in public. The induction base houses the technology and power source, along with inbuilt safety features.

Features and Benefits

- All parts disassemble for cleaning and replacement
- Magnetic closure at the section split
- Water seals around the lid and under the release tab
- Silicone cup is pinched tightly into place
- Co-moulded silicone cup and mid-section for durability and watertightness
- Ridged texture for grip and indicating alignment of parts
- Lid with indented grip points holdable in two positions
- Induction base has auto shut off and induction technology (heating only occurs when the shaker cup is present), providing inbuilt safety features
- 6-part shaker cup along with base and bag is comparable to its closest competitor
- Release mechanism and waterspout for pouring water, removes risk of the reusable falling into the toilet
- Customisable through colour
- Overall product size has been ergonomically considered

Features and Benefits

Release mechanism and waterspout for pouring water removing risk of reusable falling into toilet

Silicone cup is pinched tight into place

Lid with indented grip points holdable in two positions

Customisable through colour

Overall product size ergonomically considered

Water seals on lid and release mechanism

Magnetic closure at section split

All parts disassemble for cleaning and replacement

6 part product + base and bag which is comparable to closet competitor

Co-moulded silicone cup and mid-section for durability and watertightness

Ridged texture helps with grip and alignment of parts

Induction base has auto shut off and induction technology (heating only occurs when the shaker cup is present), providing inbuilt safety features

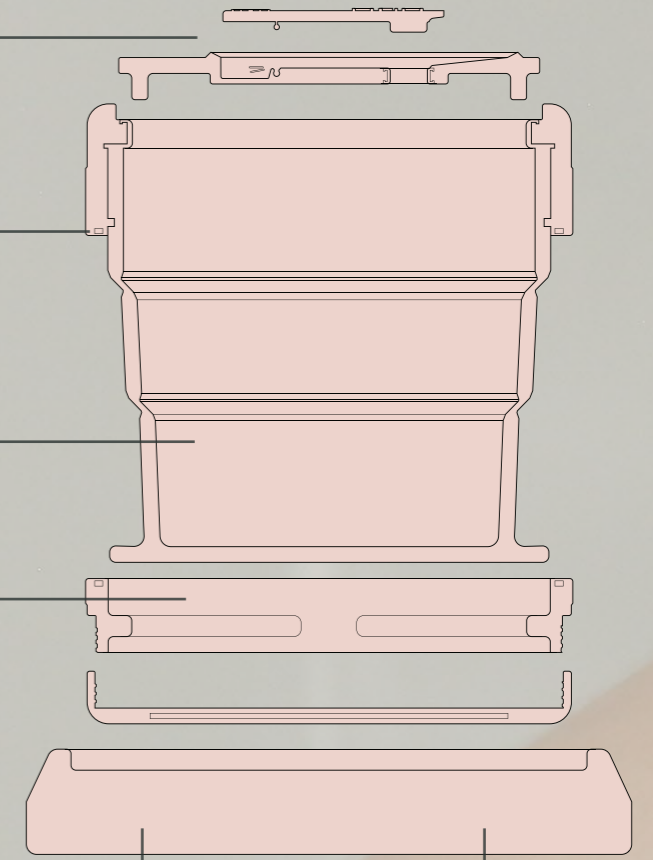


Fig. 77

Materials

The chosen materials have been carefully considered to ensure longevity and sustainability of this product.

Polycarbonate Plastic

- Can be injection moulded
- Fully recyclable
- Can withstand heat

Recycled Stainless Steel

- Sustainable
- Still has same properties when recycled
- Can be powder coated (which can withstand heat)

Silicone Rubber

- High heat resistance and thermal stability (structure/properties retained)
- Can be moulded
- Non-toxic (food safe)

Other Materials

- Glass for induction top
- Magnetic disc in base for activating induction technology



Environment Situation

Arla has been designed with location at the forefront, as cleansing tasks are done in a range of environments.



Fig. 79

Home Bathroom

The main environment of use for this product will be the home bathroom as this is where users expressed they would prefer to cleanse their reusable, rather than sterilising in a shared kitchen space (see user survey results, pg. 60-63). Even at home Arla can be used to clean the reusable when the sink is too far away. Size was considered, for when Arla is being used to sterilise as bathroom benches vary in shape and size.



Fig. 80

Public Bathroom

Use in a public bathroom was another commonly used environment, with many users expressing this space as being an issue as there are no sinks in the bathroom stalls (see user survey results, pg. 60-63). It became clear Arla needed to function in multiple locations, with the ability to clean the reusable before re-insertion. The product design carefully considers the user experience in this location ensuring the reusable does not fall into the toilet through the water release lid.



Fig. 81

Bedroom

A less common environment for this product is the bedroom. A few users expressed this as a location they would feel comfortable sterilising in (see user survey results, pg 60-63). The portable nature of Arla will allow sterilisation to happen anywhere with access to a power socket.



Fig. 82

Storage

The most frequent environment is its storage location as this product is only used for one week a month. A few users expressed issues with storage (see user survey results, pg. 60-63), which showed the need for ensuring Arla was compact. The storage location is user dependent, but most commonly will be in the bathroom likely with the stored reusable, or the bedroom.

Final Design Criteria

An evaluation of the final design against the design criteria which framed the development of Arla, confirms the key product performance objectives have been met.

Complete all needed tasks, cleaning and sterilising

The product is a portable shaker for cleaning and a boiler for sterilisation, so will complete both cleansing tasks.

Fit both menstrual cups and discs

The internal cavity of the silicone cup has been developed to fit menstrual cups and discs with space for shaking without the reusable getting stuck.

Utilise induction technology for boiling

This technology has been used because of its safety features such as auto shut off and activation through a magnetic field.

Be as compact as possible, while giving the best cleaning results

The product has been ergonomically considered for size and meeting these criteria.

Aesthetically hide its function and not look like a cleaning product

Texture, colour, and section layouts create a product aesthetic that does not draw attention to the purpose of the product or its functions.

Create a comfortable, easy, and convenient user experience

This product has changed how the cleansing tasks for reusables are done. Arla creates a more comfortable and convenient experience for users compared to current methods.

Be useable in any location for cleaning or sterilising

The portable nature and size of the product allows users to use it in any location and meet the need for both cleaning and sterilising.

Allow users the flexibility to sterilise quickly, and as often as they like

A finding from my survey was the large variability in sterilisation frequency. Arla allows users to quickly sterilise reusables as often as they like when at home.

Ensure the product is easily cleanable after use

The six shaker cup components are removable and easily washable ensuring the product is cleaned and ready for the next use.

Utilise a set and forget method for boiling with auto shut off

The induction technology is programmed for a set time (time to boil the water plus three minutes of boiling), with an auto shut off providing safety if forgotten, allowing it to be set and forget. Further testing is required to optimise the induction technology for the product and to confirm the correct timing for the boiling task.

Be able to disassemble so specific parts can be replaced

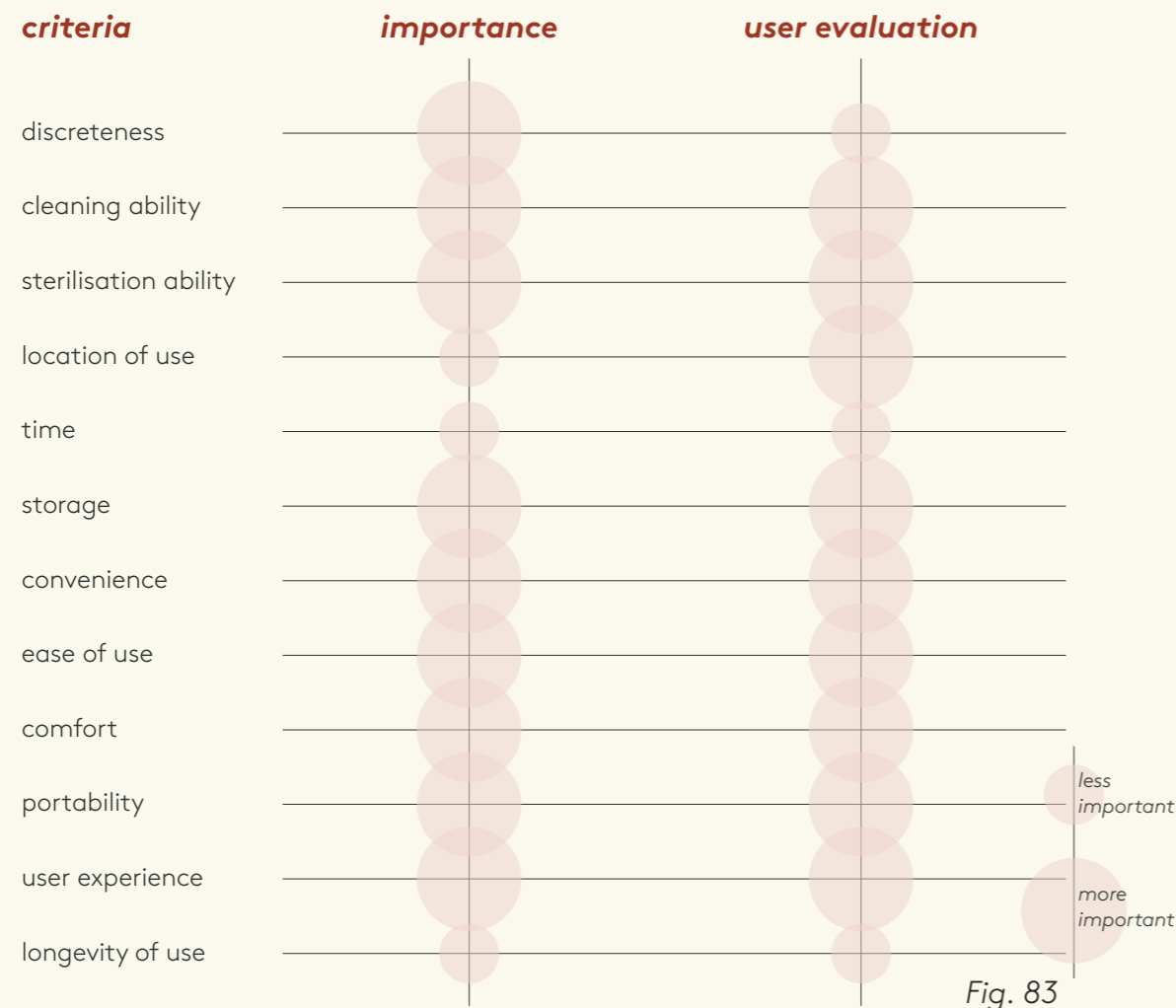
The removable nature of the components allows individual parts to be replaced if worn out or broken, creating a more sustainable solution than other comparable products.

Be appealing through its aesthetic

Use colour, texture, and component placement to create a unique aesthetic that users can personalise.

User Validation

A few users were asked to evaluate Arla against a range of criteria. These criteria were based on the issues and frustrations identified in the user survey (pg. 60-63). The evaluation asked users to rate the importance of each criteria and then rate how well they thought Arla met that criteria.



The evaluators considered most of the criteria as highly important and rated Arla strongly against most of the criteria. Discreteness, time, and longevity of use did not fully meet these criteria, understandably as further testing is required to assess and refine how Arla will perform.

One user commented on the product colourways saying "I like that the colours of the product and shape is discreet enough that I can expose it with confidence" which shows these considerations can change the user experience for people. Another user said "Arla would help ensure more frequent cleaning and sterilisation of my menstrual cup that is more often than not ignored due to the effort it requires" which shows the value Arla will provide to people.

“Part of the mundane task of owning a menstrual cup is the **monthly sterilisation** of the product, which is time consuming and requires larger resources that are most commonly found in a shared environment. This makes it a **tying task that is often left incomplete** as a result.

I think **Arla is a great concept to help combat this** due to its discreteness, physical availability, and time convenience.”

Anonymous User



Fig. 84

Evaluation

The development of Arla through this research study has provided significant functional and user experience improvements to the cleansing tasks for cups and discs.

- The user insights were key to maximising the product design development ensuring trust and providing a superior user experience with a single portable product.
- The ability to disassemble the product allows parts to be easily washed and a more sustainable solution as individual components can be replaced.
- The sustainability outcome aligns with users who are wanting to reduce period waste by adopting reusables.
- Arla has addressed the locational issues raised through its compact size and portability.

Arla has resolved many of the concerns raised by users (see user survey pg. 60-63) and aesthetically challenges what a menstrual cleansing product should look like. However, there is opportunity for further adjustments through external help and technical advice to strengthen the function and longevity of the product. Development opportunities would be:

- The silicone cup fold points to ensure these collapse correctly and will fully fit inside the product.
- The co-mould process needs technical advice and testing to ensure longevity to ensure this will last with the collapsing and shaking motions of use.
- Technical and manufacturing advice to ensure the functions of the product will work as intended, such as the induction technology, water release tab pivot, and the product section connections.

chapter seven



Fig. 85

Conclusion

This project set out to develop an innovative product to improve the user experience and reduce the stigma associated with cleaning and sterilising reusable cups and discs, with a secondary aim of encouraging greater use of reusables as an alternative to disposables.

Even though periods are experienced by well over a billion people worldwide, stigma remains with many people still uncomfortable talking about menstruation. This is seen through social taboos and gender stereotypes that suggest menstruation is dirty and shameful. This is further magnified for people who need to cleanse reusables in shared or public spaces.

The women's health frameworks seek to create awareness of health needs and issues, including menstruation. Consistent with these frameworks, there is an opportunity for a cohesive product to encourage discussions and provide solutions for a better and more sustainable way to manage menstruation. Developing a system of use that provides dignified use of reusables will help address the inequity that exists for period care.

Arla responds to this by providing an integrated portable product that allows users to conveniently and discretely clean their reusables at home or in public, along with the ability to sterilise this in locations that suit them, rather than in a shared space. Through development of Arla, I believe this has contributed meaningfully to the aims of the women's health frameworks by providing a solution that gives dignity, creates trust in reusables, and will help address period care equity.

Responses to a user survey highlighted locational issues and a lack of discreteness as key concerns. While cleaning reusables in public spaces was a significant concern (due to the lack of suitable facilities), the biggest issue was the need to use the kitchen space for sterilising, often requiring a special pot for boiling the reusable on the stove.

Through its considered design, Arla addresses many of the current frustrations and issues raised by users, in a way that addresses how this highly intimate task is managed. It enables hygienic menstrual practices, regardless of location, empowering confidence in ongoing use.

Arla is a compact, integrated product that is a shaker cup for cleaning and a boiler for sterilisation. The shaker cup is collapsible, making it portable and easy to use for cleaning when in public as well as at home, with key features such as the waterspout to make it easy to use. When sterilising the shaker cup is placed on the induction base, activating the boiler function to hygienically sterilise the reusable for next use. Sustainability and hygiene have been considered with Arla able to be disassembled to enable thorough cleaning and easy replacement of parts should these wear out.

I believe Arla offers a practicable solution to users, providing easier sustainable management of menstruation. Arla has been designed to offer dignity to those menstruating, provide solutions to improve equity in period care, and through its cohesive system, enable good hygienic practices for reusables, regardless of location.

Developing Arla during the Masters programme has furthered my interests in designing for underrepresented areas, like menstruation. This project has developed and strengthened my skills in research, design and development of ideas for manufacture.

So the question is, where to here for Arla? There is a clear need for an integrated solution to provide better outcomes for those who are menstruating. The next steps for Arla is to seek external input on some technical aspects (such as the induction technology) as a step towards fully functional test models and eventually commercialisation.

Since inception of Arla two years ago, the need for a product that cleans and sterilises reusable cups and discs has become more prominent. This masters research study through design, has advanced the articulation of benefits of reusable menstrual products, by addressing the function and usability of the product concept, elevating trust and confidence in the product experience.

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appendix

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A. 2023 Arla Concept



Research Findings

2.2 Trends

The menstrual cup was patented in the 1930's, but it wasn't until the 1970's when tampons and pads were designed (Awwa Interview). This shows a backwards trend society took when plastic became more commonly used because disposables became the go to period product due to convenience.

Today, both disposables and cups exist, however, there is more focus on sustainability, so there is a trend towards using reusable products.

In 2018 when Awwa was launched, they were the 5th period underwear brand in the world and first in New Zealand (Awwa Interview), today there are over 30 different brands. This shows a trend towards reusable period products as people switch towards sustainability.

A study of young people in Victoria, Australia assessed the use and perception of reusable period products. Of the people surveyed, 596 people aged 15-29 reported menstruating in the past 6 months and were asked about their product use, use of reusable materials, product priorities and preferences (Ramsay, et al).

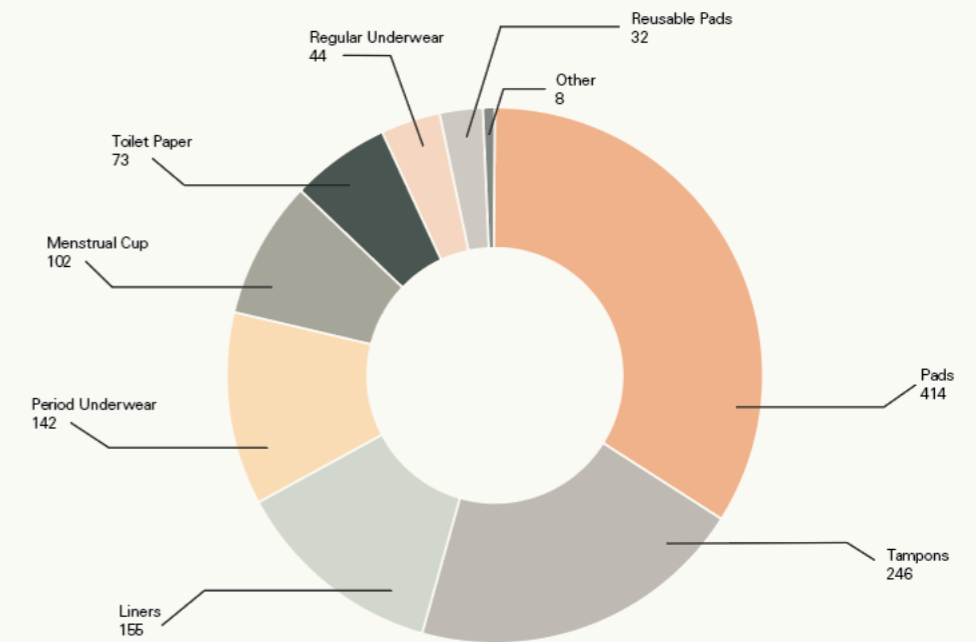


FIG 4

Figure 4 shows:

- Disposable products are most commonly used.
- Period underwear is slightly more popular than menstrual cups.
- 73 people said they used toilet paper highlighting some have inadequate access to period products.

2.4 Existing Products

Period Products

Periods require commonly used items such as tampons and pads. However, the high cost and poor sustainability of these products has led to the creation of reusable period products which over the lifetime of a person's period is cheaper and less wasteful.

No one is the same shape or size, so different brands and product types are able to cover a wider range of people's needs. The current reusable products include; underwear, cups, discs, liners, and pads.

The current market (fig 7) shows a wide range of products. However, similar products can be seen clustered together as no specific brand has created a breakaway solution to its water use or price compared to others.

Cost *up front vs Water Usage

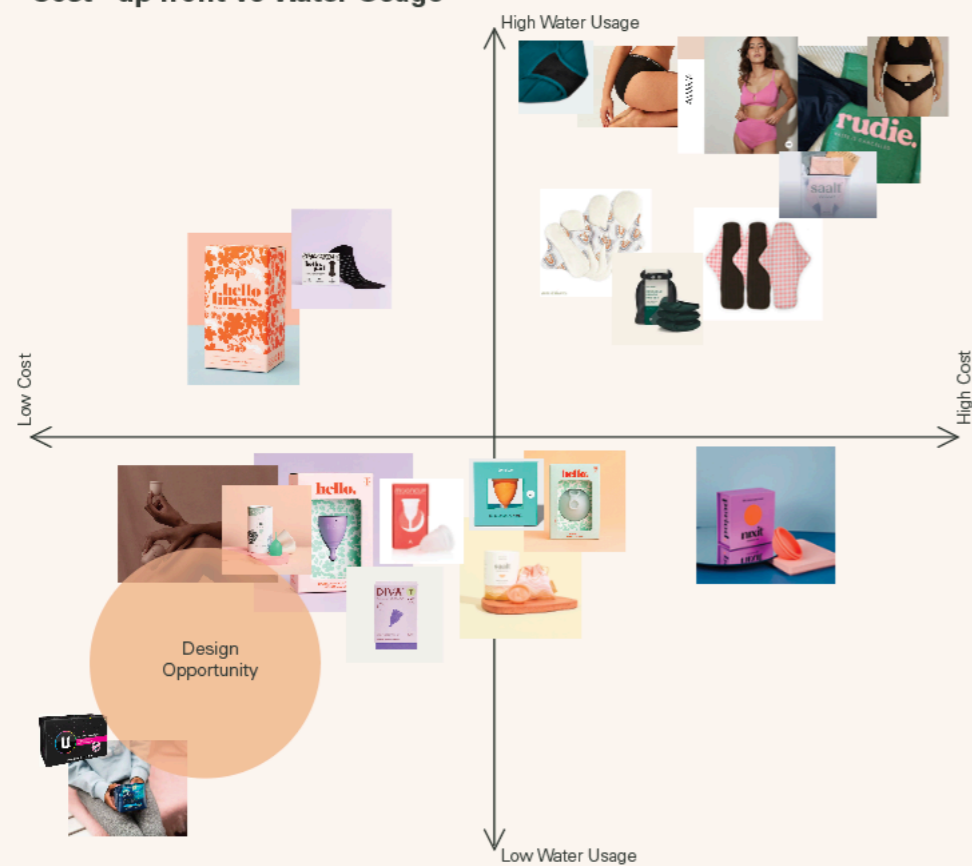


FIG 7

Modibodi Period Underwear

Modibodi are one of many brands now creating period underwear. They provide a range of absorbencies allowing users to customise the underwear to their needs. Modibodi is sustainability focused using bamboo viscose, merino wool, organic cotton, and recycled nylon.

The full case study can be found on page 43 in the appendices.

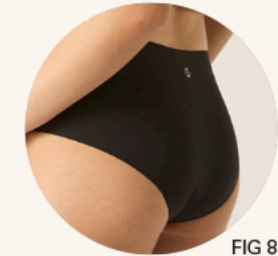


FIG 8

Hello

The hello cup and disc are New Zealand designed by a female registered nurse. Both can be worn for 8-12 hours and have a lifespan of up to 5 years. Cleaning these requires sterilising by boiling in a pot of water for 3 minutes.

The **hello cup**; has a capacity of 3-4 tampons, is made from hypoallergenic medical-grade TPE, and has a range of sizes to fit a wide range of people including a low cervix cup which doesn't have a toggle, but has similar capacity.

The **hello disc**; has a capacity of 50ml, but there is only one size. It is made from medical-grade silicone, and has a double loop tab for removal and can be worn four different ways.

The full case study can be found on page 44 in the appendices.



FIG 9



FIG 10

Product Comparison

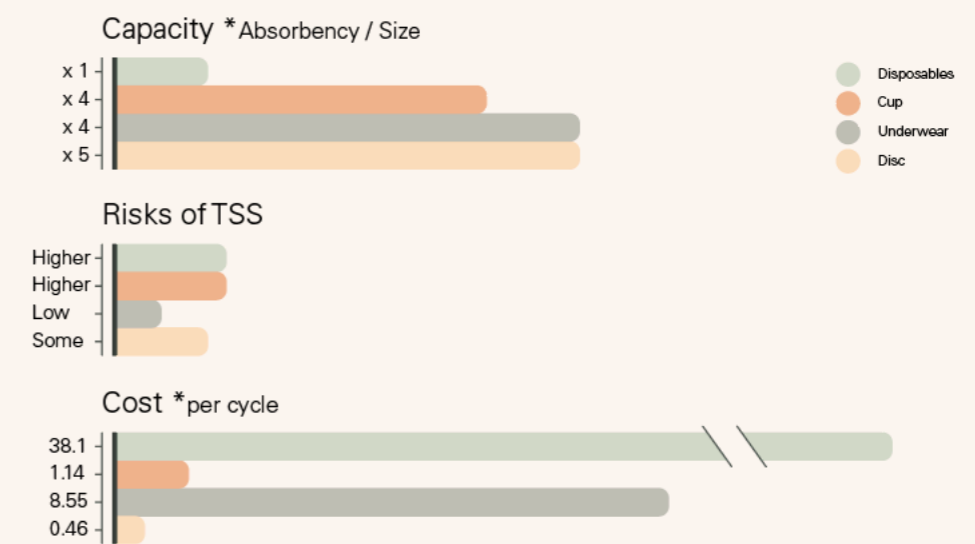


FIG 11

Cleaning Products

Reusable period products, unlike disposables, require cleaning and sterilisation. The underwear must be rinsed before machine washed, and the cup/disc needs rinsing before boiling.

There are a few products within this market (fig 12), however no specific product makes cleaning of these products quicker, use less water, or a more sustainable option. There are clusters of similar products, but they vary in cost and size, not usability.

Reusability vs Cost vs Water Usage

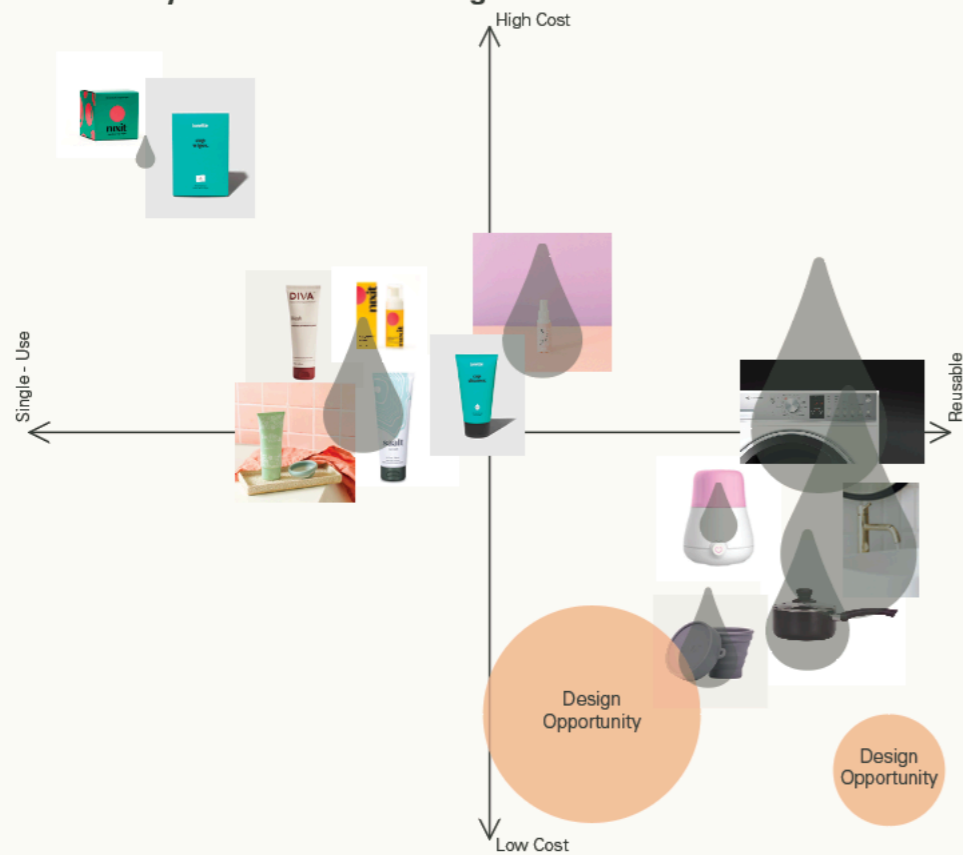


FIG 12

Hello Go

The Hello Go spray is a portable bacteria protection spray for cups and discs for on-the-go cleaning during your period. This is not for sterilisation at the end of your period, but it creates a 24 hour bacteria protection for use when reusing after rinsing. The full case study can be found on page 45 in the appendices.



FIG 13

Nixit Wash

The NixitWash is a solution for washing cups and discs with between use. The solution foams up allowing a full clean which water doesn't provide. It is still recommended to sterilise cup and disc at the end of each cycle. The full case study can be found on page 46 in the appendices.



FIG 14

Nixit Wipes

The NixitWipes are specifically designed wipes for cups and discs as they are fragrance free and PH balanced. They are individually wrapped so are easily portable and are 100% biodegradable made from plant based materials. The full case study can be found on page 47 in the appendices.



FIG 15

Diva Shaker

The Diva Shaker is a collapsible container allowing cleaning of the cup when away from a sink. Water and a wash solution are needed to ensure the cup is properly cleaned when shaking. The full case study can be found on page 48 in the appendices.



FIG 16

Product Comparison

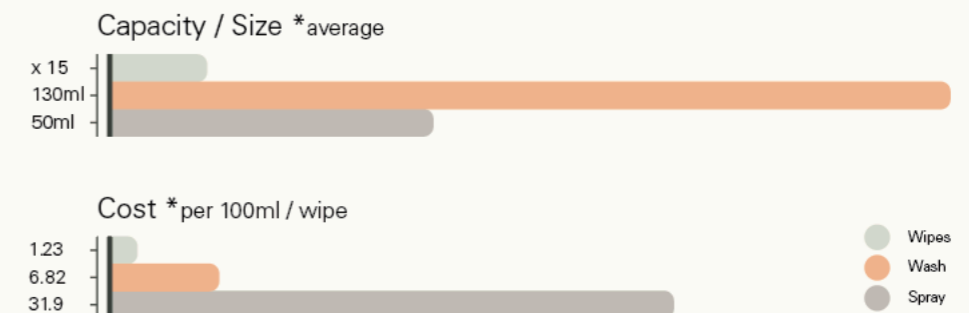


FIG 17

3.4 Results and Analysis

Online Survey

Product Use

There were 45 respondents with varying use of reusable period products. Some reusable products were not continued in use, with disposable products still most commonly used.

The number of menstrual cup users dropped when asked 'if currently using' and people said they stopped using it due to poor fitting, leakage, and as it can be messy to deal with.

When asked about the change from disposables to reusables people said, comfort, capacity, environmental impacts, and cost were the contributing factors. These results a line with the study Ramsay et al. undertook in Australia as stated on page 7.

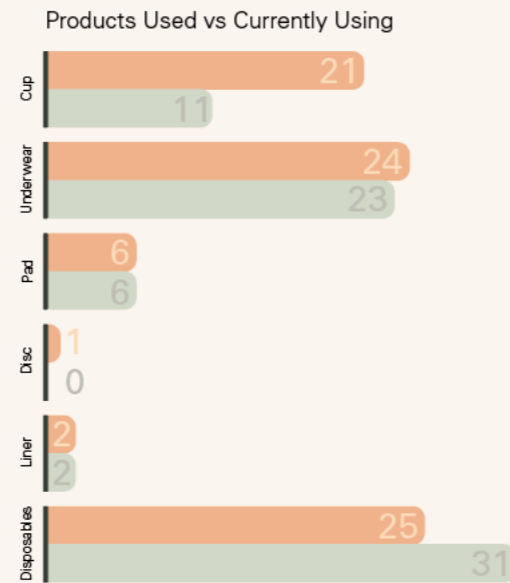


FIG 23

Why Users Don't Use Reusables

For the users using disposable products, they were asked why not reusables? Convenience was commonly said, but upfront cost, lack of education, cleaning time, and smell were other factors raised.

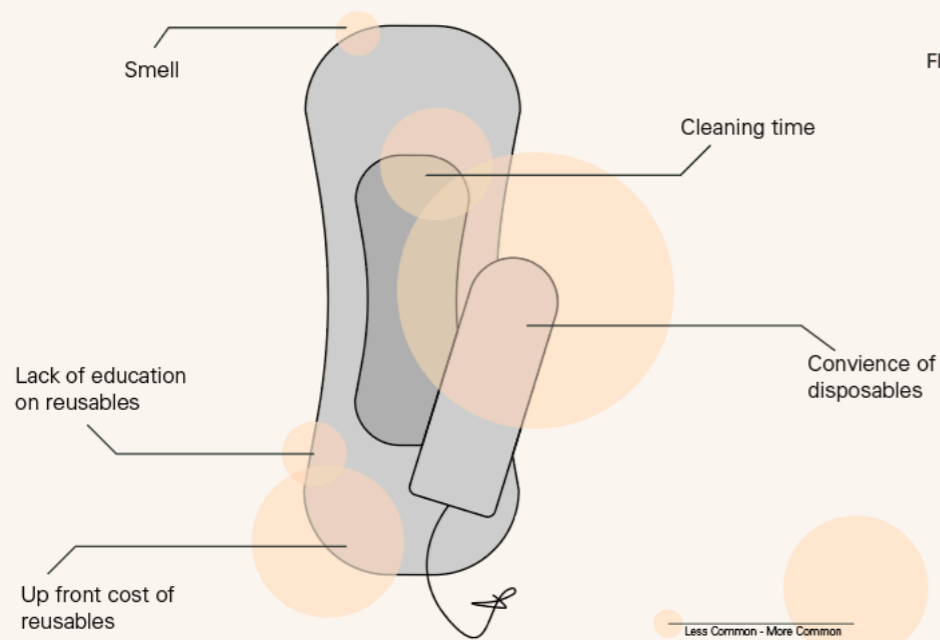


FIG 24

FIG 25

Interviews

Expert Interviews

Both Awwa (period underwear brand) and Hello Period (menstrual cup brand) said water sustainability wasn't a key factor considered when designing reusable products rather they were waste focused.

"It uses less water to clean reusables than to make disposables." - Hello Period

Although not focused on water Hello did say anything to save water the better because it is a valuable resource.

There is opportunity for a cleaning product or solution to sit alongside reusable period products to further consider its sustainability and create a more comfortable user experience.

User Interviews

Through user interviews the 'changing of reusable products' was a common trend either changing disposables in public is easier or the limited cleaning abilities being an issue. Alongside reusables, users also used disposable products for convenience and the purpose of changing in public and no cleaning needed.

These issues further reiterate the results from my survey (page 19) and user experiences from the Medina-Perucha et al. and Ramsay et al. studies (page 8).

User Engagement

Through an user engagement booklet users detailed what they would want in a product. For menstrual cups discrete, easy and fast to clean, doesn't leave residue or affect PH levels, and will 100 percent sterilise the cup were the key features users wanted in a product. For period underwear reduced rinsing time and not having hands under water during the entire clean.

"The cleaning up **seems gross** but I wish it didn't because I would love to use reusable products"
- Survey Respondent

"**Reusable storage** for on the go if you can't clean it right away or **don't want it exposed** if it falls out of your bag"
- Survey Respondent

"I want something **eco-friendly** and does not need a sink"
- User Engagement Respondent

"I want something that will **100% sterilise** it and **doesn't take more than 5 minutes**"
- User Engagement Respondent

Frustrating Issues with Reusables

Through the survey users were asked about frustrations with reusable period products. The maps show commonality between users regarding issues faced. These ranged from product usability to cleaning accessibility at home and in public.

The biggest issue for menstrual cups was changing in public and links to limited access to sinks in public bathrooms stalls. For period underwear time was the biggest issues from pre rinsing before washing and also drying time as they cannot go in the dryer.

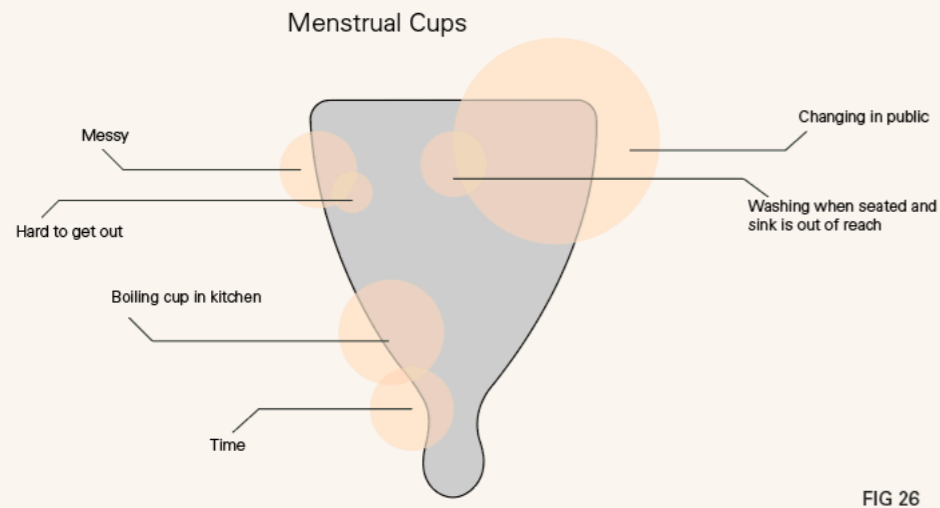


FIG 26

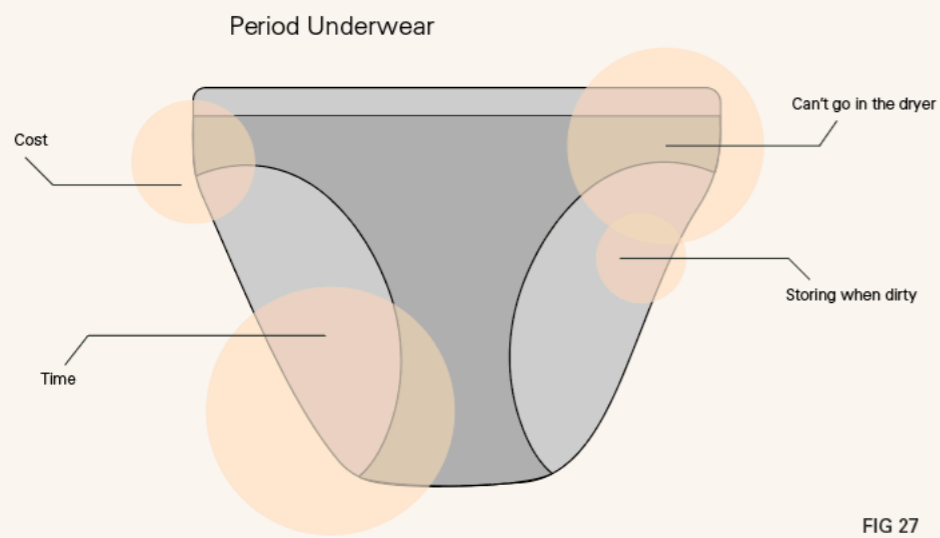


FIG 27

Task Analysis

Menstrual Cup



FIG 28



FIG 29

In public
User discomfort points were cleansing cup in public due to difficulty in stalls with washing, hard to get out, messy, using bare hands, limited rinsing ability.

At Home
Discomfort points of home cleansing are washing it when seated and sink is unreachable, and similar issues of removability and messiness.

Sterilisation
User discomfort for cup sterilisation is self-consciousness from boiling in shared kitchen spaces. Time and effort are some factors for people not sterilising their cups.

Cleaning Analysis

Period underwear has the highest water consumption and time for both during and after, with a total 123 litres of water used if 10 pairs are used and 103 minutes for cleaning. The cup and disc have different consumptions and cleaning times as the materials were different and reacted differently to the wash solution.

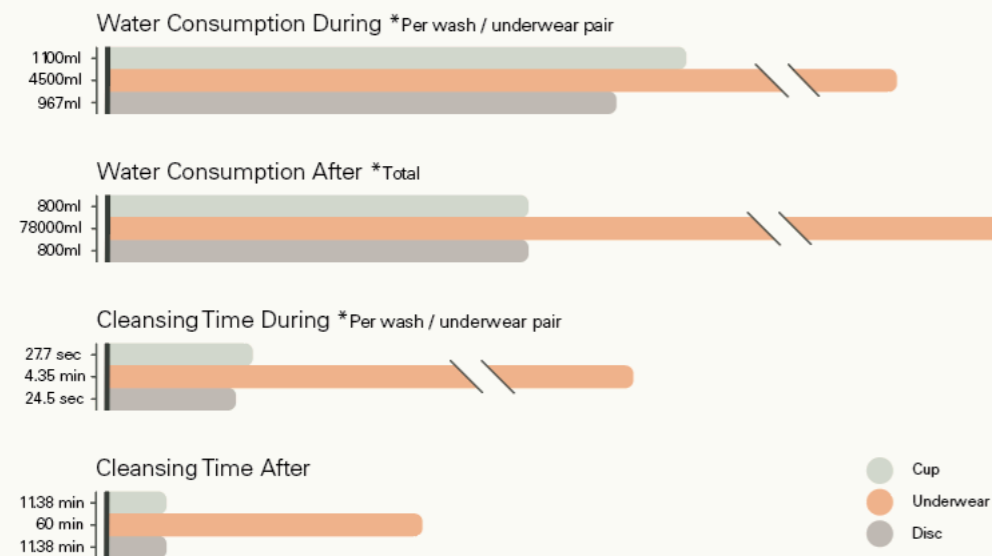


FIG 32

Design Opportunities

There are many opportunities to create products improving user experience with and cleaning reusable period products.

A fast lathering soap

- User 1 said they would more likely buy a soap rather than a product.

Modular period underwear

- Removable layers with changeability for different absorbencies.
- Create cleaning system for all parts.

Underwear spinning device

- User 1 said this could shorten the lifespan as it might be quite hard on the fabric.
- Consider something like a tog ringer to remove water.

Ultra-sonic cup cleaner

- Create this as an in-bathroom cleaning device.
- This could be an overnight cleaner with UV light.

Portable cup cleaner

- User 2 said they would use this type of product the most.
- Consider how loud the device will be.

Arla Concept System



Arla is a multi-product system making cleaning in public and at home easier, with the aim of encouraging more people to switch to reusable period products. The system has four components: Arla Home the in-bathroom cleaner for deeper cleans at home, Arla Travel the portable cleaner for on-the-go cleans in public, Arla Base a wireless charger, and Arla Carry the waterproof bag for 'Arla Travel'.

Arla Home uses ultra-sonic to clean the menstrual cup with a water filtration system to cycle the water and ultra-violet light to sterilise the cup after the water is drained into the lower tank. The cleaning process is 20-30 minutes which is longer than current practises but does not need constant monitoring. Arla Home sits on Arla Base while cleaning but has a small battery capacity to release water after cleaning.

Arla Travel is an expandable shaker cup for cleaning with ultra-violet light for sterilisation. The cleaning process is dependent on how long the cup is shaken and how clean the user wants it; however, the UV sterilisation is 1-2 minutes. Arla Travel has a battery for on-the-go use, so charges off Arla Base.

User experience was the key concept Arla was designed around. Because period already carry a stigma, Arla mustn't add to that further, instead make people feel more comfortable embracing reusable period products. So, the process of use and location were a big focus in the design phase and the outcome is a more enjoyable cleaning experience. The visibility of cleaning reusable period products in the kitchen creates a significant barrier and by shifting the process to the bathroom Arla creates a much easier, low-profile user experience.

Arla Concept Product Family



Home

The cleaner for deeper end of cycle cleans.



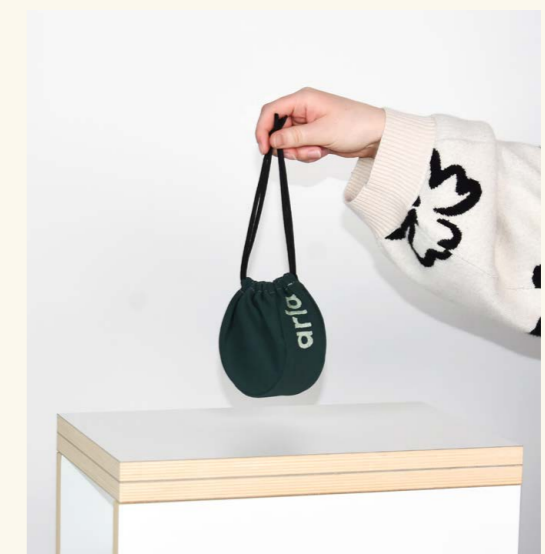
Travel

The cleaner for quick on the go cleans.



Base

The base for running Arla Home and Travel.



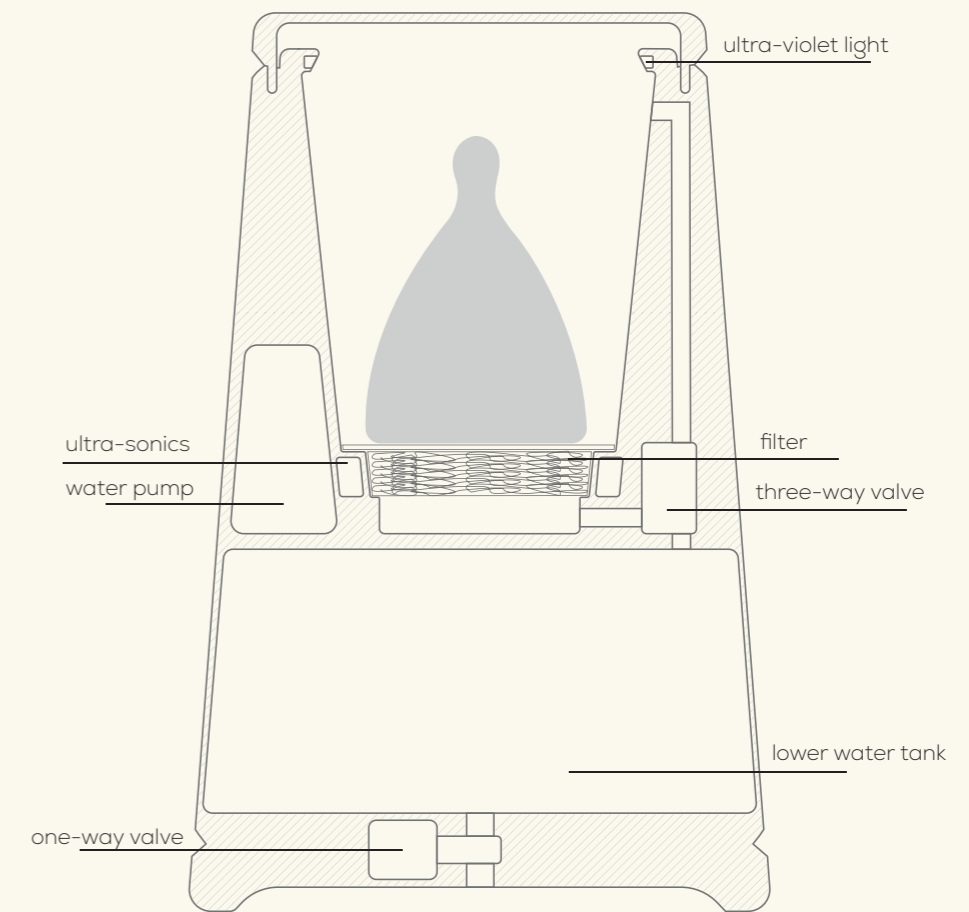
Carry

The bag for discrete and convenient travel.

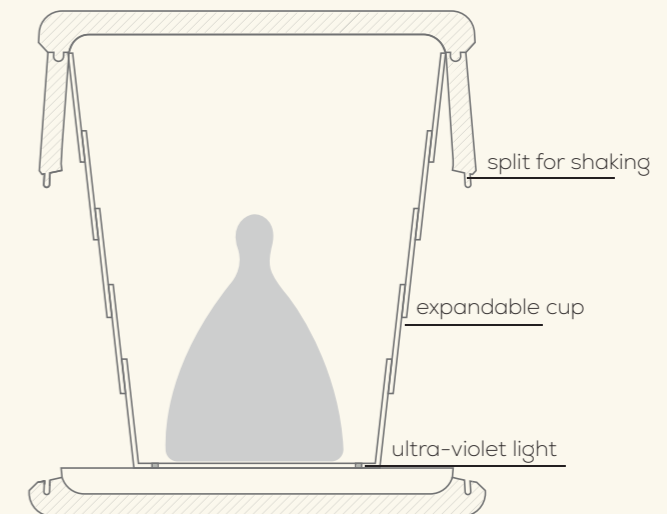
Arla Concept Product Details



Arla Concept Product Functions



Arla Home



Arla Travel

B. Full Case Studies



Emanui

"Emanui is a menstrual cup steriliser and cleaner, perfect for keeping your menstrual cup clean and germ-free during periods and between cycles. It's made of high-quality medical silicone, portable, and extremely easy to use."

Details

Cost: \$87.67 nzd

Size: 105mm x 68mm

Recycling: Can be fully disassembled and recycled

Water: Small amount required

Cleaning Solutions: Not required

Materials: FDA approved, BPA free silicone and durable plastic

Portability: Very good



Process of Use

To Clean

Fill the menstrual cup sanitiser with a bit of water, insert your menstrual cup, wash it by gently squeezing or shaking the device, and your cup is ready to be used again.

To Sterilise

Fill the menstrual cup sanitiser with water (to the inner line), insert your menstrual cup (ensure it's clean), open orange cap, place in microwave for 3 minutes, remove and wait to cool down, and your cup is ready for your next cycle.



Design Benefits

- Easy and intuitive to use
- Can be used in privacy and locations of comfort
- No cleaning solutions needed
- Can hold water inside as it doesn't collapse
- Multiple ways of cleaning/sterilising – Squeeze, shake, and microwave
- Handle to hold device on coat hook in bathroom stalls
- Base clips upside down allowing easy insertion of menstrual cup into stem holder

Design Negatives

- Doesn't allow cleaning for menstrual cups without a stem
- Struggles to hold flat stem cup in place
- The device can't collapse, so would struggle to fit into some bags



Saalt Steamer

"Sanitise your cup or disc at the touch of a button.

Now you can quickly and conveniently sanitise your cup or disc without the hassle of boiling. Just add clean water, click the start button, and voilà!"

Details

Cost: \$72 nzd

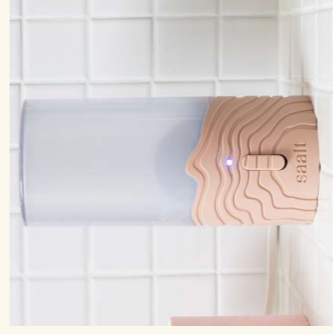
Size: 214mm (height) x 152.4mm (width)

Water: Very little

Cleaning Solutions: Not required

Materials: Durable plastic

Portability: Okay



Process of Use

Remove steamer lid, fill the small basin with water, insert cup or disc rim down into steamer, place the lid back on, and flip the switch. Wait 6-8 minutes (allowing time to cool down) and your cup or disc is ready for your next cycle.

Design Benefits

- Shuts off automatically
- Simple and convenient to use
- Takes 6-8 minutes to sterilise and cool down
- Indicator light for when the steamer is running
- Can be used in a bathroom
- Quicker than boiling on stove

Design Negatives

- Needs an outlet close to work
- If you want to steam multiple products at a time – a one hour cool down period is needed between steams
- Larger product to store
- "It feels a bit light, and I am nervous it will break in not too long. I also wish that the water well was a bit deeper."
- One user said it broke on the second use (could be a faulty one)
- Another users said water started leaking out the bottom where the wires are located (could be a faulty one)
- A few users had the steamer turn off after 30 seconds not 3 minutes



Saalt Sanitiser

"The Saalt Compact Sanitiser allows you to sanitise your menstrual cup or disc anywhere. Just boil water, or fill with water, and microwave for 3 minutes. Ta-da! Easy peasy, best-period-ever....sy."

Details

Cost: \$26 nzd

Water: A little water required (has to be submerged)

Cleaning Solutions: Not required

Materials: Food grade silicone

Portability: Very good (collapsible)



Process of Use

Microwave

Place cup or disc in sanitiser, fill with clean water until fully submerged, microwave without the lid of 2-3 minutes or until boiling (time may vary), allow sanitiser and water to cool before removing.

No Microwave

Set the sanitiser on a flat surface, place cup or disc inside, fill with boiling water until fully submerged, cover gently by placing lid upside down on top of sanitiser, let it sit for 3 minutes, allow to cool before removing.



Design Benefits

- Designed for discrete use
- Collapsible silicone cup - compact design
- Easy portability and use in comfortable locations
- You can store your cup/disc in it when not in use
- "my housemates joke that it makes them more comfortable too now that I'm no longer boiling my cup in our shared pots"
- Cleaning/sterilising is easier and faster

Design Negatives

- Lid can pop off in the microwave from the steam
- No handles to help remove from microwave when hot and full of water
- Must sit and cool after sterilising - and if done in the microwave that is in the kitchen Not an easy design to use in a bathroom stall - doesn't have a leak proof seal for shaking cup clean



Compact UV Steriliser

"This compact travel steriliser is perfect for sanitising your menstrual cup while travelling or when you don't have access to a stove or microwave to boil your menstrual cup."

Details

Cost: \$59 nzd

Size: 84mm (width) x 32mm (height when collapsed)

Water: No water required

Cleaning Solutions: Not required

Materials: Food grade silicone

Portability: Very good (collapsible)



Process of Use

Open the device, place the items to be sanitised on the white base of the device, secure the fully opened pink silicone lid on top, turn the device on, wait 3 minutes, and your cup or disc is ready for use or storage until next cycle.

Design Benefits

- There is an indicator light to show when device is on and sanitising
- No water is needed to sterilise
- Collapsible design makes this very portable
- Compact and lightweight
- Can be used anywhere
- Doesn't need to be plugged in to run
- Takes 3 minutes to sterilise

Design

- Cup must be dry before sterilising in device
- One charge will give 10 disinfection cycles
- Kills 99.9% of bacteria and removes odours using the built-in UVC LED lights (don't know how tested this is)

Design Negatives

- Unbranded product - cannot verify how good and effective this product is
- Flexible lid fits most, but not all cups
- Also unclear if it can fit menstrual discs inside
- Unclear how the UV light works inside for cleaning





Hello Steamy

"Say goodbye to having to boil your cup or disc on the stove and 'hello' to the power of steam cleaning. Convenient, effective and fast, Hello Steamy will sanitise your cup* or disc in four minutes at the push of a button."

Details

Cost: \$69.99 nzd

Water: Very little

Cleaning Solutions: Not required

Materials: Durable plastic

Portability: Good



Process of Use

Remove steamer lid, fill the small basin with water, insert cup or disc rim down into steamer, place the lid back on, and flip the switch. Wait 4 minutes (plus allow for cool down time) and your cup or disc is ready for your next cycle.

Design Benefits

- Fits both cups and discs
- The device is portable and can be used anywhere near a plug - usable in the bathroom
- Shuts off automatically
- Simple and convenient to use
- Indicator light for when the steamer is running
- Quicker than boiling on stove

Design Negatives

- Does not fit the largest Hello cup size
- Needs an outlet close to work
- If you want to steam multiple products at a time - a one hour cool down period is needed between steams
- This is very new to the market, so unclear how well the product performs over time

Design

- Designed in New Zealand
- Plug options for different countries
- Steam eliminates microorganisms



C. Perceptual Maps + Findings

Cost vs Cleaning / Sterilisation



- Wipes are an outlier as they have a high cost per use (used for cleaning between reinsertions when in public)
- Cluster of wash solutions ranging in price (used for washing between uses)
- Sterilisation spray is an outlier (not used for end of cycle sterilisation, but can be used for sterilisation between uses)
- There is a cluster of sterilisation solutions ranging in price
- Pixie cup steam steriliser is an outlier as it is a lot cheaper than other steamers
- There is group of collapsible microwave sterilisers ranging in price (these can also be used to clean between uses)
- Emanui is an outlier to other microwave sterilisers that also clean as it has a higher cost
- UV light steriliser sit slightly away from sterilisation as it is unknown how well they sterilise
- The steam sterilisers range in price (does this effect how good the sterilisation will be?)
- Sterilisation tablets are low cost and sterilise

Portability vs Cost



- Steam sterilisers have lower portability, but range in cost
- Sterilising tablets are low cost, but sit slightly below highly portable because you need to have something with you for sterilising
- Merula microwave steriliser is an outlier due to its size and isn't collapsible
- Wipes are highly portable, but have a high cost per use
- Emanui has a high cost and is portable as it's small, but sits below the collapsible products with the same functions
- The collapsible UV light steriliser is highly portable
- Sterilisation spray is highly portable for on the go use
- There is a cluster of wash solutions low in cost with okay portability as they can't be used for cleaning in certain places

Portability vs Reusability



- Steam sterilisers are clustered together as they are reusable, but have lower portability
- The microwave sterilisers are spread along the reusability axis as the longevity of these products are unknown, but they are highly portable
- Merula is an outlier to the other microwave sterilisers as it is less portable (larger size and isn't collapsible)
- Wipes and sterilising tablets are highly portable, but are single use
- Wash solutions and sterilisation spray are reusable, but are still single use as they need replacing when they are empty
- The UV light steriliser is an outlier but are reusable, but is highly portable

Cost vs Reusability

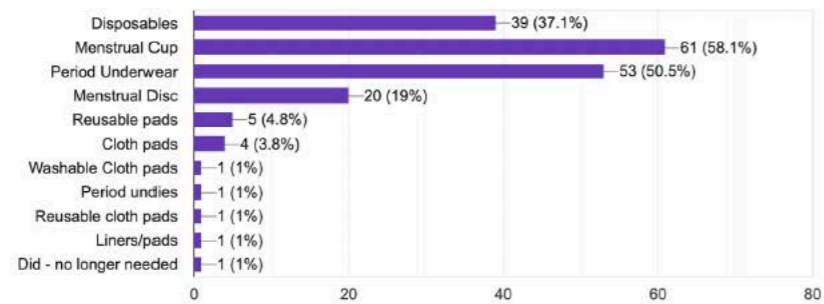


- Wipes are an outlier as they have a high cost per use and are single use
- Sterilising tablets are an outlier as they have a low cost per use, but they are single use
- Wash solutions have a lower cost and are reusable, but are still single use as they need replacing
- Emanui is an outlier as it has a high cost unlike other microwave sterilisers
- Steam sterilisers range in cost, but are reusable
- The microwave sterilisers are low in cost, but sit away reusable due to the unknown longevity of the products
- The UV steriliser is reusable and has an average cost in relations to the microwave and steam sterilisers (but the longevity of the products are unknown)

D. Full Survey Results

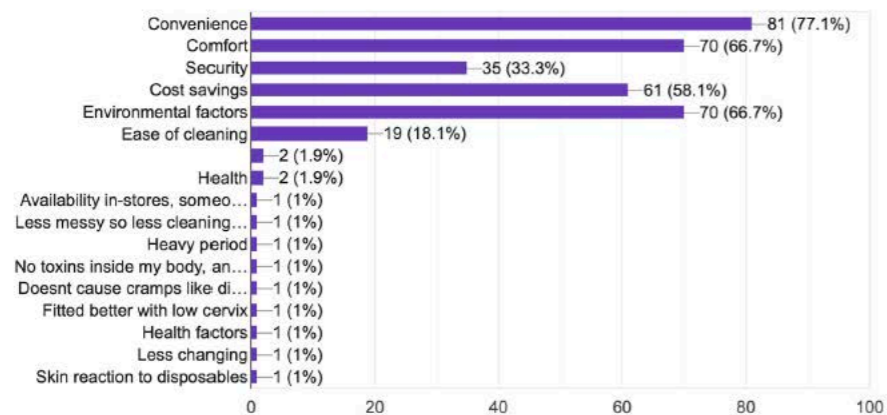
What period products do you use?

105 responses



Why do you use the products you do?

105 responses



Why or why don't you use a menstrual cup?

105 responses

I had only ever used a menstrual cup my entire menstrual years, so 16 years. Loved the ease, comfortability, security, hygiene. Stopped after I gave birth as I needed to wear pads, kept wearing pads intuitively until around 6 months postpartum when I started to take my daughter for swimming lessons and swapped to a disc. I now use pads and the disc alternatively.

to save money and the environment (have had the same one for 6 years now)

It's so clean. And I can literally forget I have my period

Have used one in the past, found a disc easier to use

I tried, but I find a cup inconvenient to use in public bathrooms and at work (tricky to clean properly)

I do because I o lay have to empty it once or twice in the first 2 days then leave it in all day or night after that and I'm a heavy bleeder.

Kept getting BV even though I sterilised and cleaned regularly

Hard to clean, don't want to be boiling it on the stove in my flat and serialisation tablets are expensive

Can't use with the IUD

I can use it for certain days of my period, if my flow is too light it doesn't sit comfortably.

Tried it but it was too uncomfortable to insert so don't use it

Messy

Scared of inserting, whole thing sounds like a wet nightmare , risk of sneezing it out

So convenient, empty in the morning and again before bed, don't have to worry about changing products throughout the day, feel much cleaner not having anything in my underwear, save so much money. Can't think of any con to using a cup!

The system around the product feels lacking. Where do I store it when not in use, how do I know it's clean, how to deal with it in public, and also the novelty aspect of getting the right size.

I found with a retroverted uterus I have to wear the cup lower than recommended, but didn't know that for ages and so had a lot of discomfort for the first while.

I started using one to help with period pain and measure my flow

I use a cup because I'm more comfortable with that than bleached cotton on my vagina

LOVE the disc, so easy to use and I can put it in just before starting my period and just empty it once a day during! Saved so much money (and waste)

Too messy and inconvenient

Easy just to grab and carry for when needed

It's just easy

Less waste, better for body

I've never really considered using a menstrual cup to be honest.

It's a cheaper option and lasts way longer than a tampon. It's also comfortable

I like to use when I'm active or have many commitments but I don't like it when I'm bloated and have cramps

The cup is more comfortable on light days than a tampon but helps to avoid the "wet" feeling with pads (reusable or disposable)

It's easy for me and I like not having to think about or spend money on tampons, as well as not creating the waste. Occasionally I still use them for convenience but it's probably only a couple of times a year.

It's convenient, easy to clean, cheaper than buying pads, comfortable, don't have to worry about changing if I'm out 1-8hrs

Heavy periods tampons were leaking

Because of the admin, will it fit, will it be comfortable?

I'm postpartum (8month + 2.5Yo) and have had three periods, they are crazy heavy and the cups are the most logical to use!

It made me constipated

I've used a menstrual cup for about 8 years, recently changed to a disc just for fun. Last so much longer than a tampon and chemical free.

Have tried them in the past and found them both too messy and I couldn't trust them due to a really heavy flow

A menstrual disc is the best option I've found for security (no leaks!!) and comfort, and I love the environmental, money saving and convenience factors. So glad I gave it a shot.

Mostly hate single use items

Mostly waste minimisation, but I also found that it seems to reduce cramping compared to tampons.

Too hard to clean

I used to only use a menstrual cup, but don't use them as often anymore due to concerns about how effectively I can clean them at home. I'm not confident that current methods sterilise the cup effectively.

Menstrual cups are so much more convenient and less "nasty" than a tampon. Tampons are fuzzy, urine soaks into the string, they have higher risks of TSS and are expensive

As above

I'm not currently using one as I need to find a new one that fits (18mo post partum), but I love how quick and easy they are to use and I can wear what I want without worrying people will know I've got my period

Just the ease of them and keeps costs down and I prefer them to other products

Prefer it

Didn't want the single use of pads and tampons, got one right when they first became a thing and have used since, ~8y now

Tried but kept leaking so gave up

Started because of environmental reasons, but would never go back for ease of use or security

Sometimes my flow isn't heavy enough to warrant using the cup, but I use it when I can.

First product I forget I'm having a period

Not comfortable

As stated above i use a cup as it helps keep the good funk inside, im not putting unknown chemicals inside my body.

I use my cup in conjunction with pads as I have super heavy flow and leak often

Cups didn't work well for my body. Disc is much more comfortable and easier to use.

I sometimes use it more for peace of mind if heavy flow and period underwear might not be enough

I started using it because of the cost savings, environmental benefits and the Health benefits.

Money saving and always having a product to use

Can't seem to fit them properly and they're uncomfortable and leak. Have spent a bit of money on trying different ones

Much less waste, can leave it in for longer. More comfortable.

They are easy to get at the supermarket and they allow for output measurements

I use one so i can leave it in for the day so I don't have to change it at work which is convenient.

It worked better than tampons with a low cervix

Never thought about trying it and haven't come round to the idea of having a cup.

The disc is the only menstrual product that can hold a heavier amount of blood for me

I couldn't get the cup to work. I use a disk. It's more user friendly

I use a disc instead - I have a prolapse from childbirth and an iud so don't like the suction of a cup

Environmental reasons

I use a disc for ease of use. It lasts ages. I only need to change it every 10-12 hrs. I don't use a cup as I find it hard to get the fit and seal right.

It started off as a way to reduce my environmental impact. Now it's also the convenience

I always hated tampons

Can't get fit right, endo means I flood

Better for the environment

I have tried menstrual cups before but after trying different brands could still never get a good fit. Had better success with a disc but I also have a really heavy flow and a high/tilted cervix so it's still a bit tricky. When I am going out of home for long periods of time I don't want to change a disc in a public toilet so prefer to use pads and overnight I prefer to use adult diapers to prevent leaking

Easy to use, once bought no further cost, don't need to carry many things when out and about

It sounds gross

I have tried it a few times and struggled with how to use it

Cheaper than disposable products and reduced my cramps/nausea that I otherwise got

Holds more, less disposables during each cycle so better for the environment

Can wear for longer than a tampon, better on the environment, cheaper in the long run.

Menstrual disc holds a large volume for heavy flow. There is less stress going to the loo as it can auto dump.

Easy to use and clean. Can swim and do whatever and don't have to change it as regularly as tampons

Used to, but it impacted my gut comfort and movement

the idea of cleaning a cup puts me off

It's better for the environment and healthier than tampons. However I wear tampons for work as I worry about leakage and not having a basin to rinse the cup in

I have decomposes and endometriosis and I have literally leaked through wearing a cup/disc and modibodi's heaviest absorbency underwear in less than two hours - tampons and pads don't even last 30 mins

I don't find most tampons comfortable so I doubt I'd find a cup comfortable. It also seems messy.

Cups don't work for my low cervix all that well

cheaper, eco friendly

They don't fit - they're too long and uncomfortable and I can't afford to keep trying them to find one.

I think it would be difficult and messy to clean and a lot of admin, and feel like it's quite gross to use

I've been using a menstrual cup for over 10 years. It's great, I forget I have a period.

For health benefits, cost and waste. No period pain when using them.

The capacity, comfort, and cost are the biggest appeals.

Love that I don't have to buy products every month

Very low chance of leaking and can wear in for longer periods of time, not as messy as other options in my opinion

I use it for when I need coverage for high flow. I don't use it when my cervix position doesn't allow for comfortable wear.

Longer wear time compared to pads and tampons, more environmentally friendly, very comfortable.

Holds lots, cheap, environmentally great.

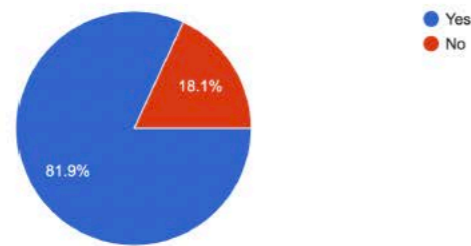
Less risk of TSS, can leave in longer, holds more than a tampon, less in landfill.

the thought of leaving something inside my vagina for a prolonged time

I use a disk sometimes. I couldn't find a cup that fit well without leaking. The disk is comfortable, can wear all day without changing it, and can wear it during penetrative sex.

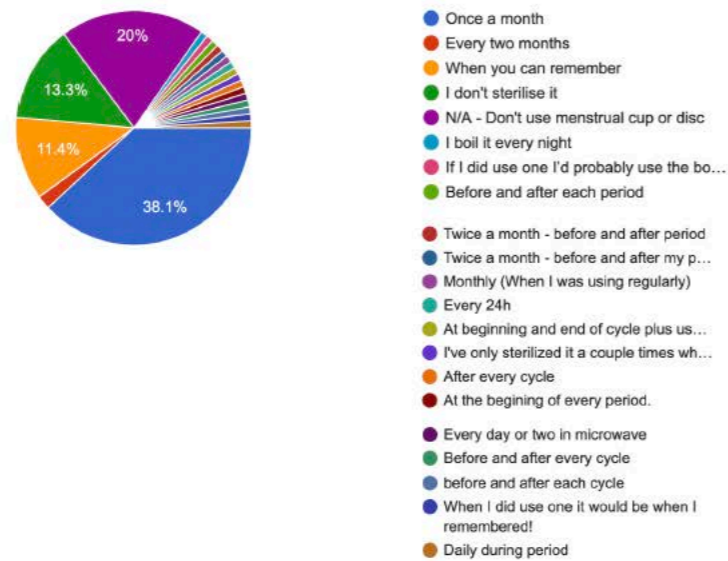
Did you know disposables cost over \$10,000 to the user for the span of their period (40 years). Does that make you consider the use of reusable period products?

105 responses



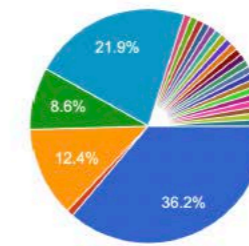
If you use a menstrual cup or disc, how often do you sterilise it?

105 responses



What method of sterilisation do you use?

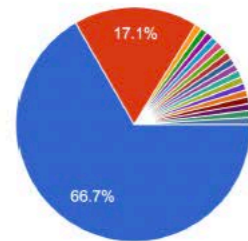
105 responses



- Boiling - pot on stove
- Steam steriliser
- Sterilisation tablets
- Microwave steriliser
- Ultra-violet light steriliser
- N/A - Don't use menstrual cup or disc
- I put it in a cup with boiling water
- I usually just clean with hot soapy water
- Mine came with a container that goes...
- Boil and microwave
- I don't sterilise it
- Boil and baby bottle sterilised tablets,...
- boil in microwave
- Spray
- I did use to boil it. But not anymore.
- Don't stearlize
- Cup of boiling water
- Dont sterilise
- I dont
- Just wash with sospy water and air dry
- Most of the time just running it under h...
- Just give it a wash in hot water and soap
- Scap
- Wash in shower
- Alcohol wipes
- I don't sterilise. Just rinse in very hot water
- I don't, I just wash in soap

How do you feel towards boiling menstrual cups, if there was a boiler product to do it for you?

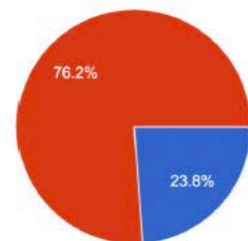
105 responses



- Sterilisation method doesn't bother me
- Still don't like the idea of boiling menstrual cups
- I don't like the idea of chemicals on menstrual cups
- I wouldn't mind if it was a discreet and easy method
- Would be more discreet
- Great idea!
- I add boiling water then microwave mine
- Don't use
- As long as it's convenient. I don't like boiling
- Would definitely switch if it were easier
- I think boiling will likely be more successful
- Sterilisation doesn't bother me but I have concerns
- Could be more discreet
- This will damage most cups
- Prefer something convenient, eg plug-in boiler
- Cups are already an expensive upfront investment
- N/A
- Boiling alone won't remove biofilm build up, so a boiler would only ever be part of my cleaning methods.
- I don't mind, I just want the most convenient and easily accessible method.

Does the cleaning of menstrual cups discourage you from using them?

105 responses



- Yes
- No

What frustrates you about cleaning menstrual cups or discs?

105 responses

Nothing

Na

Nothing really

Nothing, just remembering to make sure it's sterilised before use, so anytime in the month after having my period! (Although I clean with soap and hot water thoroughly in sink after period finishes).

the cleaning lol

It feels a bit icky using a pot I use for cooking. And I worry about burning it!

Don't mind cleaning & sterilising at home, but find them inconvenient to clean when out and about, traveling, etc

Having to use something else while I wait for it to be sterilised to avoid leaking. And privacy, it's not a subtle thing to have your cup sitting in a cup of water on the bathroom bench.

I felt they were never clean enough

Admin

Takes a bit to get use to. Can be messy and hard to clean if no sink in toilet

Nothing, I usually just take it out and clean it in the shower

Not convenient or discreet

Unable to be discreet e.g. public bathrooms

Where would you clean it that isn't gross?

I ticked the boiling method but I actually just boil the jug and pour boiling water over my cup, let it cool and do it again, then put it away in its travel bag for the rest of the month. Nothing frustrates me about cleaning my cup.

The cup shape -if you pour water into it too quickly there's a nightmarish splashback scenario and it makes me feel like I am needing to be standing there pantsless cleaning it to use it again, all while worried about leaving any stains in the sink, and feeling queasy from seeing blood.
It just feels like quite an undignified way of dealing with something that is a lived reality for the next number of decades.

Discolouration

The inconvenience

They stain so easy so look gross when they have been used a few times

NA

Remembering

When blood is thick

Nothing. My cup came with its own steriliser, it's really easy.

The messiness of it all

It's just an inconvenience

The only issue I ser is that you can't do it easily while away from home

The inconvenience if it has not yet been sterilised and I need to use it

Also difficult to clean it in a shared flat if others are in the kitchen

It's difficult if you don't have easy access to running water ie camping

Haven't thought about it.

Nothing but the shocked faces that accidentally see it are funny! Sometimes the comments from others are frustrating

Constipation, the suggestion they need daily sterilisation

They eventually stain and retain a smell no matter how much I clean or sterilize

Just the inconvenience, and having to store and keep containers and equipment separate because tikanga. Still worth it for the benefit though.

Not much

Staining from iron - can't get it looking completely clean

Reaching over to the sink while I'm sitting on the toilet
No sinks available in stall public bathrooms

I'm not confident that they are safely sterilised by the recommended methods. I noticed I started getting thrush/UTIs around the same time I started using them so would like to see scientific evidence that the sterilisation method is effective before trying again.

The silicon discolouration

It's just a bit messy and time consuming

The little holes can be tricky to get clean

Trying to remember and having to do it away from the bathroom

The little holes lol getting those cleaned

Nothing,

Time and having to do it in the kitchen

staining

Time involved mostly

Don't use

The dam stains

I wash it regularly with soap and water but I don't regularly sterilize it I didn't know I had to honestly...

Nothing.. I think it's easy enough to use. Annoying when bathrooms don't have taps to rinse it during the day though.

After a while it doesn't look clean

It didn't bother me

Remembering to clean it

Having somewhere away from the family kitchen to sterilize etc

I don't know how to clean it/ how often

After a while it doesn't look clean

It didn't bother me

Remembering to clean it

Having somewhere away from the family kitchen to sterilize etc

I don't know how to clean it/ how often

Public toilets and the lack of an easily accessible sink without using the disability roo.

I feel like I have to find time to do it when no one else is around 😞.

Blood in the sink

No quick, easy, no touch method

I have no issues

Bathrooms where the toilet and sink are separate so can't rinse and reinsert without mess

Remembering 😊

not knowing if it is sterile

Nothing.

I don't sterilise it daily during my period because of the awkwardness of having nothing to use while I sterilise it

The ridges and holes can be hard to clean, especially on my moon cup. It also needs a good scrub after using it, the other problem is where to store it that's not the bathroom sink, mine sits in the shower

I don't mind cleaning it. Drying time is the worst thing.

At home it's fine but out in public it's already gross using public toilets so the idea of having to wash my hands in sinks that people are washing their menstrual products in is rather disgusting never mind me washing mine in them

Time when want to use it and be out the door

It doesn't discourage me from using them, but it is frustrating to have to clean them in the kitchen (a public space in a shared household/flat), and to have to watch over it while it's boiling on the stove.

No way to do it super discretely when flatting with others

I feel a bit gross using the family microwave for it

Don't like doing it in the same place as I prepare kai but to lazy to get a burner etc

Nothing. It's fairly straightforward.

Stains

Nothing. I just washed it out with water twice a day, then a proper wash with soap at the end of a cycle. Never felt the need to sterilise, was super easy

n/a

Not having a private space to do it in

Remembering to do it

N/A

How to store them until ready to sterilise

nothing

My husband - he's so squeamish about anything to do with periods

Where do you put the blood when it's done, what do you do in a public toilet when it needs rinsing? If the sink isn't in the cubicle

nothing really

Drying

That boiling doesn't remove the biofilm, so the cup gets stained and smelly if you don't clean it with some kind of mechanical surface agitation too. The biofilm is actually the thing I find most concerning about cups, because this is a risk for TSS.

I don't mind it but I have to sacrifice a pot and have it hidden away so no one else in my flat uses it.

Time consuming

Dont always pop open or seal once inserted

The Little holes at the top, and ensuring the cup is clean without scratching the surface

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Remembering to do it

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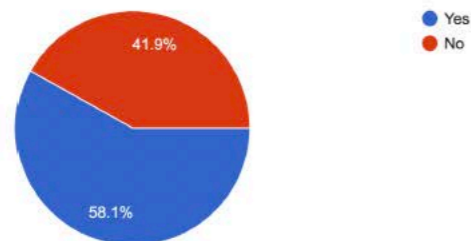
Dont always pop open or seal once inserted

The Little holes at the top, and ensuring the cup is clean without scratching the surface

- feels weird
- Just remembering to do it! I usually just wash it in the shower and let it air dry
- The initial clean before sterilization
- Knowing what is involved. The time and organisation involved.
- Nothing really, easy to do at home, slightly less convenient if traveling though
- Nothing

Would a cleaning product help you or encourage you to use a menstrual cup or disc?

105 responses



How would this cleaning product benefit you?

105 responses

- I would want the cleaning product to be natural. I have germphobic OCD so the idea of a cleaner cup is great, but realistically it would be dirty straight after I started using it for the length of my period
- If it didn't involve boiling or mixing food utensils with it that would be great
- Would be good if it could be kept in the bathroom
- Would only buy if it was better than what I already do.
- Must be discrete & ideally able to be used without a sink
- If it was discreet I would like that. If it was easy I would like that.
- If it could tell me if cleaned 99.9% of germs (or some figure) I'd feel more comfortable
- If it was easy I would be way more inclined to use it! I really want to be able to use it. I have purchased a cup but only used it once
- I use a steriliser spray in between uses if out in public
- I don't know what the product is you speak of
- More convenient
- Discretion
- I don't feel I need a cleaning product
- As long as it's quick, easy, and mess-free that would be appreciated.
- It depends if it's a chemical - wouldn't be comfortable adding chemicals to my cup, but something that was easier than boiling and chemical-free would be handy
- Ease of use
- Easier to use

Wouldn't change what I do already

Already use a foam

It's not necessary.

Not sure

Saves time..

Maybe for traveling

Make it easier to clean in a shared flat

Make it easier and quicker to clean or sterilise

I'm not sure.

As long as it's healthy for the environment and healthy to be used on a product that goes INSIDE my body, I wouldn't mind!

This question needs reworking as to what kind of cleaning product - wipes, spray etc

If it was non toxic and removed the stains

If there was something discrete and compact to use while away from home that could be a great benefit

Having a neat and convenient way to sterilise would just make life easier

I liked having a mini steriliser for the cup for the microwave

If it was a set and forget (i.e. built-in timer), that would be awesome, because I sometimes need to do the clean at an inconvenient time, when I can't be by the stove to switch it off.

Make it easier to use for a busy mum who works full time

I'd like to see evidence that it completely sterilised the cup/disc.

It would be nice for the product to "look" clean.

If it replaced sterilizing it would potentially save time and remembering to do it before my period starts and when it ends

Help keep cleaning routine consistent

I could keep it in the bathroom and use in the shower

If it had a 2 for 1 benefit, saves time

-

Less time

I am comfortable the way I am doing things.

Saving time

Feels like it will aide cleaning

Still wouldn't use

At present an addition to what i use currently

Wouldn't matter to me

It wouldn't make any difference for me.

Reassure that it's been cleaned well and limit bacteria.

I think something easy would be so helpful

Depending on where you could use it

Would be good to know that it's hygienic and won't cause any problems

Allowing it to be cleaned more effectively in a public setting.

I don't think of use a cleaning product unless it was a one time purchase. I'm happy with boiling the disc

Having a cleaning product would make me feel less weird about cleaning it

Ease and convenience

I probably would stick to boiling

Give me surety that it is sterile.

Not applicable. I don't have a problem

I would make cleaning it regularly during my period easier

My 12yo daughter has stated using one and she needs help cleaning it.

I would buy a special product.

Potentially I guess. If it was like a portable cleaning device that could be used in a bathroom stall.

No

Convenience

I don't really sterilise much so having an easy way to do it would be easier

Depends on ease of use - I wouldn't want something like a liquid or similar that I'd have to rebuy.

Something that made it easier to clean in not a kitchen eg like a denture tablet

If it were easily available -ie at supermarket, it would help others feel like cups are more mainstream.

If it removed the stains it would make me feel less icky

-

i wouldnt use it

Make it easier and more discreet

N/A I've had a hysterectomy now

Not sure what this product is no can't answer

I'd want to ensure it was safe to be around mucus membranes, but the peace of mind would be very helpful

What product?

I just use soap and very hot water. Don't need a specific product as just another unneeded expense

If it was something that was fast and easy I would use it

Make it easier to clean regularly

Nit much except feel cleaner

Peace of mind

Depends on the cleaning product

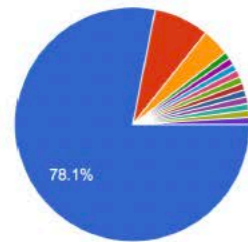
If it makes it straight forward then it would make my life easier!

It would interest me if it was natural

Unsure

In what location would you like to sterilise your menstrual cup or disc?

105 responses



- Bathroom
- Kitchen
- Bedroom
- Toilet room
- Don't mind so long as it's discrete
- Bathroom and kitchen
- n/a
- Any
- Bathroom (cleaning product) and kitchen (microwave sterilising)
- I wouldn't...
- I don't care
- currently boil in kitchen but a bathroom solution would be great
- NA
- Location doesn't bother me

What does trust look like for you in a cleaning product for menstrual cups or discs?

105 responses

- No chemicals
- N/A
- n/a
- All natural ingredients
- don't permeate the silicone (for those who are sensitive to chemicals) and can be done discretely in the bathroom.
- Testimonials
- Good product, cost effective
- Must be discrete & ideally able to be used without a sink
- Chemical free, knowing it works so won't get thrush or other problems from it not being cleaned properly.

Data!

- Easy, opaque, minimal contact with contaminated water, secure
- One with clear instructions so I know I'm looking after it properly
- ?
- Safe for ph levels, clinically tested
- No visual leftovers
- Not worried about a cleaning product
- I want to be able to confirm the cup is clean, I want to be able to use the system with minimal time delay and in a way that I can repeat and become comfortable with as a process.
- Transparency about ingredients, ownership, ethics
- It work everytime
- Clean
- I wouldn't use one - steam/boiling is enough.
- A product that I can put the cup into that cleans it similar to a baby bottle steriliser I suppose
- No harsh chemical. Economically friendly
- No harmful chemicals
- Will not damage the cup, is safe for human use, will be certain to kill bacteria
- /
- The material it comes in - something stainless, easy to clean or dry up, etc.

Science

???

Huge!! This is such a personal product it would have to have a huge amount of research and testing etc.

Something that doesn't leave chemical traces on my device (to avoid human absorption)

Actually non toxic, natural ingredients

Something that won't cause the cup to breakdown

Something no nonsense that doesn't preach but educates and acknowledges that we don't always do all this stuff perfectly/sterilise as much as we should etc. I think Hello do a really good job of branding and educating.

Reviews and expert opinion

100% hygiene guarantee. No irritating substances. Eco-friendly.

No spotting ANYWHERE

I'd like to see data. For example once sterilised using your method, you could swab the disc/cup and culture to see if anything grows on a petri dish and compare results to traditional cleaning.

Something that won't irritate my vagina

Natural products, quick and easy and discreet

One that won't degrade the product

No chemicals and it's safe

Not sure

Science backed reasoning. understandable ingredients

Tried and tested

unsure

Ensuring no residues that are harmful

Environmental, neutral balancing / non harmful / effective

Chemical free, natural product

That its safe to re enter my body

No idea I guess it would be simple to use and not damaging in anyway

Natural and easy

Something quite natural or with like a dr recommendation etc as you are cleaning it then putting it inside your body

Created by the same people that make the cup. Or at least have consulted with the cup manufacturers.

Doing an effective job without messing with pH of my vagina

No nasty chemicals. If im going to use a product that's better/equal to boiling it then it would need to be have no nasty chemicals in it

Comfort and effectiveness

Reliable and easy

No leaks, long lasting,

Nil

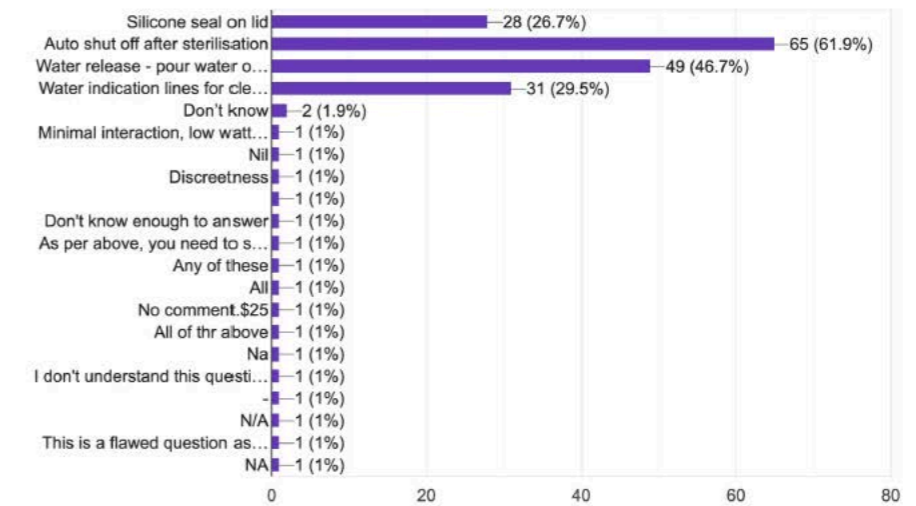
Unsure

research

Not applicable
discrete and easy to use
From people who make the cups/discs
Feedback, nz made
Research evidence behind product. No political agenda. Recognizes female sex.
I don't understand the question sorry
Works, breaks down in septic tank, poison as kids around
Nz
Security, no leaking or mess
Knowing it'll do a good job
Safe, environmentally friendly, effective
Easy, reliable and cheap
Approved by manufacturers, and a study that shows it does what it says it does.
Doing what the label says it does
Soap. And water. And a good wash.
Environmentally friendly
This is kind of a vague question I don't really know what you mean sorry
Have never tried one

What features would make you trust this product type more?

105 responses



E. Task Analysis

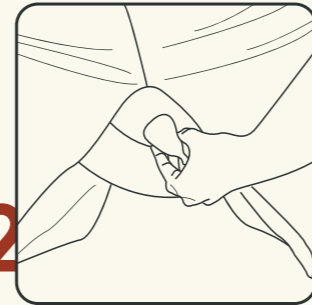
Cleaning at Home

Done at least once a day and ph balanced soap can be used



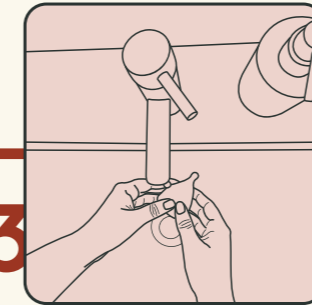
1

go to bathroom



2

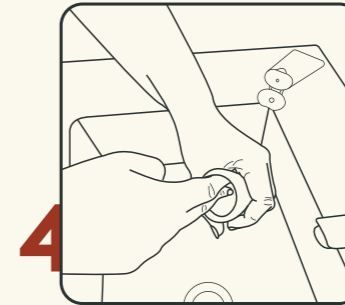
remove cup and empty



3

rinse cup with water

sink can be out of reach, so must move to sink for rinsing



4

clean with wash solution



5

store cup for next use

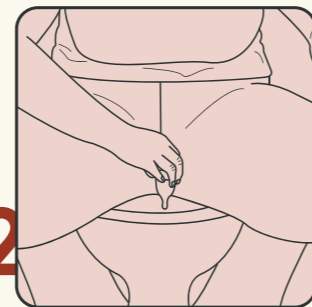
Cleaning when Out

Done as needed



1

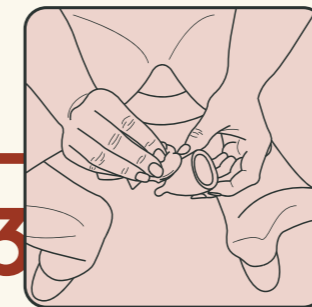
go to bathroom



2

remove cup and empty

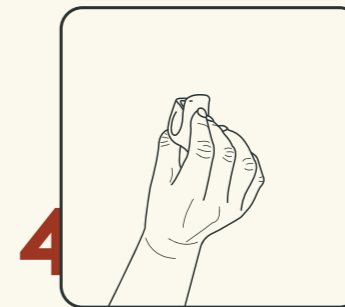
must be careful it doesn't touch anything, unclear how clean the stall is



3

wipe with toilet paper

commonly no sinks in stalls for rinsing, so doesn't feel clean after wiping

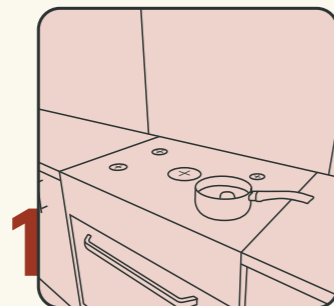


4

cup ready to re-insert

Sterilisation

Done after cleaning task either at start or end of cycle



1

boil cup on stove

separate pot needed, done in a shared space often where food is prepared, and needs constant monitoring



2

store cup for next use

How will Arla address these pain points?

- Provide a method for cleaning when the sink is out of reach
- Provide a cleaning solution for in public ensuring cup feels clean
- Provide a sterilisation solution that can be completed away from the kitchen

F. Product Testing - Volume Shaking Results

Full Jar Volumes

Jar 1	250ml
Jar 2	300ml

Cleanliness Scale

No Change	4
Less Particles	3
Few Particles	2
No Particles	1

Jar 1 - 15 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 1 - 10 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 1 - 15 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 1 - 10 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 15 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 10 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 15 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 10 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 1 - 5 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 1 - 5 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 5 sec - Menstrual Cup

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

Jar 2 - 5 sec - Menstrual Disc

	T1	T2	T3
Full - 250ml	1	1	1
Half - 125ml	1	1	1
Min - 50ml	1	1	1

G. Period Waste Calculations

Ramsay et al. study "Reusable Period Products: Use and Perceptions among Young People in Victoria, Australia" estimates 25,000 tonnes of menstrual product waste is produced in the United Kingdom annually.

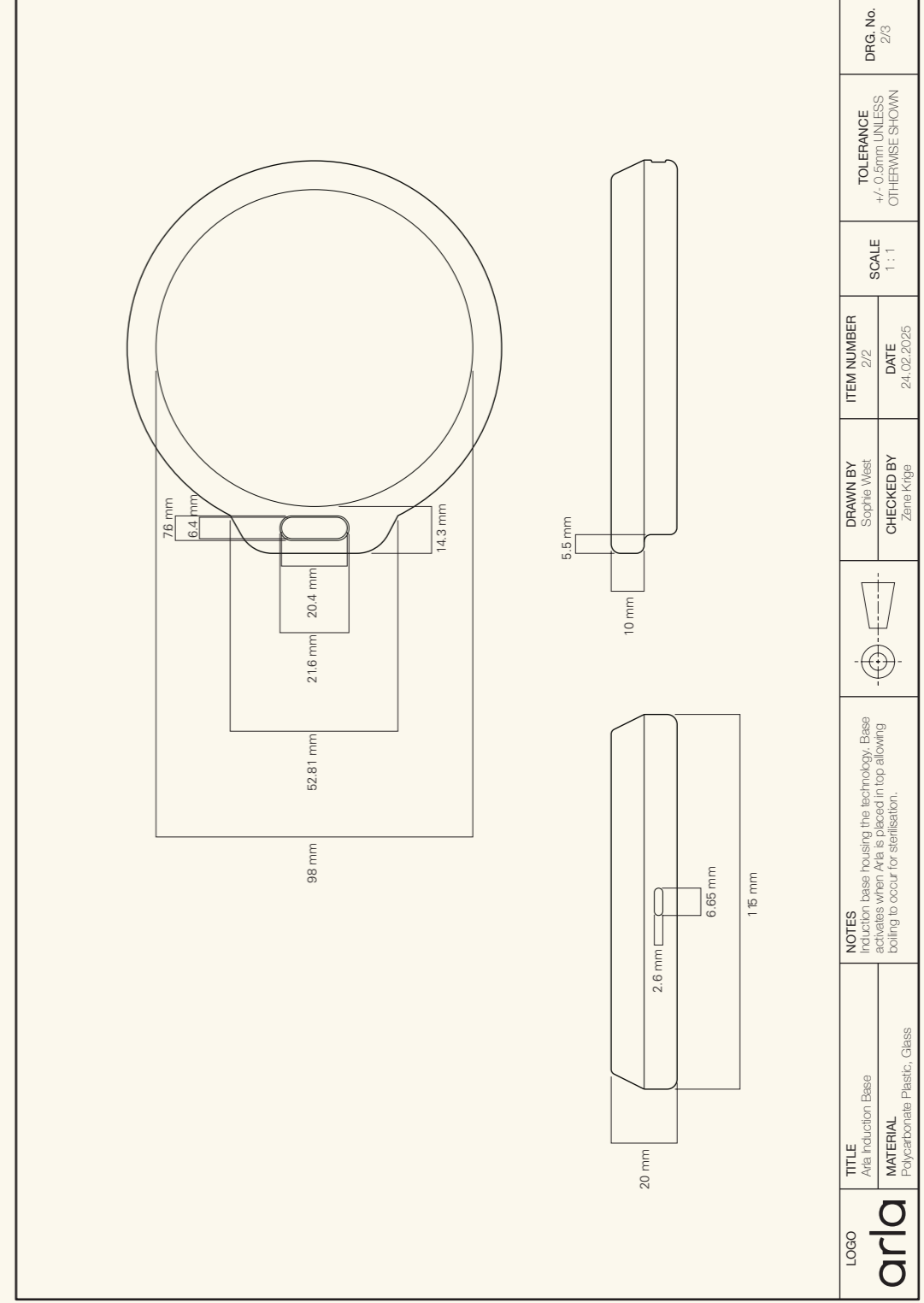
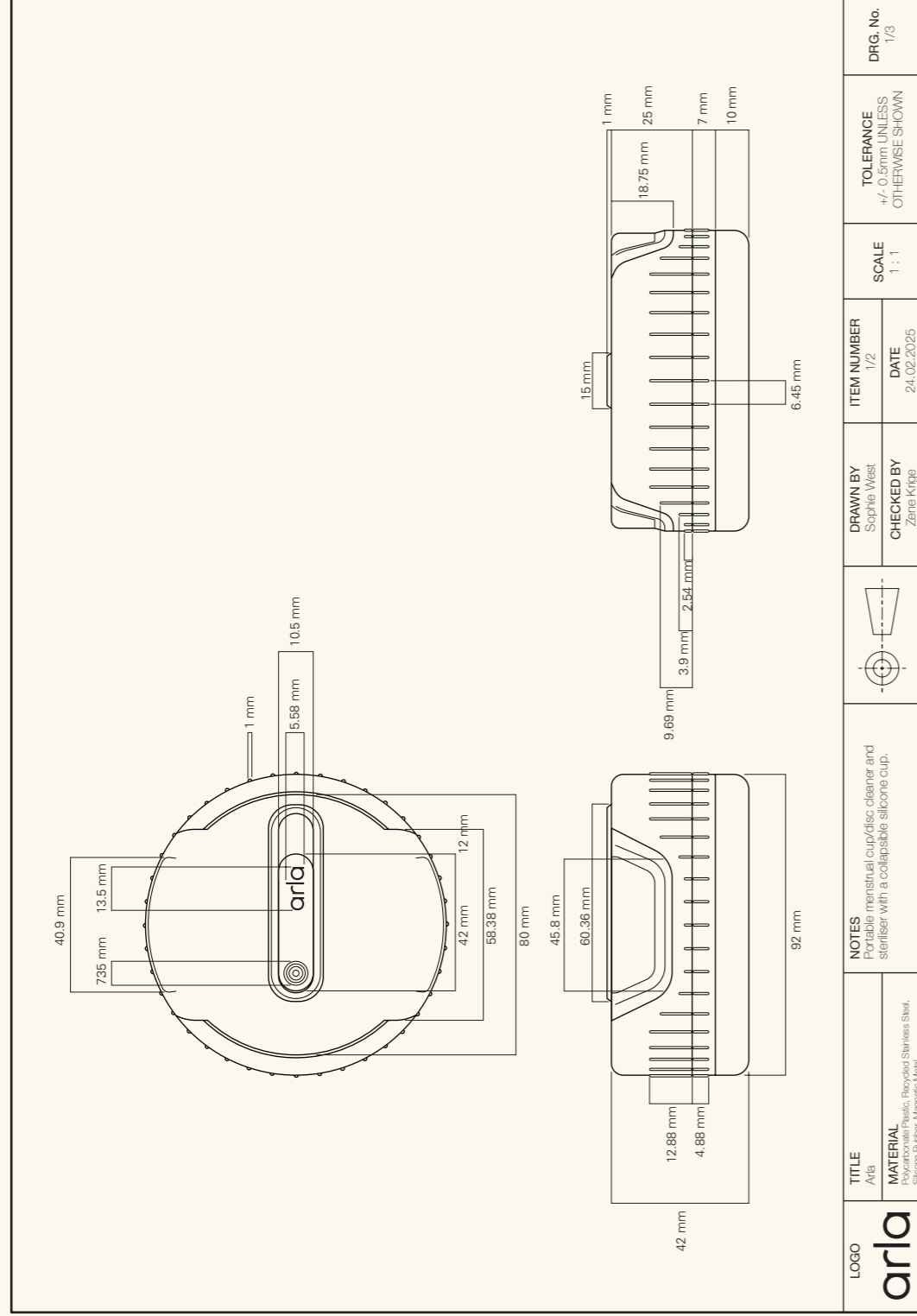
From this estimation and female population data from the World Bank Open Data, period waste calculations were extrapolated.

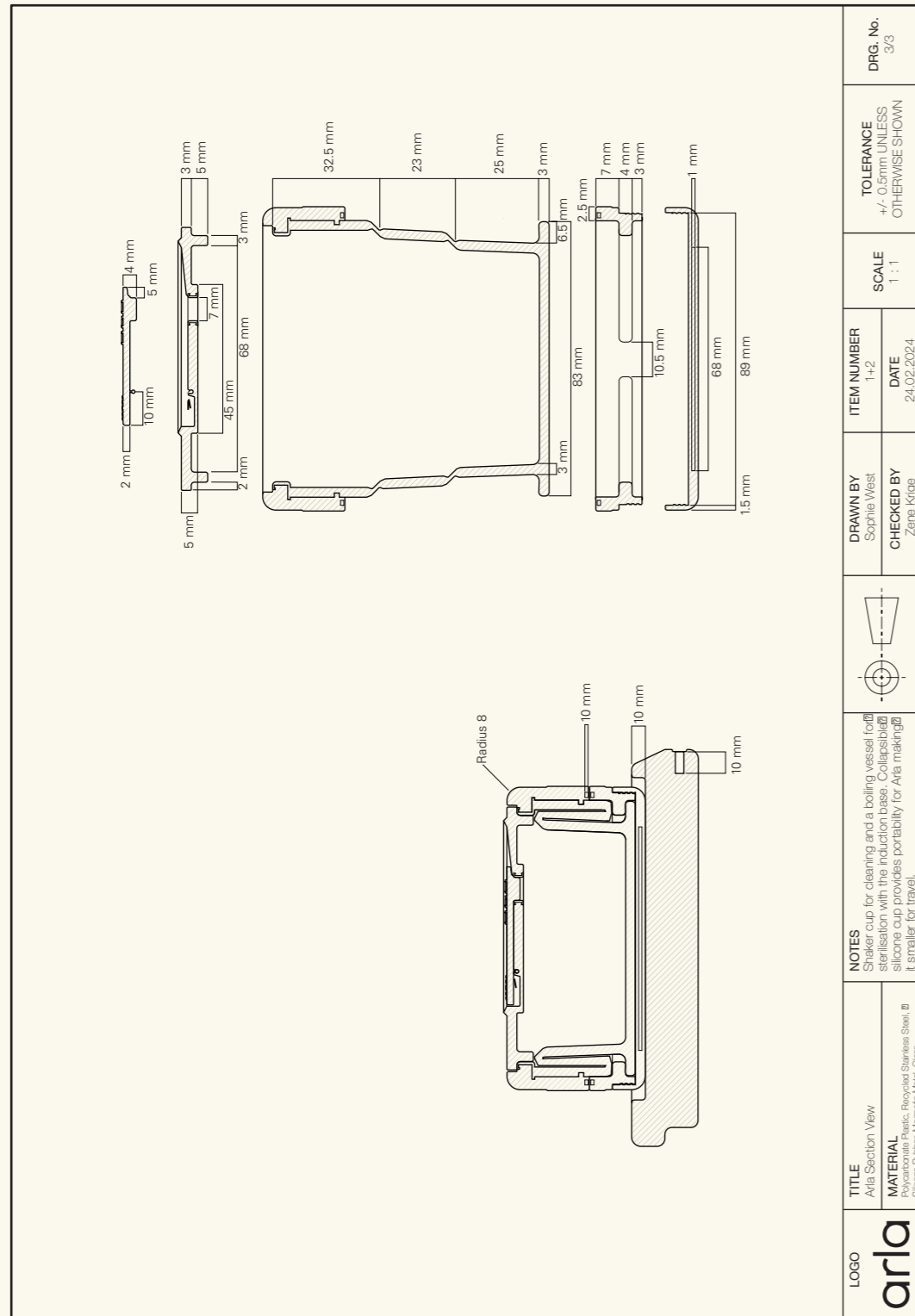
Women	15-64	Period Waste (tonnes)
UK	21.75 mln	25,000 mt/y
World	2580 mln	2,965,654 mt/y
OECD	446.19 mln	512,882 mt/y

Ramsay, Caitlin, et al. "Reusable Period Products: Use and Perceptions among Young People in Victoria, Australia." BMC Women's Health, vol. 23, no. 1, Mar. 2023, p. 102. BioMed Central, <https://doi.org/10.1186/s12905-023-02197-3>.

"World Bank Open Data." World Bank Open Data, <https://data.worldbank.org>. Accessed 18 Feb. 2025.

H. Technical Drawings





I. Human Ethics Notification



Dear:

Ethics Notification Number: 400029407
 Title: Menstrual cleaning: an easy and convenient solution to menstrual cup sterilisation

Thank you for submitting a low risk notification for your research/teaching/evaluation.

This email is to acknowledge receipt of the low risk notification and to inform you that the details of your project have been recorded in our database for inclusion in the annual reports to the Health Research Council Ethics Committee (HRCEC) and the Massey University Research Committee (URC).

You may proceed with your research, though it is advisable to provide a couple of weeks before commencing, as all low risk notifications are checked for completeness and clarity by a Research Ethics Advisor. You may be contacted if your application is incomplete and/or further clarification is required.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis.

If a sponsoring organisation, funding authority (e.g., the Health Research Council) or a journal require evidence of ethical approval from a Human Ethics Committee (with an approval number), you need to complete a full Massey University Human Ethics application to be reviewed and approved by one of our Human Ethics Committees. Applications must be submitted and approved prior to the commencement of the research.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz.

Please include the following statement on all public documents (e.g., information sheet, consent form) related to your project:

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the ethical conduct of this research that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.

I wish you all the best in your research, teaching or evaluation activities and appreciate your thoughtful consideration of ethics principles and practices.

Ngā mihi nui,

Dr Brian Finch Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Research Ethics Office, Research and Enterprise
 Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 951 6841; 06 951 6840
 E humanethics@massey.ac.nz; animalethics@massey.ac.nz; gtc@massey.ac.nz

