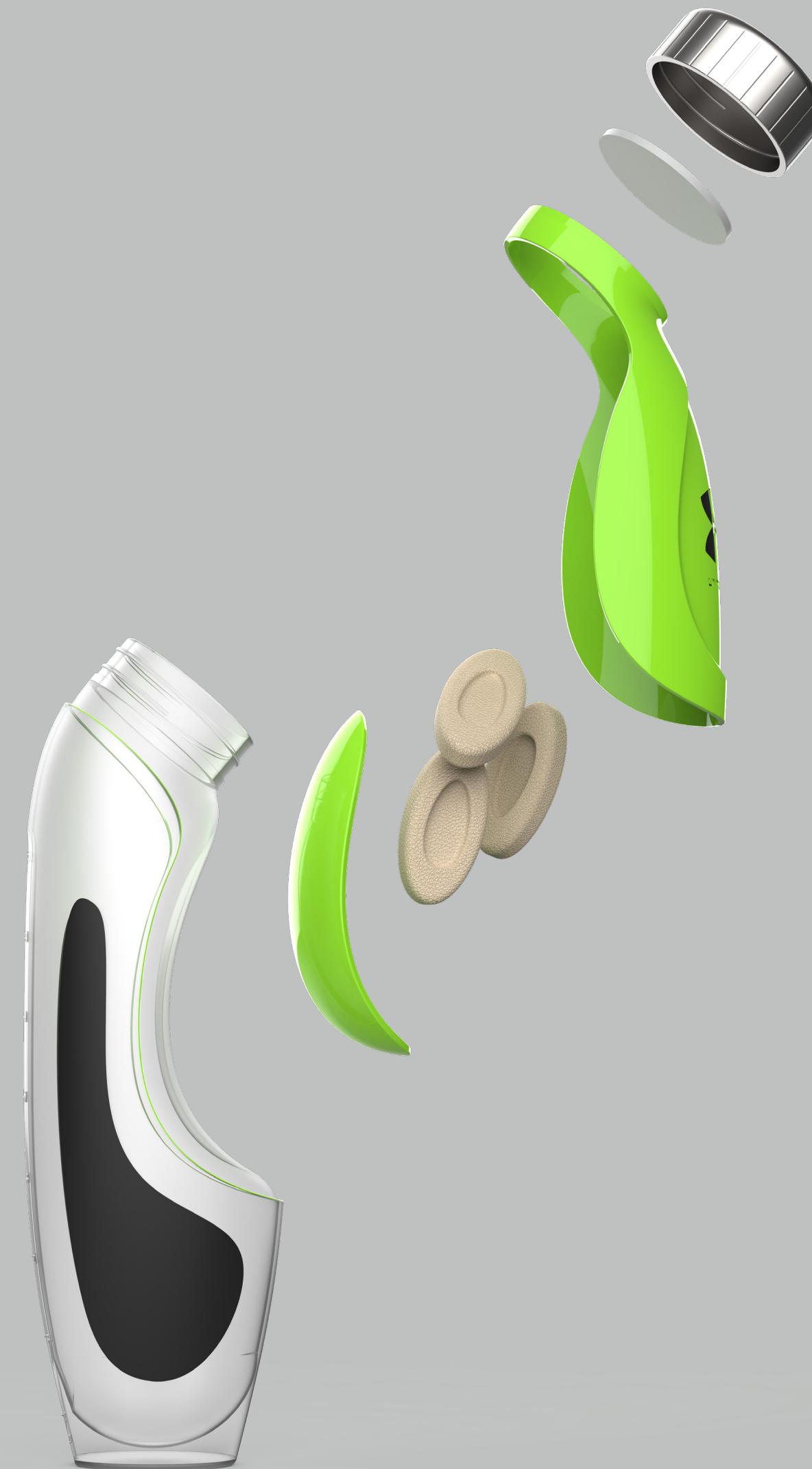


PREP, STORE & GO

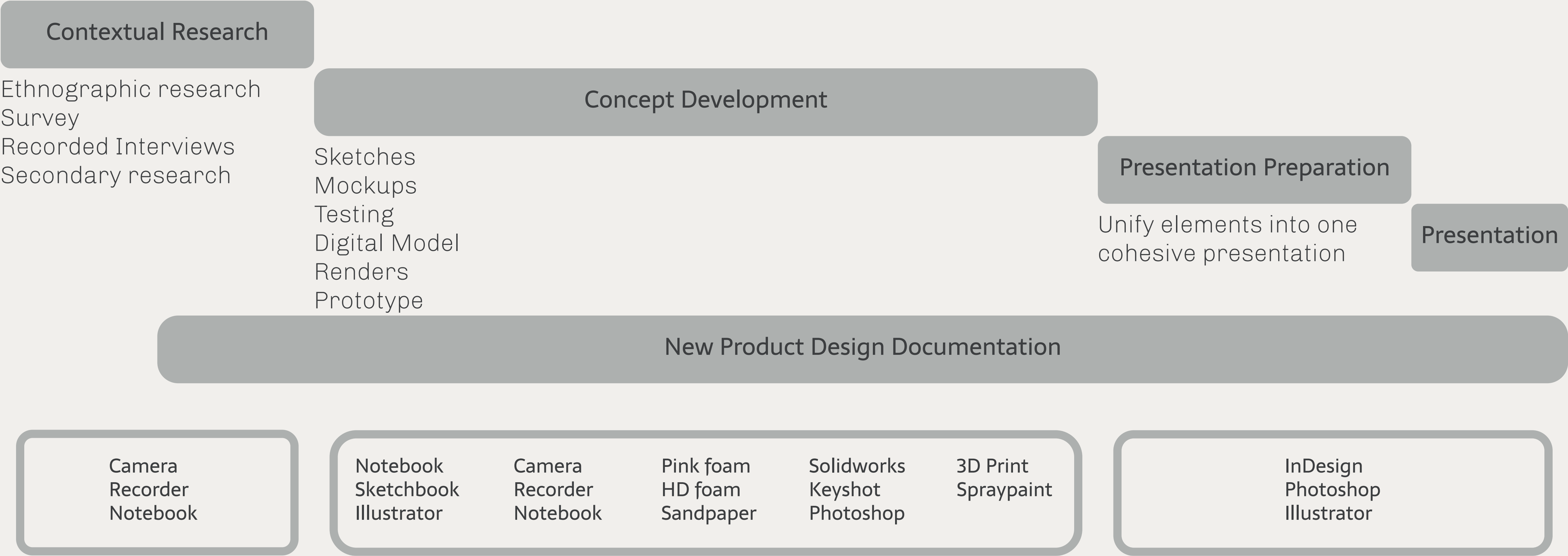
PROFESSOR: JR NEVILLE SONGWE

IDUS 748 - INDUSTRIAL DESIGN M.A. FINAL PROJECT



PREP, STORE & GO
PRE-PROJECT PLANNING
ALLOCATION OF RESOURCES

WEEK 1 WEEK 2 WEEK 3 WEEK 4 WEEK 5 WEEK 6 WEEK 7 WEEK 8 WEEK 9 WEEK 10



PREP, STORE & GO
CONTEXTUAL RESEARCH
DESIGN BRIEF

Seems like convenience is the way to go nowadays. We live fast paced lives with busy schedules that don't leave time for much else. However there is a growing concern over health and fitness and the usage of nutritional supplements.

Nutrition programs are known for being precise: specific quantities at specific times which also means prep time before heading out the door every morning. Depending on your dietary plan you might have more than one serving a day.

The project being proposed belongs in the category of products known as shopping goods in the heterogeneous sub-category, living under the platform of health and fitness. It aims to bring a solution to the lack of storage in most blender bottles.

"I store the powders I will drink in a day inside a bottle, drinking it as fast as possible because protein can go bad fast."

PROBLEM
Users of powdered nutritional supplements need a place to store multiple servings while on the go.

DESIGN BRIEF
Design a storage system that allows for an intuitive prep, store, and transport of nutritional shakes.

INVESTIGATION
Function: This product stores powders and keeps the moisture out.
Appearance: Sleek, unisex colors, textured surfaces, reduced crevices where wet powder can clump.

Materials: An affordable material is plastic, a non porous material could be introduced to the interior of the bottle, colors used need to express energetic, powerful feelings.
Durability is a must because the bottle would be used on the go and might be dropped.

Construction: It must be simple to manufacture in an industrial line factory. High quantities must be produced in short spans of time. Most likely plastic by injection molding.
Safety: The object will not poison the user, have sharp edges that could cut the user and be leakproof to avoid spills.



PREP, STORE & GO
CONTEXTUAL RESEARCH
DESIGN BRIEF

MANUFACTURING
Injection molding

DEVELOPING ALTERNATIVE SOLUTIONS
Sketched and perhaps quick mockups

CHOOSING A SOLUTION
One solution that will be developed through drawings and appearance model.

DETAILED DRAWINGS
Overall dimensions, detailed dimensions, material used (by callouts), how it will be made, finishes required.

MODELS AND PROTOTYES
3D printed final model, foam mockups, made by hand and machine manufactured with laser, CNC and 3D printer, finished with spray paint.

TESTING AND EVALUATING
User testing documented with photographs and video. Critical pain points to be redesigned and modifications included in final drawings and model.

NEW PRODUCT/PROCESS DEVELOPMENT
Generic (Market Pull) Products
In the health and fitness market there is an opportunity to make the nutritional supplement user prep, store and transport their powders in a more efficient way reducing situations of spillage as well.

Customized Product
The shaker bottle could be modified to avoid crevices for powder clumps. Adopting the most efficient mixing mechanism, the metal whisk ball.

"I consume meal replacement powders, energy boosters, and metabolic boosters."



PREP, STORE & GO
CONTEXTUAL RESEARCH
COMPETITORS

The market is segmented in bottles by material, size, mixing mechanism and extras like dry storage, ergonomic, grip, carry clip, among others.

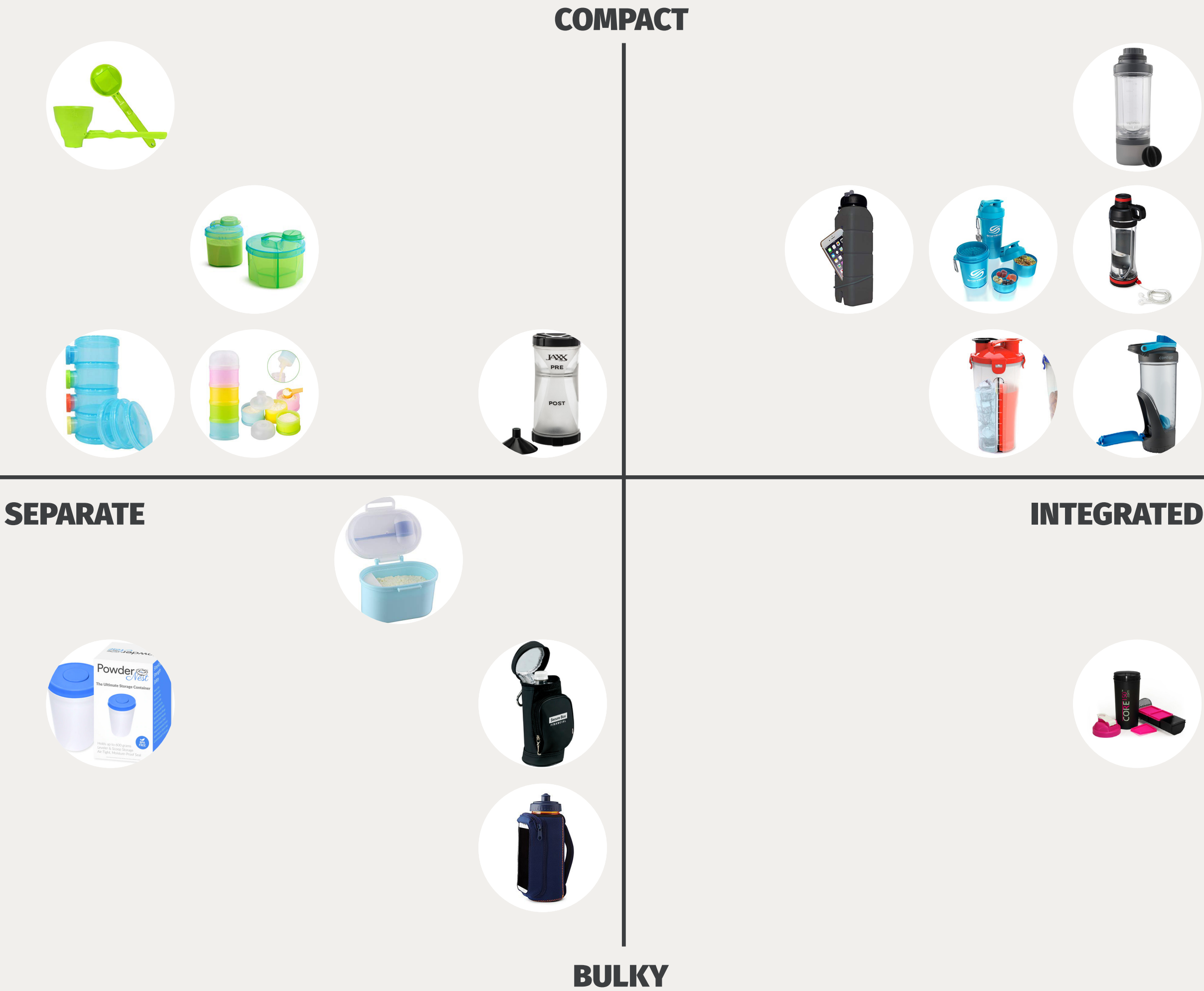
Materials used can be separated into two categories: insulated and not insulated. Those that provide insulation to keep their contents refrigerated tend to be heavier and more expensive options and thus the most widely used are the cheaper plastic bottles. Other materials used are glass and stainless steel. The main sizes identified are bottles with a capacity of 20 oz, 22 oz, 24 oz, 28 oz, and 32 oz.

Mixing mechanisms have been evolving ever since shaker bottles were conceived. The original looked like a mesh strainer located at the top, then free floating plastic elements with various shapes (most common is a ball), and finally the innovative wire ball.

The BlenderBall was the innovative design that gave birth to the brand BlenderBottle.

The density of the stainless steel and springy whisk design allow it to cut through powders and liquids efficiently.

MIXING MECHANISMS



PREP, STORE & GO

CONTEXTUAL RESEARCH

IDENTIFYING OPPORTUNITIES

Top brands manufacturing shaker bottles are BlenderBottle and Contigo. Their innovative designs keep them in front of their competitors. They have been the pioneers of shaker bottles and mixing mechanisms. They have recently started introducing storage that is integrated to their bottles and separate options.

There is an undeniable need to keep powder supplements separate from liquids due to health concerns. These supplements usually contain ingredients that break down, a process that begins when mixed with a liquid and could be slowed down by refrigerating the mix or keeping it in an insulated container.

Unrefrigerated on a plastic bottle (most widely used), the mix could last for around 2 hours. A dead giveaway that the shake is spoiled is a **foul smell** that regular users know well. However, the smell is only the last step in the decomposition process. These shakes are designed to be mixed up and consumed fairly quickly.

In order to ensure freshness, the product being designed separates both elements, powder and liquid, and proposes a no-mess no-fuss mechanism to mix the two.

BlenderBottle



Contigo



PREP, STORE & GO
CONTEXTUAL RESEARCH
PRICE COMPARISON



Rounded bottom
Fits most car cup holders
Volume markings
28 oz.



Double wall insulation
Rounded bottom
Fits most car cup holders
Volume markings
24 oz.



Eastman Tritan plastic
Textured SportGrip
Foldaway carry loop
Screw-on lid
28 oz.



\$14 for ProStack bottle
\$9 additional storage containers
Interlocking containers
Covert pill tray
StayOpen flip cap
22 oz.



Double-wall vacuum-insulated
Detachable carry loop
Wide-mouth design
26 oz.

PREP, STORE & GO

CONTEXTUAL RESEARCH
DESIGN REFERENCE

The goal is to ideate a way to prep, store and transport all the elements needed to fulfill the nutritional requirements of each individual.

The BlenderBottle ProStack was chosen as the design reference because it fulfills the core product benefits of storage, an exemplary mixing mechanism and leakproof container for the shakes. It is portable and includes extras like the carry loop and pill tray.

The possibility of having additional storage is a benefit; however, it also makes the stacked bottle bulkier and bigger to carry.

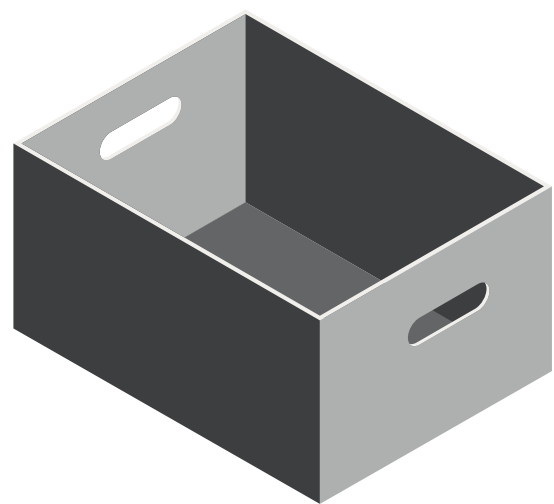
The way that the storage was approached still requires the user to expose the powder to the environment before mixing it with liquid which might result in spill of the product.

The plastic used is BPA and phthalate free. It includes a ridged grip on both sides. The downside to including the ridges on the inside is that the powder clumps up in them and doesn't mix well. Another faulty feature is the flat bottom on the inside of the plastic bottle; another corner collecting powder clumps. The clumping of the powder can be helped if the water is poured first and the powder last, but it is not a guarantee.



CORE
PRODUCT BENEFITS

STORAGE



BASIC
PRODUCT BENEFITS

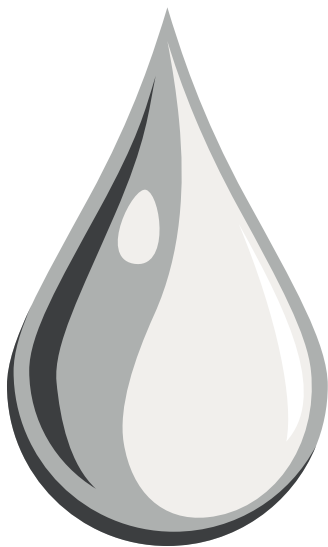
CONTAINER

SPOUT

PORTABLE

LEAKPROOF

AIR TIGHT



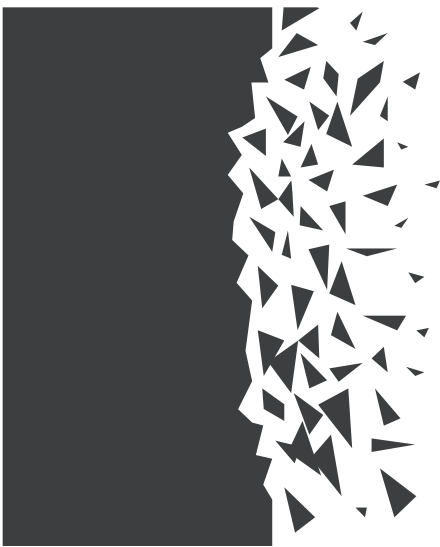
EXPECTED
PRODUCT BENEFITS

PLASTIC

DURABLE

GRIP

SEE THROUGH



EXCEED
PRODUCT BENEFITS

DISHWASHER SAFE

MARKED MEASUREMENTS

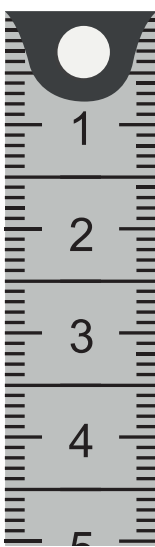
REPLACEABLE PARTS

RECYCLABLE

CARRIER CLIP

STAY OPEN FLIP CAP

HYBRID



POTENTIAL
PRODUCT BENEFITS

INTEGRATED TO THE
BOTTLE

SMART TECHNOLOGY

UV PROTECTION FOR
LIGHT SENSITIVE
CONTENTS

HOW IT WILL BE STORED
WHEN NOT IN USE
(KITCHEN)

ODOR TESTER



PREP, STORE & GO

CONTEXTUAL RESEARCH

USER INSIGHTS

“I spill some powder when I’m measuring it out and pouring it on the small containers “
-U1

“My biggest struggle is spilling the powder”.
-U6

“I can’t always make sure that the dust does not get out of the container.”
-U9

“The powder always fly everywhere when I’m trying to measure it and put it on the container.”
-U10

“Sometimes when the shaker is not completely dry, the powder gets wet and then when I have to dissolve it into water it gets stuck in the bottom.”

“I travel with the 1 pound container because I don’t have a place to put 5-6 servings when travelling.”
-U13

“I struggle with the lack of space to store the powders “
-U15

“My struggle is that pouring water into the powder cause the power might float and spill everywhere “
-U24

“It’s a more well-rounded meal than I would normally consume, and being a student it’s a lot more convenient and faster. “

“If I fill the bottle with powder first, when I add liquid it clumps up and doesn’t mix properly, so I’m forced to add the liquid, then the powder, and have it mixed before I leave my house. I would love to just have the powder and add liquid when I’m ready to drink, that would make it much cooler and fresher than having it mixed in my bag for hours before consuming. “
-U30

“I carry two bottles each with a serving of shake plus my water bottle.”
-U32

“I prepare more than one serving of powder in a single bottle and drink it throughout the day.”

“Older bottles are harder to clean, I use bleach to remove all powder clumps inside the bottle evey couple of weeks“
-U34

POV

The user focused on his or her health and fitness consuming powdered supplements needs a place to store them dryly because it is not recommended to mix into a shake too long in advance before consumption and preparing them on the go can lead to spillage and waste of the powder.

How might we...

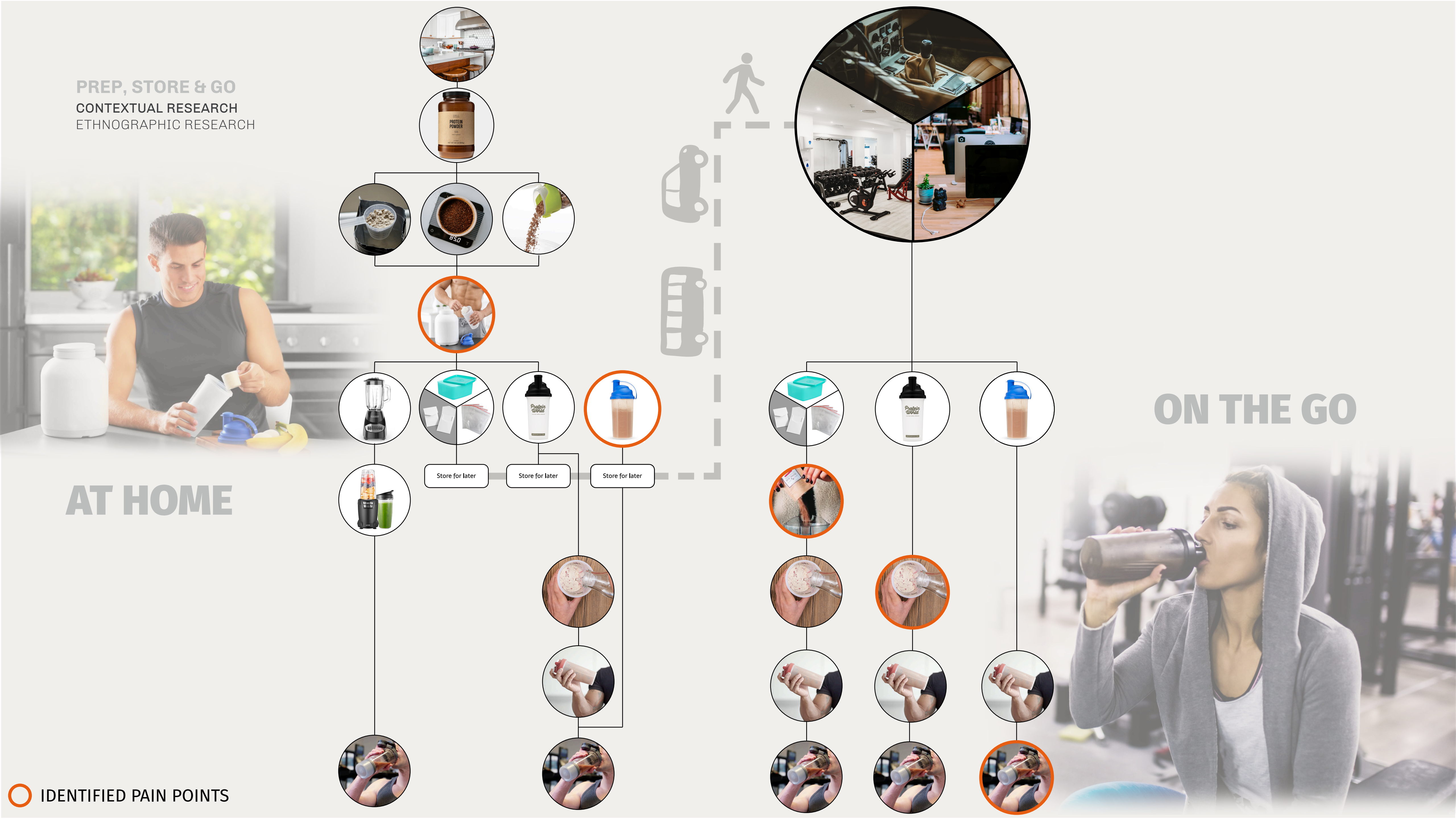
- Make meal prepping of powders in the morning easier.
- Make the combination of powders + water mess free.
- Get customizable containers for diverse dietary programs.
- Store a day’s worth of powder in a compact manner.
- Make the storage less rigid and more in sync with the user’s needs.

What if...

- It is not another bottle with storage but a powder compressor that makes it into pills.
- It is a product that transforms the powder into a friendlier to carry medium like ice or gel
- It looks like a ziplock but is reusable and easy to wash
- It clips into the usually present clip in bottles
- Storage has dividers that allow for different portions



PREP, STORE & GO
CONTEXTUAL RESEARCH
ETHNOGRAPHIC RESEARCH



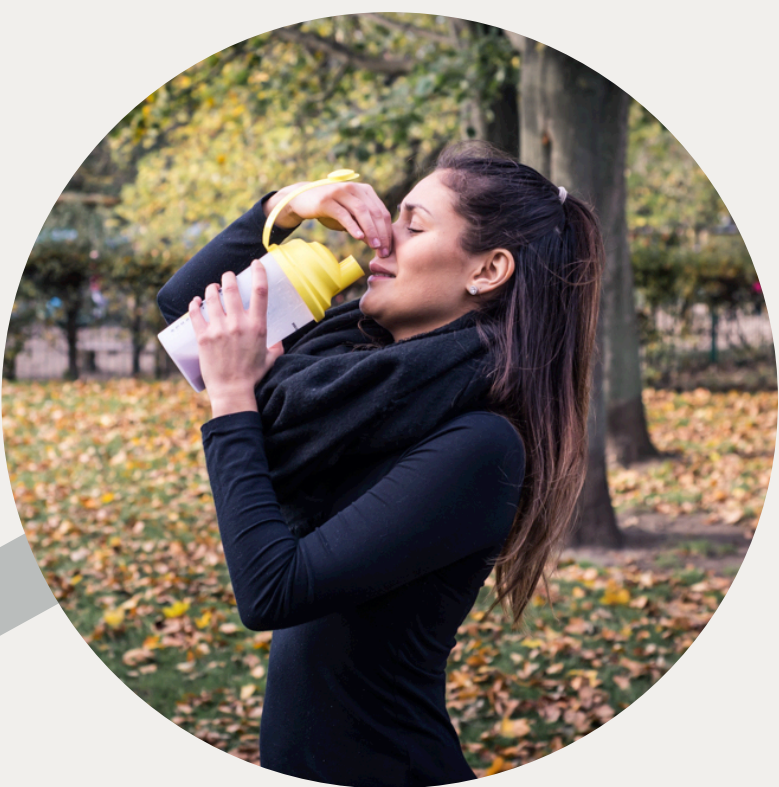
PREP, STORE & GO
CONTEXTUAL RESEARCH
PAIN POINTS



PREP, STORE & GO
CONTEXTUAL RESEARCH
PAIN POINTS



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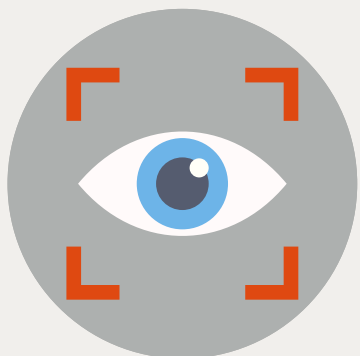


PREP, STORE & GO
CONTEXTUAL RESEARCH
PERSONA



DO

- Wakes up early
- Prepares his meals and powdered supplements to take with him
- Carries multiple bottles (3-4)
- Goes to work, then to the gym and back home



SEE

- Is aware of progress on his physique



THINK

- It's very important to take care of his body
- Too many steps are a waste of time

Leo Perversi

32 years old

Newly wed to Jessica who shares the same healthy and fit lifestyle as Peter

Chemical engineer at Procter & Gamble

A 1 yr old daughter



SAY

- "I have to be careful when transferring the powder into the actual shaker bottle not to overspill it"
- "I don't like to clean the crusty buildup on the bottle"



HEAR

- Compliments on his body
- Questions on how to start working out



FEEL

- Secure
- Healthy
- Productive
- Happy



SMELL

- Rotten protein shakes

PREP, STORE & GO

CONTEXTUAL RESEARCH

PRODUCT DESIGN SPECIFICATION

Who is this product for?
Those who require one or more powdered meals a day to fulfill a dietary program.

What are the product's basic details?
Contain powdered nutritional mixes and transference of such powder into mixing bottle.

Where would someone use this product?
Indoors and outdoors.

When should someone use the product?
Meant to be used around meal or snack times, 1 to 4 times daily.

Why is this product useful or better than its competitors?
It will be a product of high quality, intuitive and easy to use. Powdered supplement can be stored in a leakproof environment until ready to be consumed. No powdered supplement will be wasted when transferring into bottle to mix with water and drink.Thoughtful design will eliminate crevices where powder may clump.

How does the product work?
Lift the top, press... and shake. (PENDING UPON DESIGN SOLUTION IS DEFINED)

Requirements

Client Requirements: portable, easy to use, superior functionality than available products, moderately priced.

Physical and Operational Characteristics: it has to be portable, lightweight, intuitive, durable, it should contain storage, room for shakes, a spout, grip, leakproof, used with two hands, used multiple times a day.

Safety: not cause any harm, no sharp edges, non poisonous materials

Life in Service: 3 years, replaceable parts, used daily 1-5 times.

Shelf Life: stored in the fridge, backpacks, kitchen.

Operating Environment: Used in a variety of indoor and outdoor environments and climates

Ergonomics: lightweight, comfortable to carry in one hand

Size: 4" x 9" aprox and around 22 oz capacity

Weight: no more than a pound; 6oz aprox.

Materials: glass, metal and/or plastics: High Density Polyethylene (HDPE). Polypropylene (PP).

Aesthetics, Appearance and Finish: smooth surfaces, non-slip grip, youthful looking, sleek, colorful and neutral, symmetrical and proportionate

Quantity: 1 prototype and several mockups produced and tested. 1 000 units for initial production in factory

Target Production Cost: \$5.50 aprox. in factory

Miscellaneous

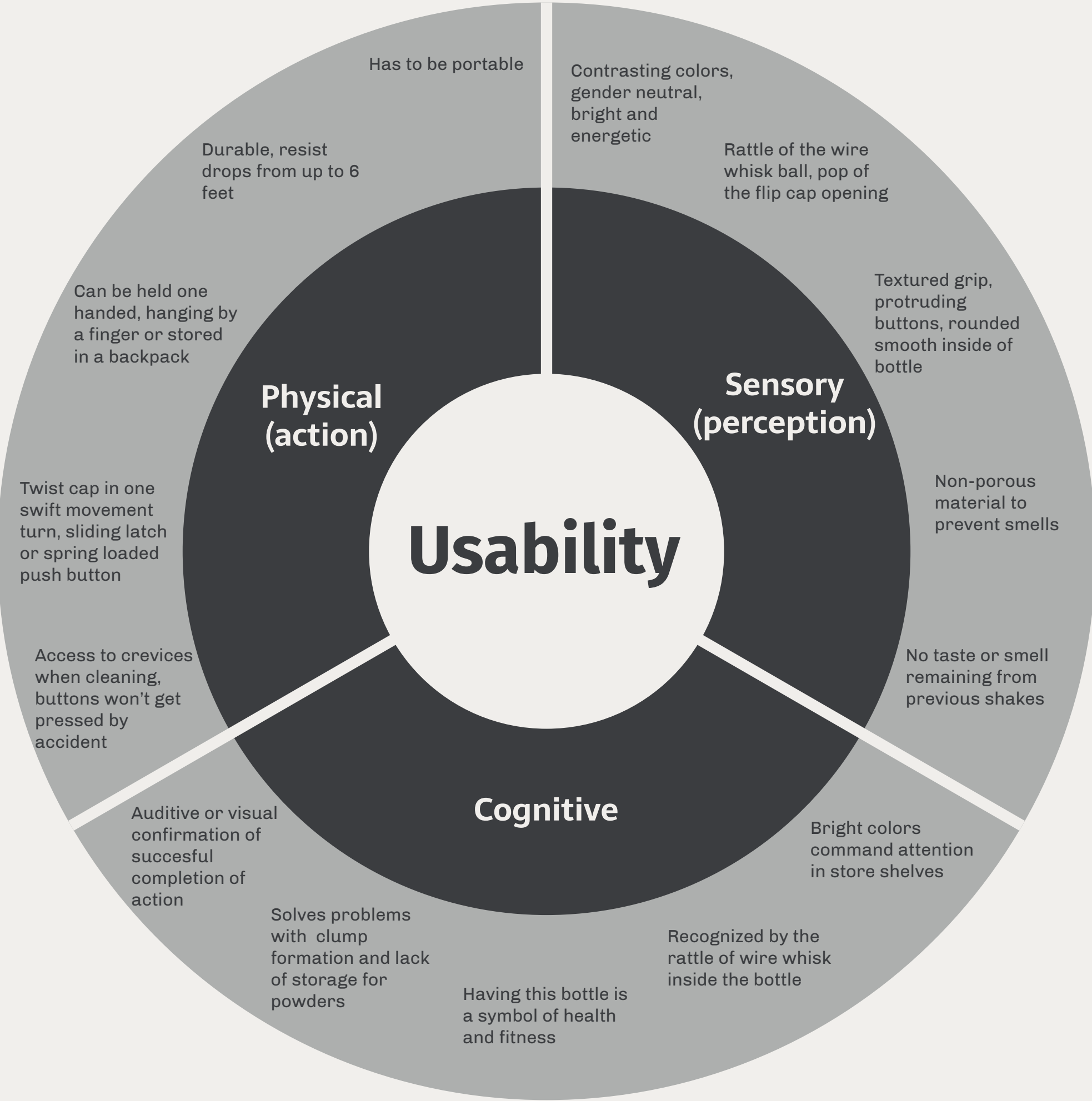
Standards and Specifications: ISO standards

Disposal: Recycling or use of biodegradable plastics

Competition: superior to BlenderBottle and Contigo



PREP, STORE & GO
CONTEXTUAL RESEARCH
CUSTOMER NEEDS



PREP, STORE & GO
CONCEPT DEVELOPMENT
MOOD BOARD



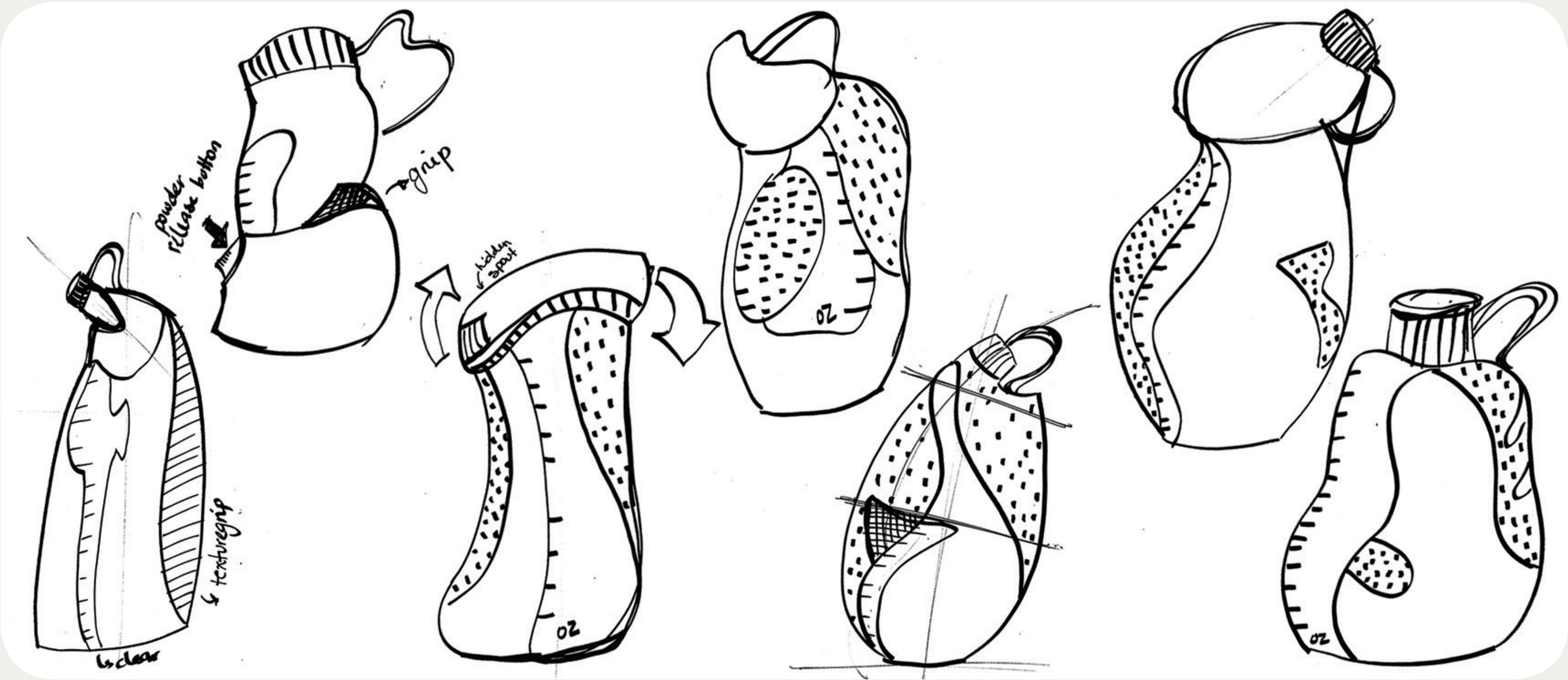
PREP, STORE & GO

CONCEPT DEVELOPMENT

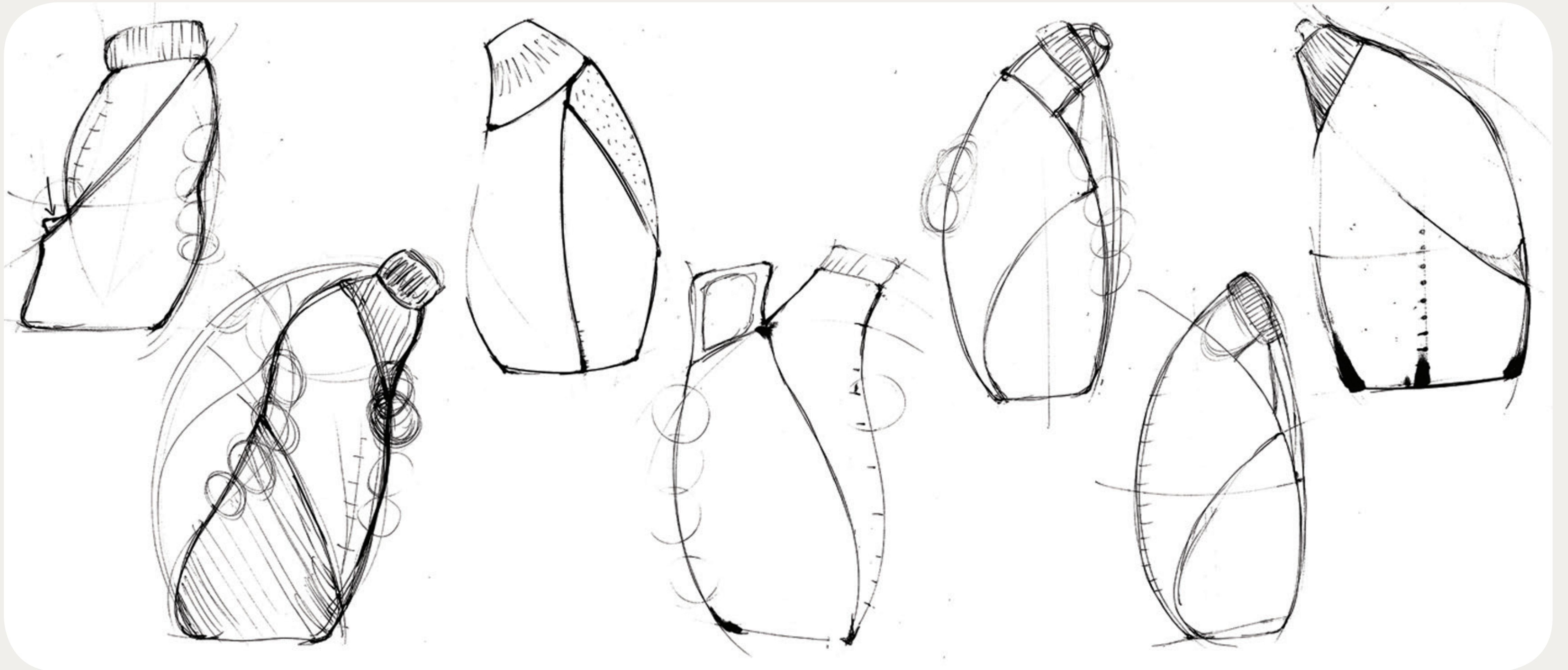
FROM MOOD BOARD TO ABSTRACT SHAPES



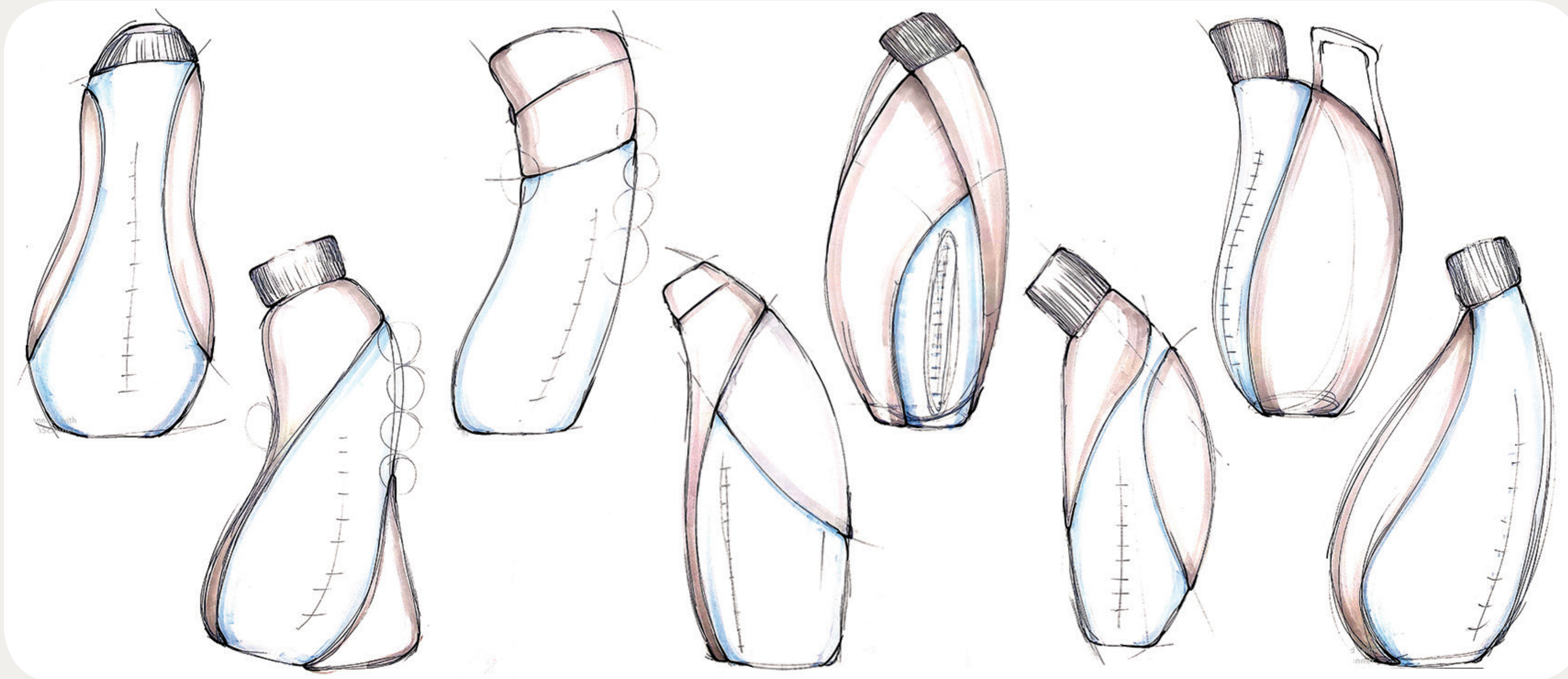
PREP, STORE & GO
CONCEPT DEVELOPMENT
FROM ABSTRACT SHAPES TO BOTTLES



PREP, STORE & GO
CONCEPT DEVELOPMENT
REFINING THE FORM



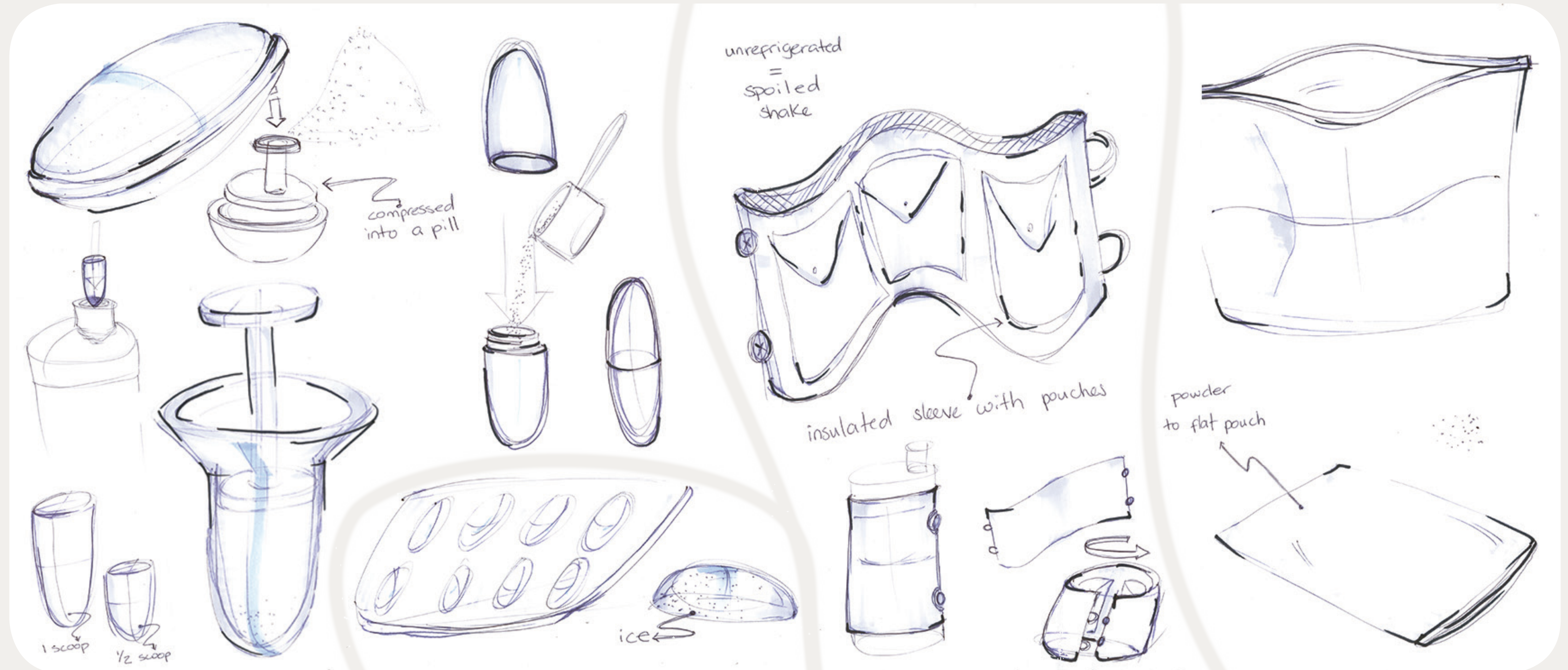
PREP, STORE & GO
CONCEPT DEVELOPMENT
REFINING THE FORM



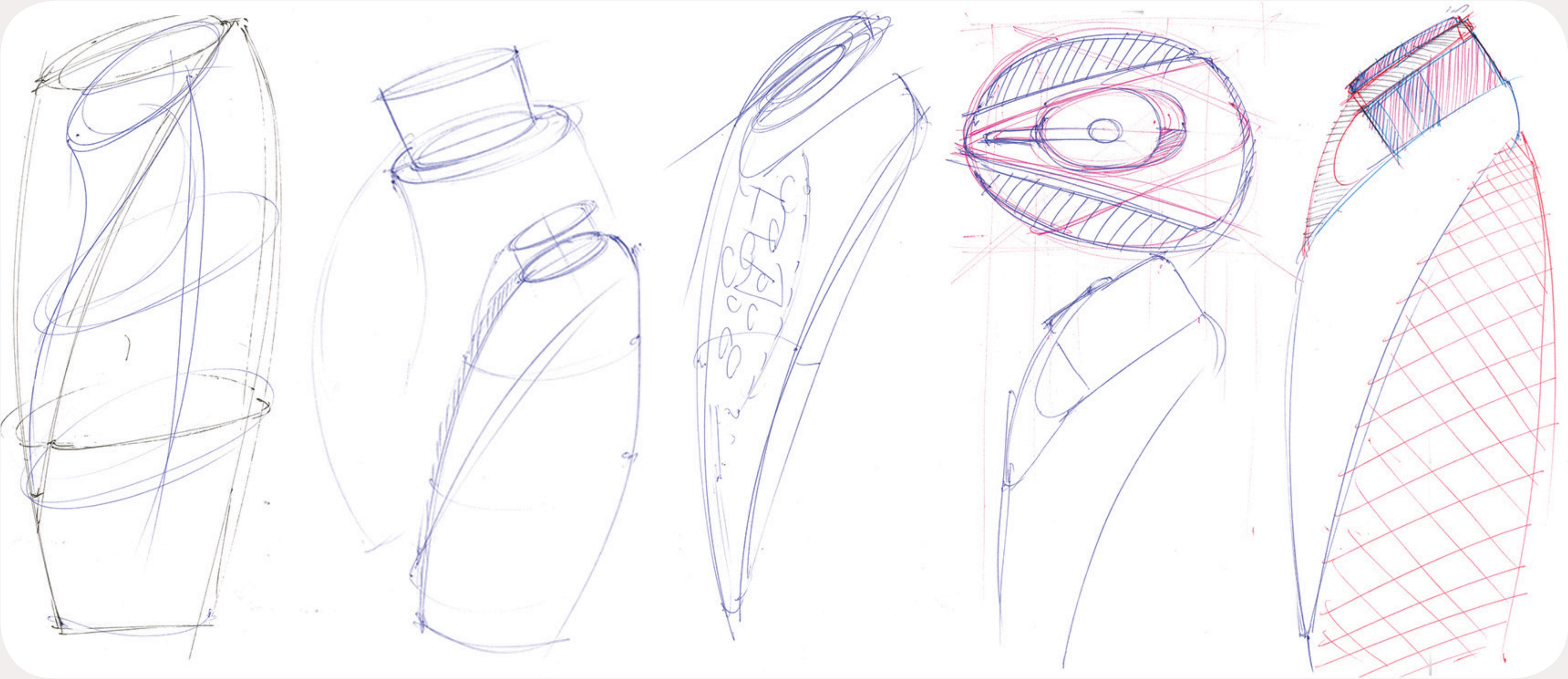
PREP, STORE & GO

CONCEPT DEVELOPMENT

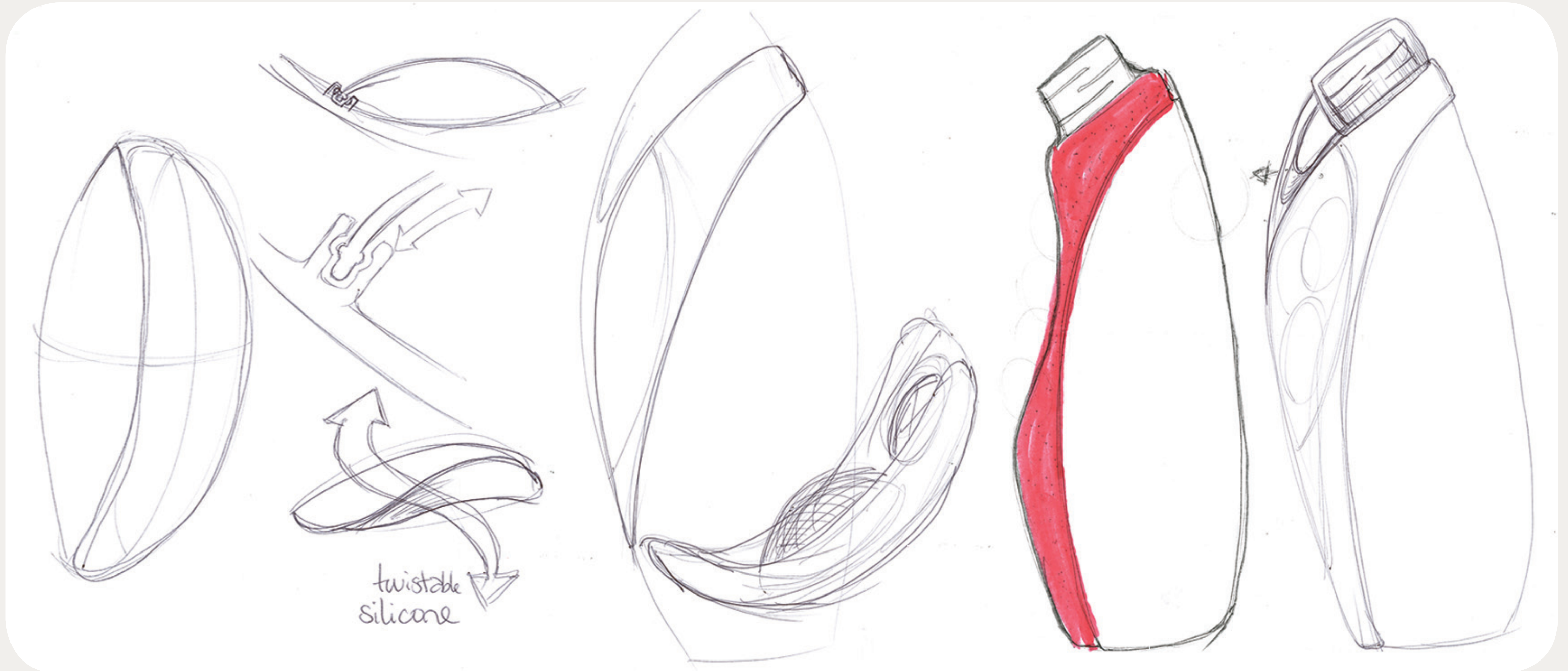
POWDER DISPENSING POSSIBILITIES



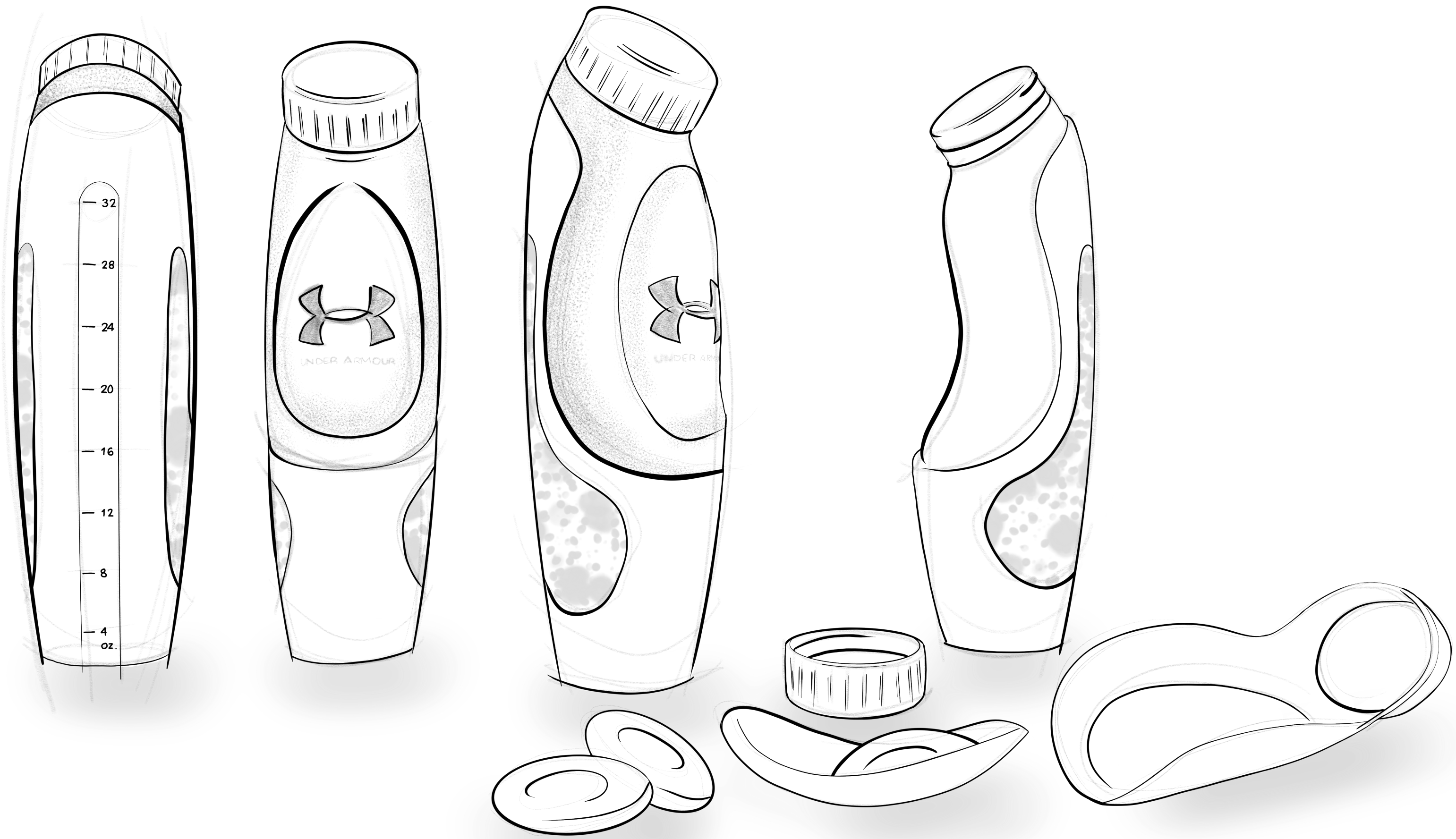
PREP, STORE & GO
CONCEPT DEVELOPMENT
DESIGN OF THE BOTTLE



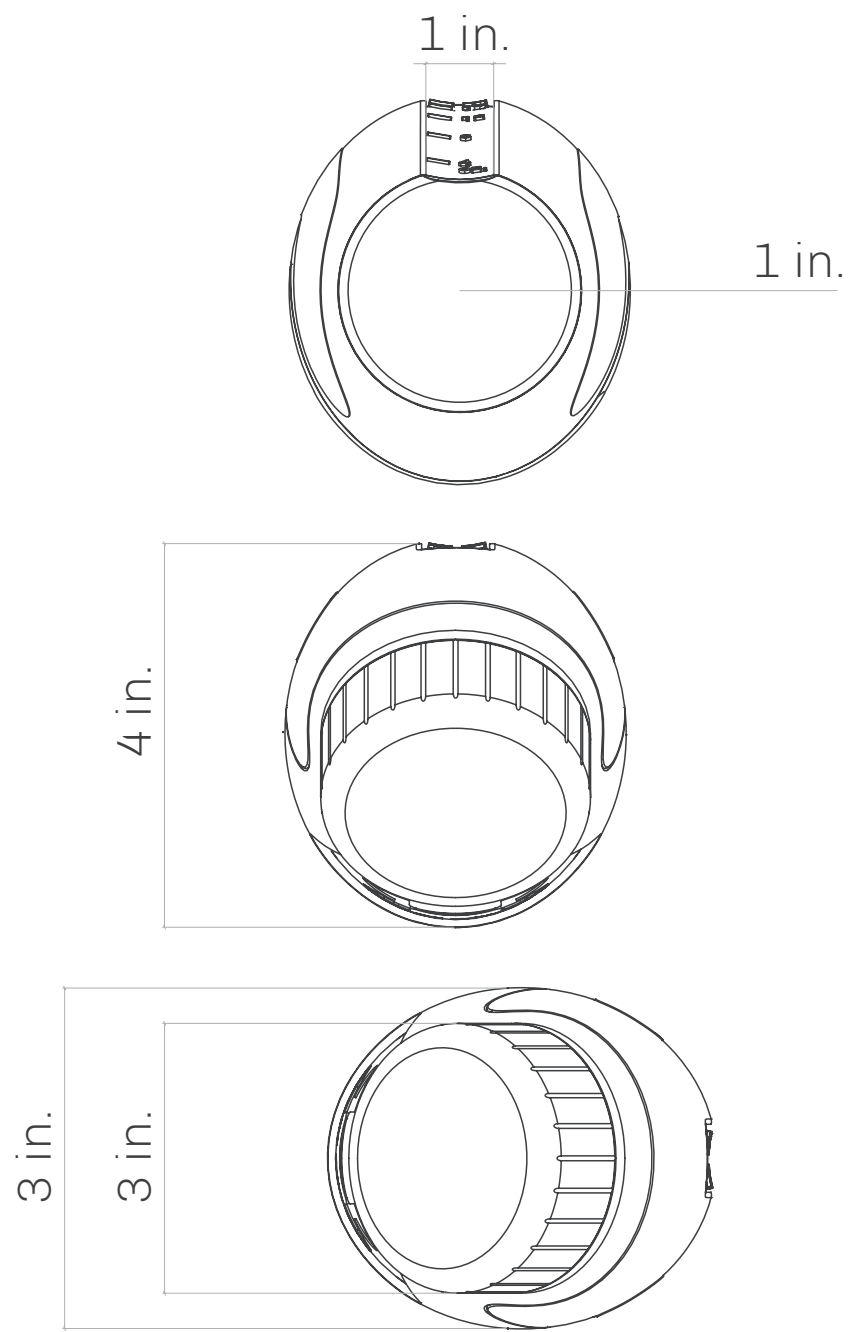
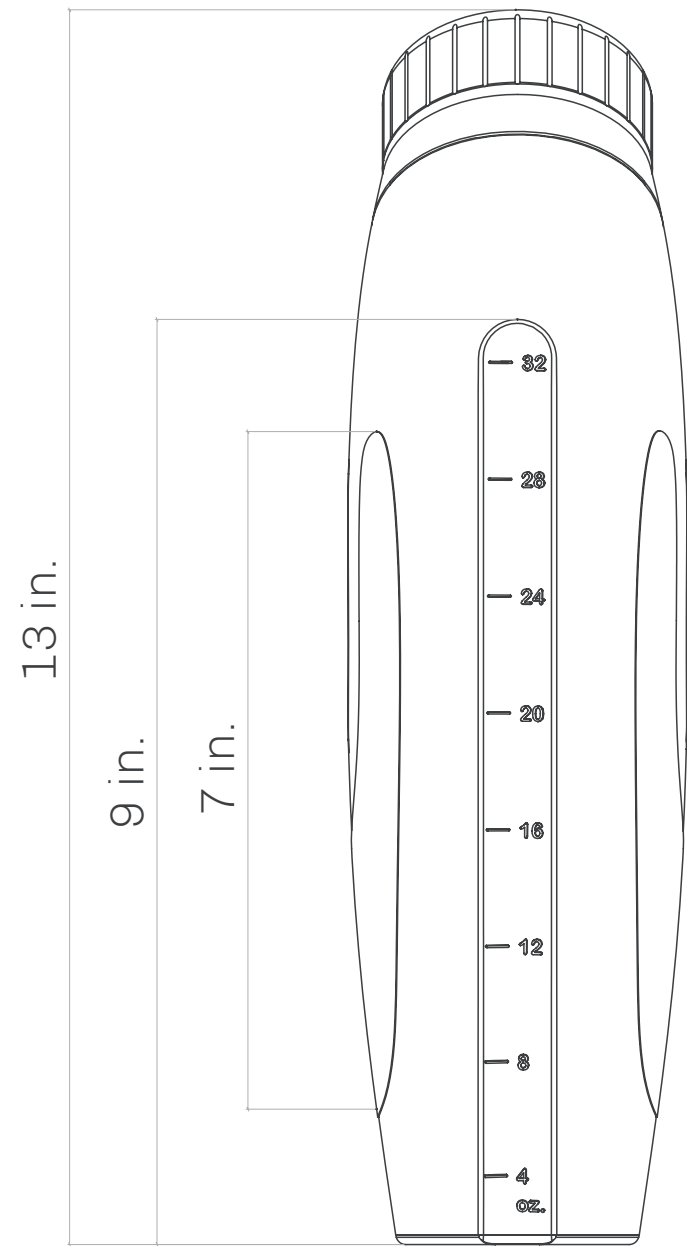
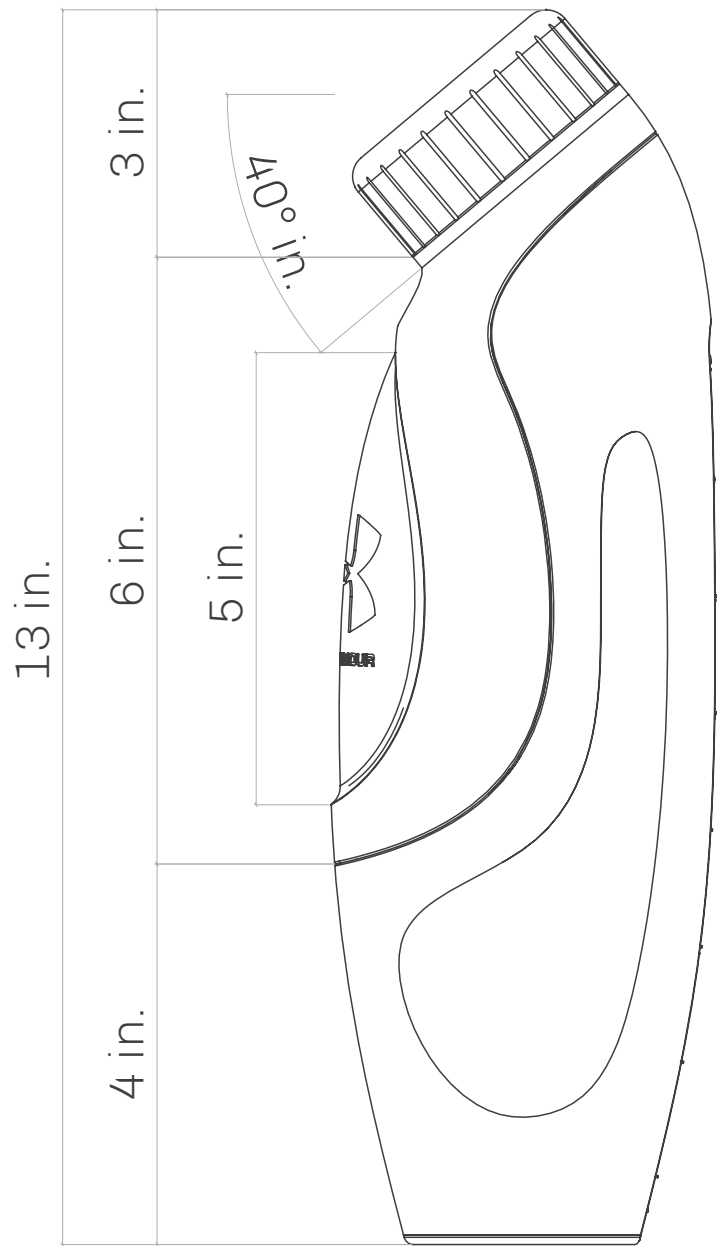
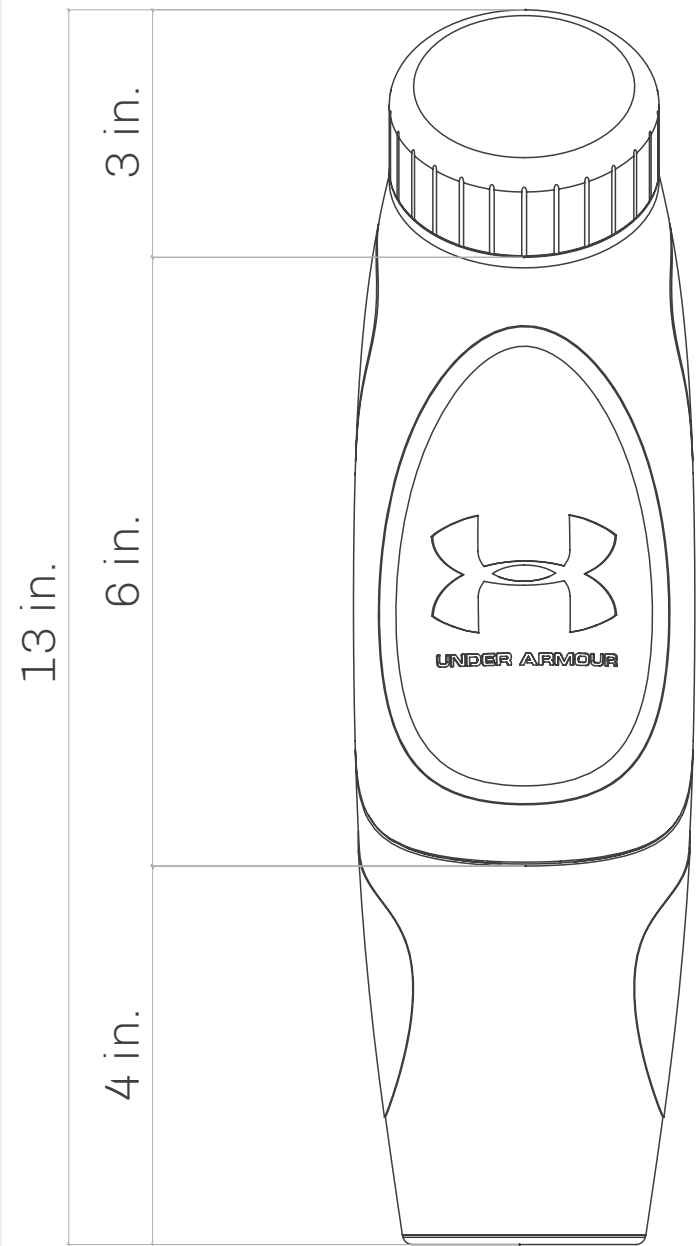
PREP, STORE & GO
CONCEPT DEVELOPMENT
DESIGN OF THE BOTTLE



PREP, STORE & GO
CONCEPT DEVELOPMENT
SKETCHES



PREP, STORE & GO
CONCEPT DEVELOPMENT
SUBTITLE



PREP, STORE & GO
CONCEPT DEVELOPMENT
MOCK UPS

CLAY MODELS Form Exploration



WOOD MODELS Size and Proportion Explorations



PREP, STORE & GO
CONCEPT DEVELOPMENT
POWDER COMPRESSION EXPERIMENT



PREP, STORE & GO
CONCEPT DEVELOPMENT
MOCK UPS



CNC MACHINING

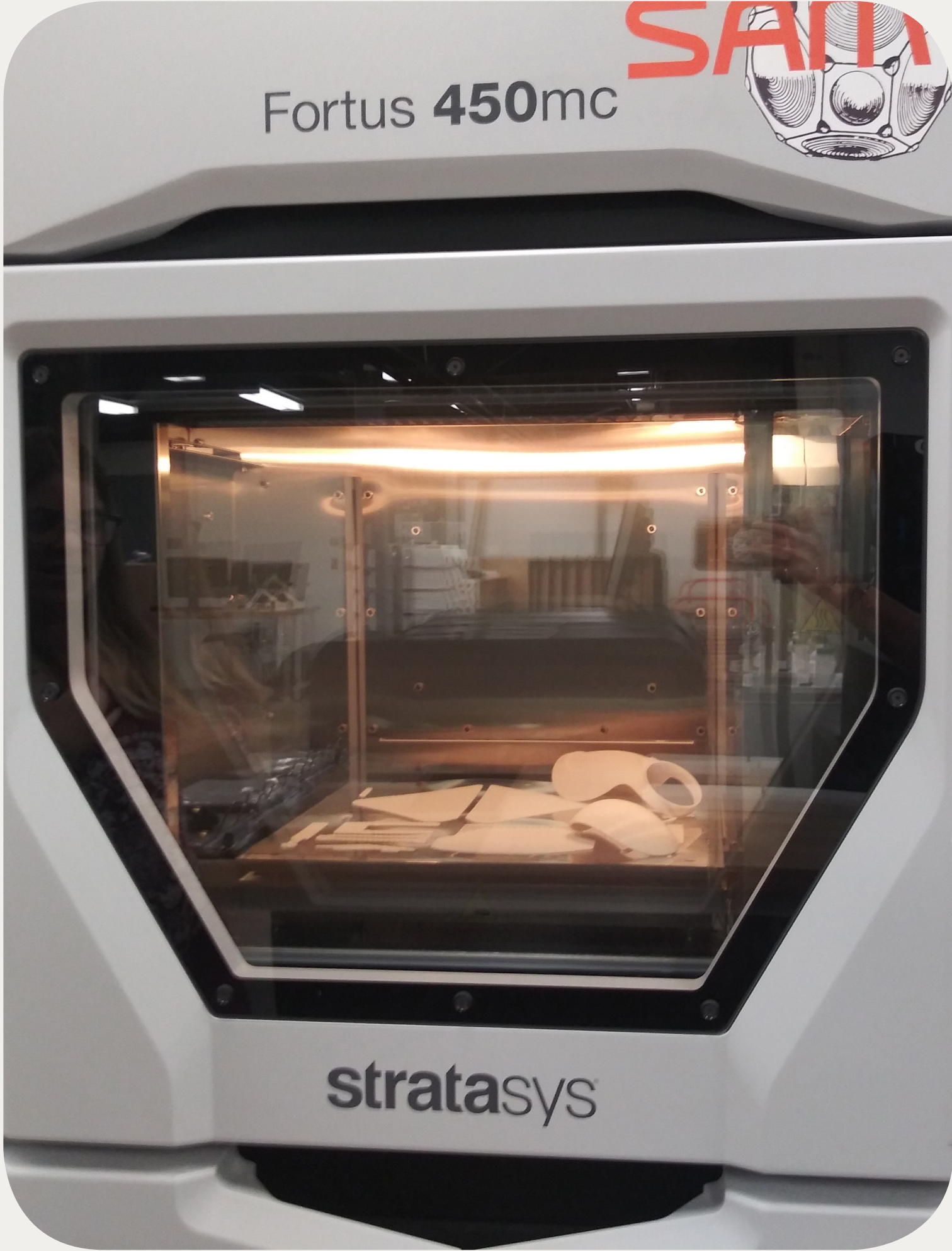


FOAM MOCK UP



GRIP SHAPE EXPLORATIONS

PREP, STORE & GO
CONCEPT DEVELOPMENT
MANUFACTURING TECHNOLOGIES



PREP, STORE & GO
CONCEPT DEVELOPMENT
PROTOTYPE



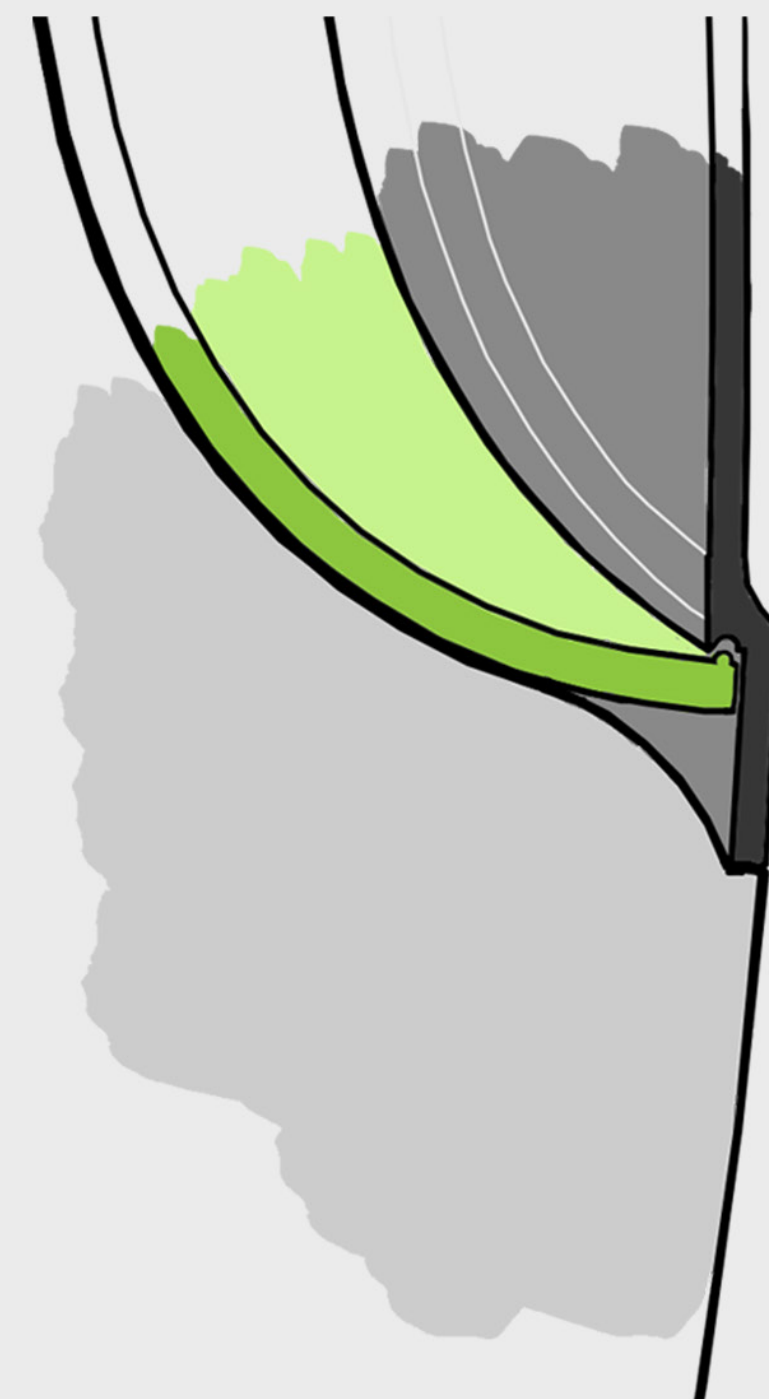
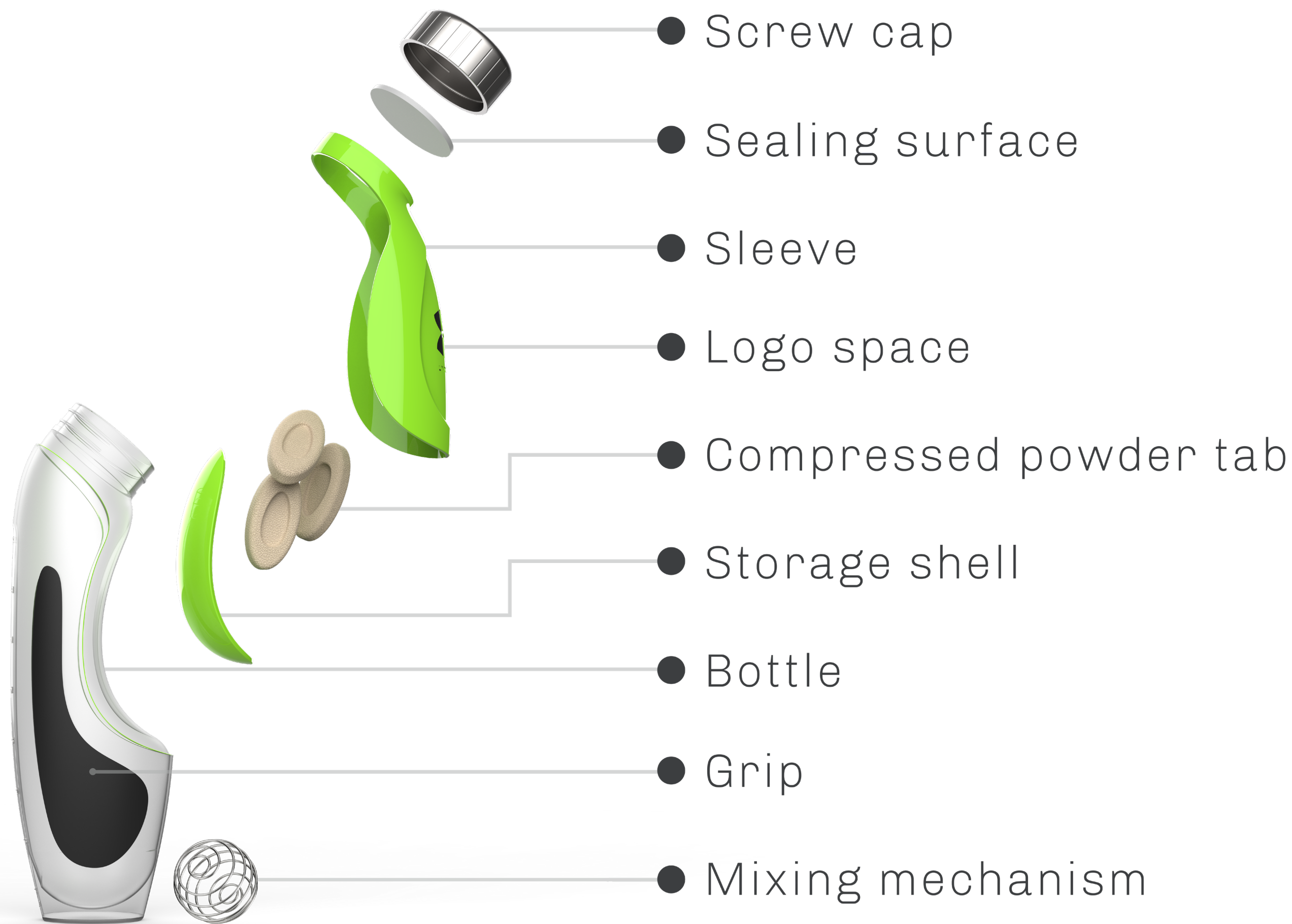
PREP, STORE & GO
CONCEPT DEVELOPMENT
COLOR COMBINATIONS



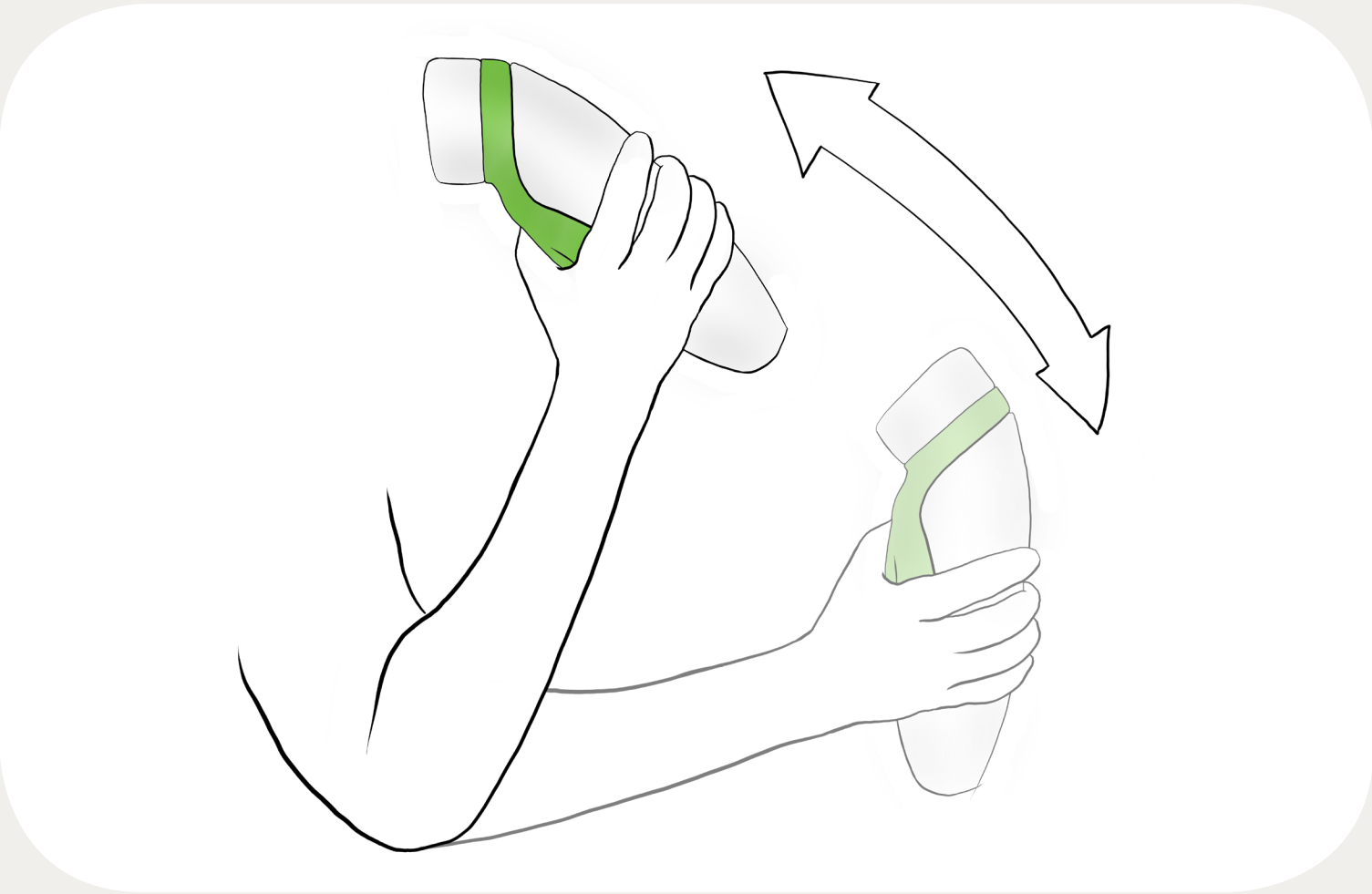
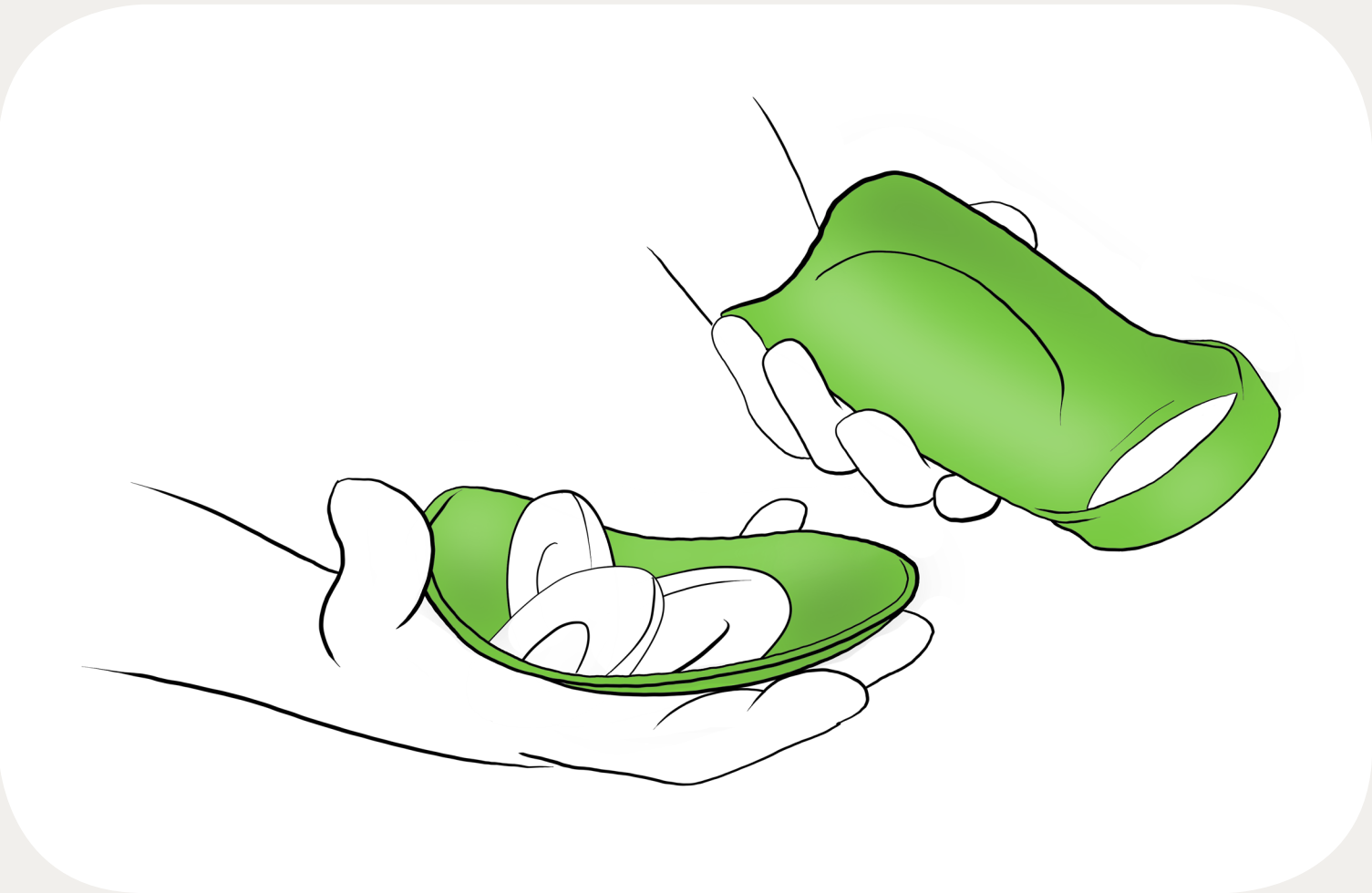
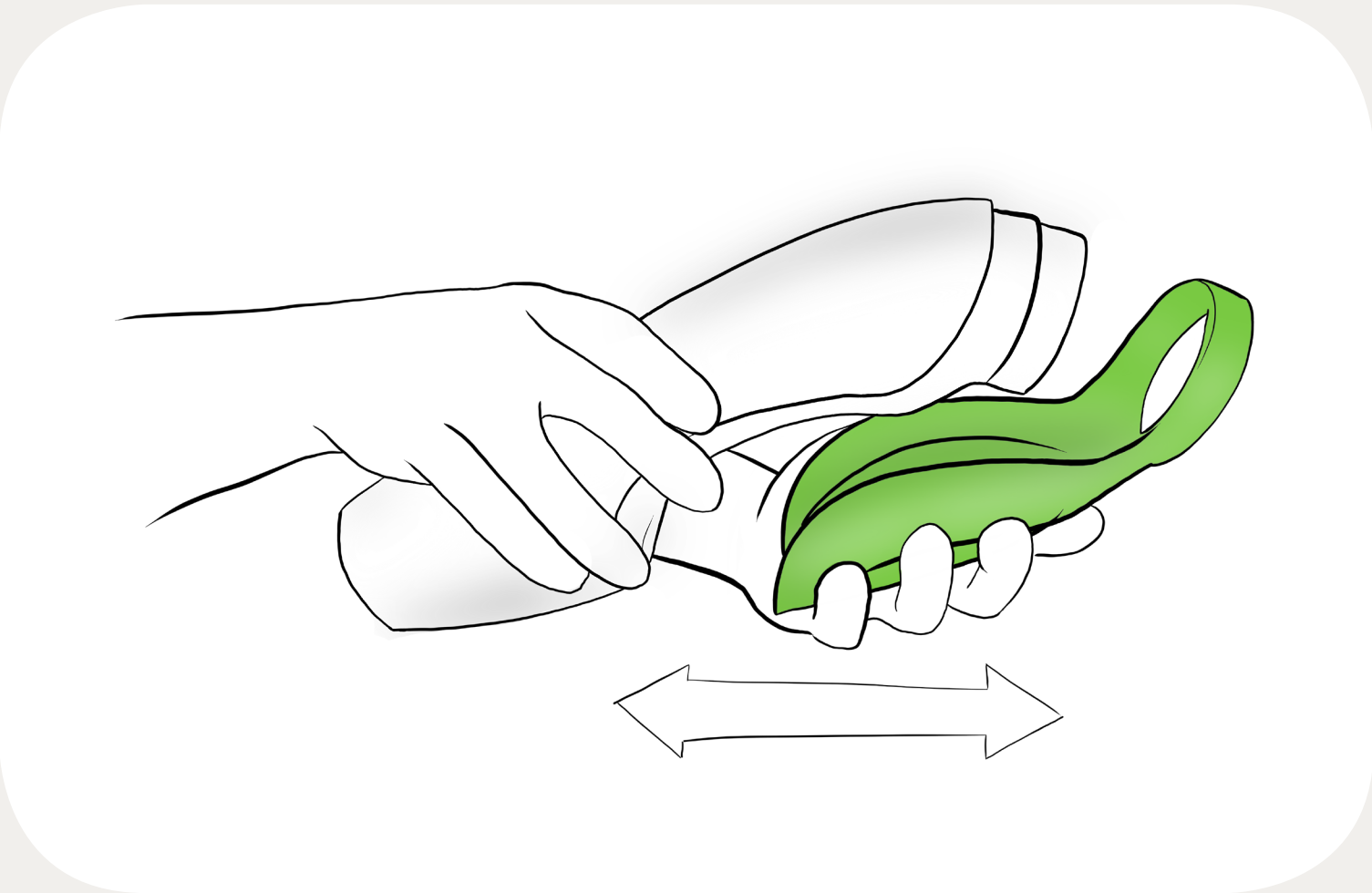
PREP, STORE & GO
CONCEPT DEVELOPMENT
COLOR COMBINATIONS



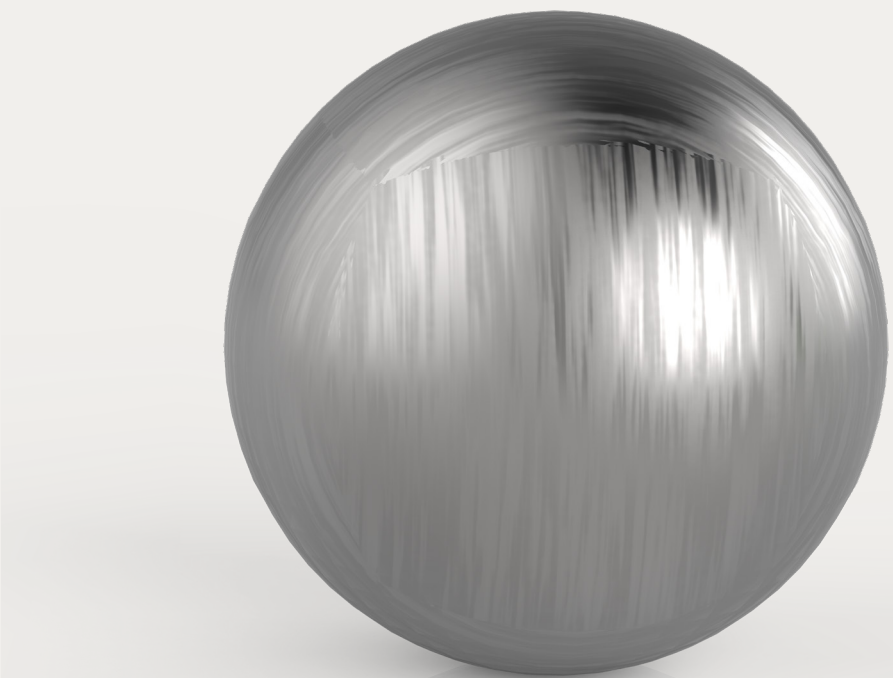
PREP, STORE & GO
FINAL DESIGN
EXPLODED VIEW



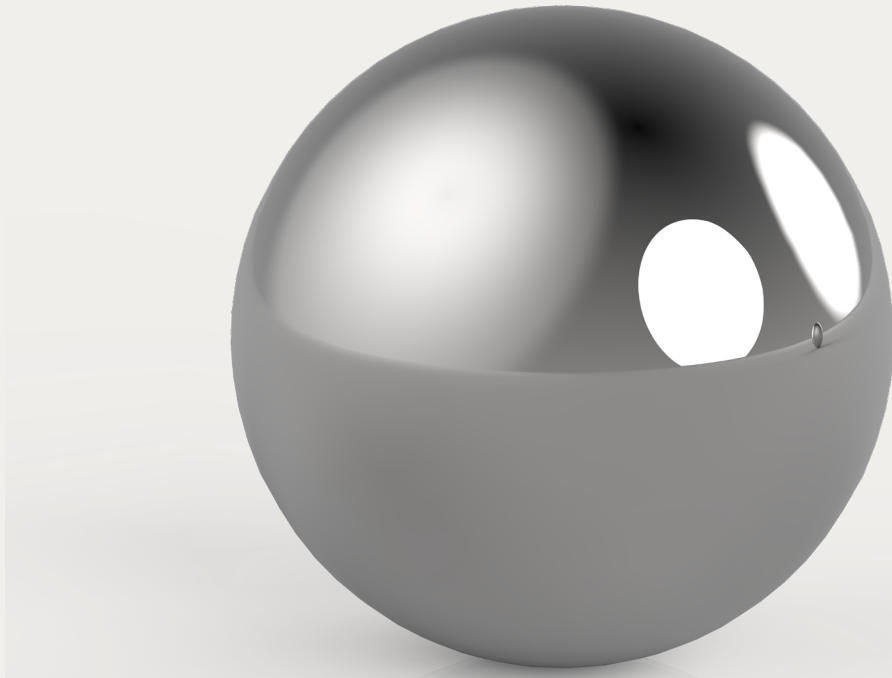
PREP, STORE & GO
CONCEPT DEVELOPMENT
USABILITY



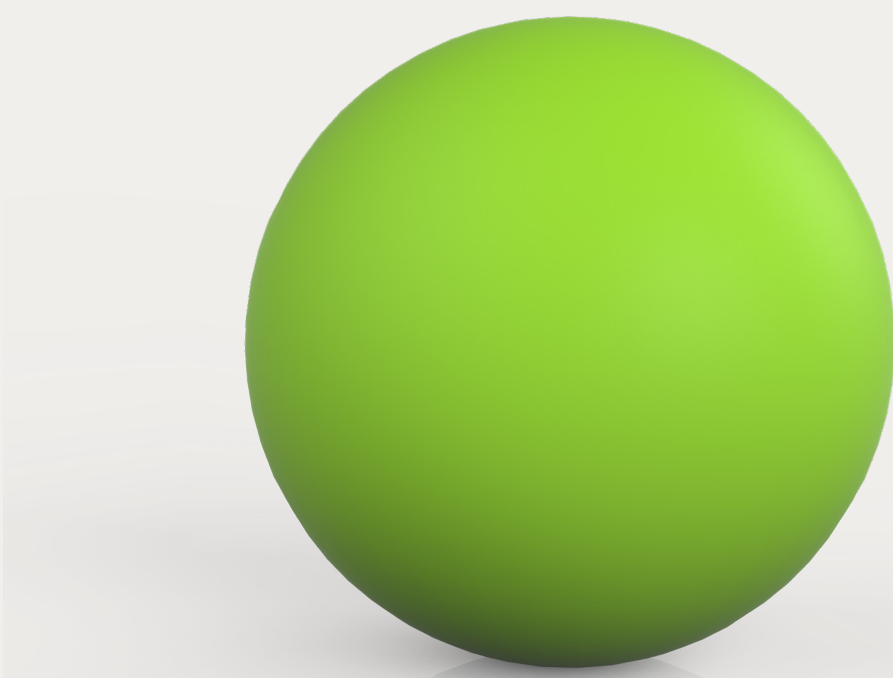
PREP, STORE & GO
CONCEPT DEVELOPMENT
MATERIALS



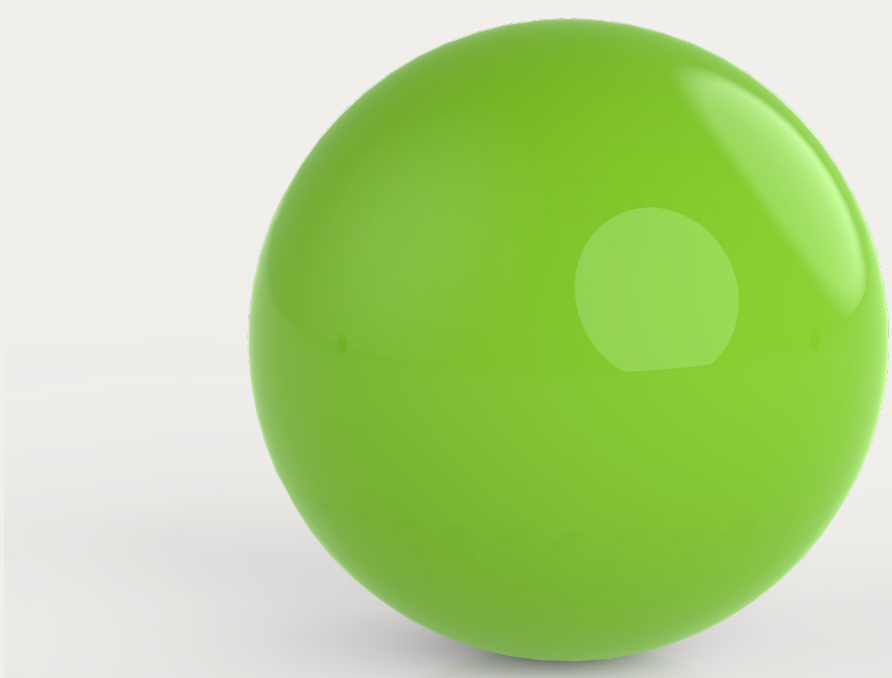
Brushed Stainless Steel



Polished Stainless Steel



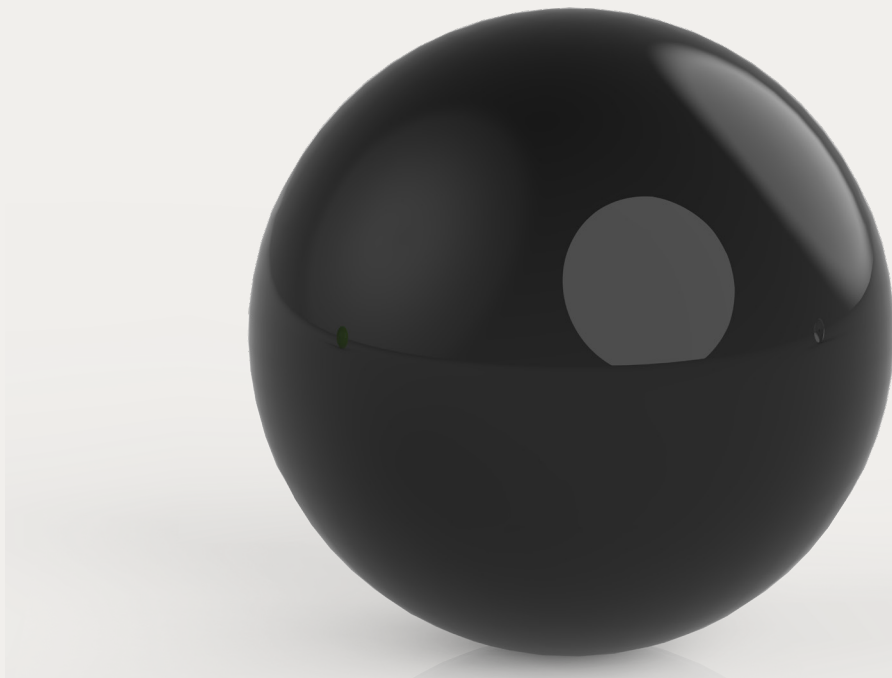
Matte Colored Plastic



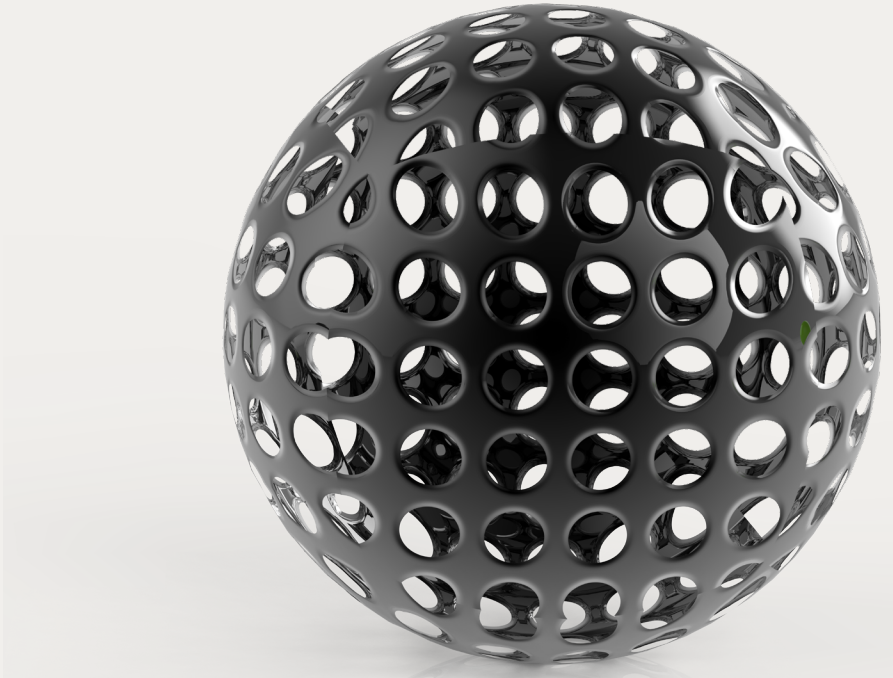
Shiny Colored Plastic



Textured Colored Plastic



Shiny Colored Plastic



Glass with Silicone Protective Sleeve



Clear Plastic

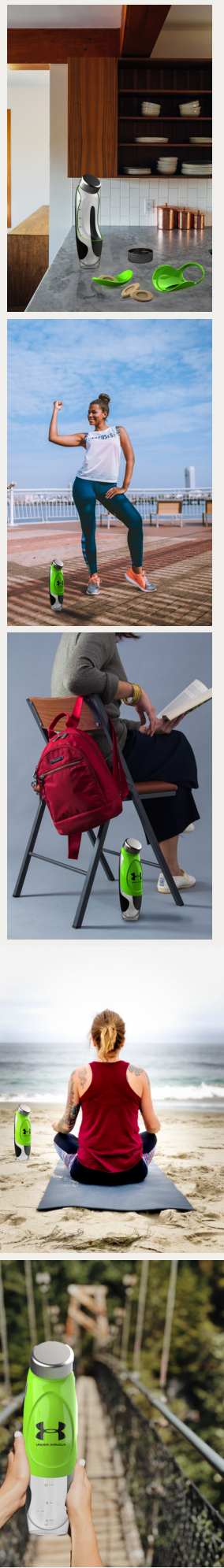
PREP, STORE & GO
FINAL DESIGN
THE BOTTLE



PREP, STORE & GO
FINAL DESIGN
MATERIAL VARIATIONS



PREP, STORE & GO
CONCEPT DEVELOPMENT
RENDER EXPLORATION



PREP, STORE & GO
CONCEPT DEVELOPMENT
RENDERS IN CONTEXT



PREP, STORE & GO
CONCEPT DEVELOPMENT
RENDERS IN CONTEXT



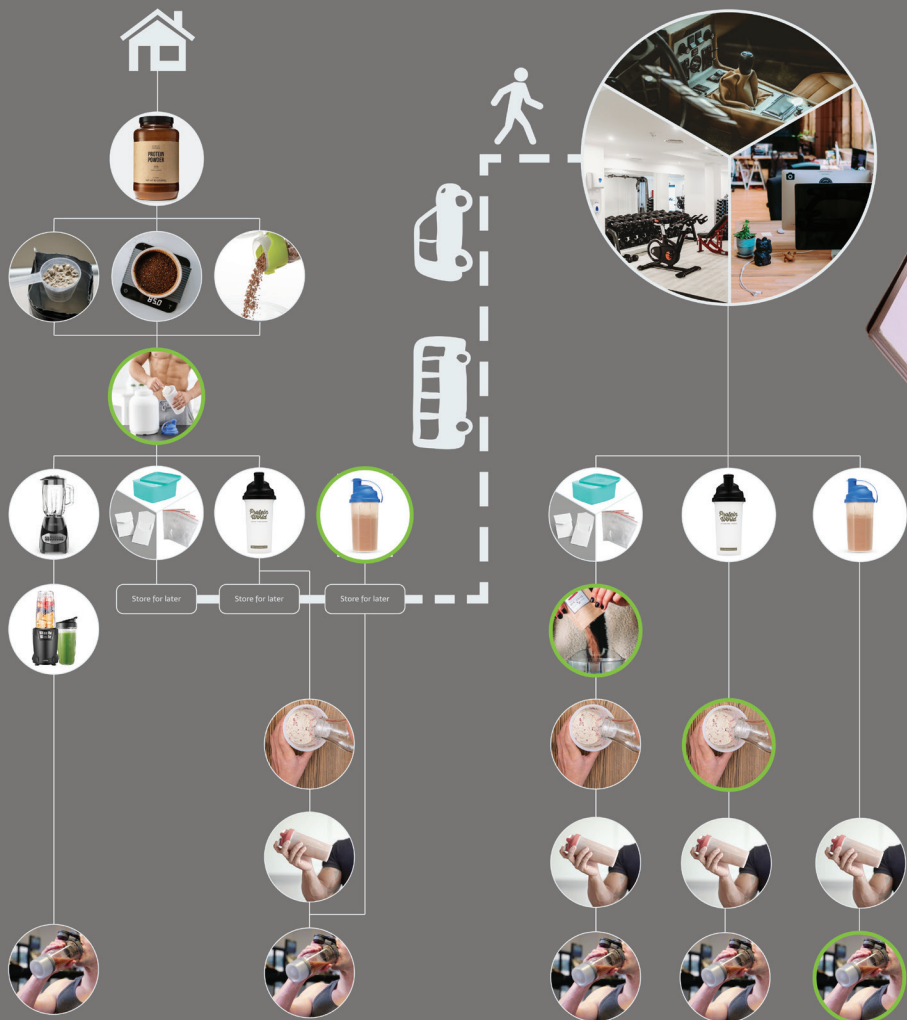
The Brief

The shaker bottle **Prep. Store. Go.** was designed to ease the preparation of powdered nutritional supplements.

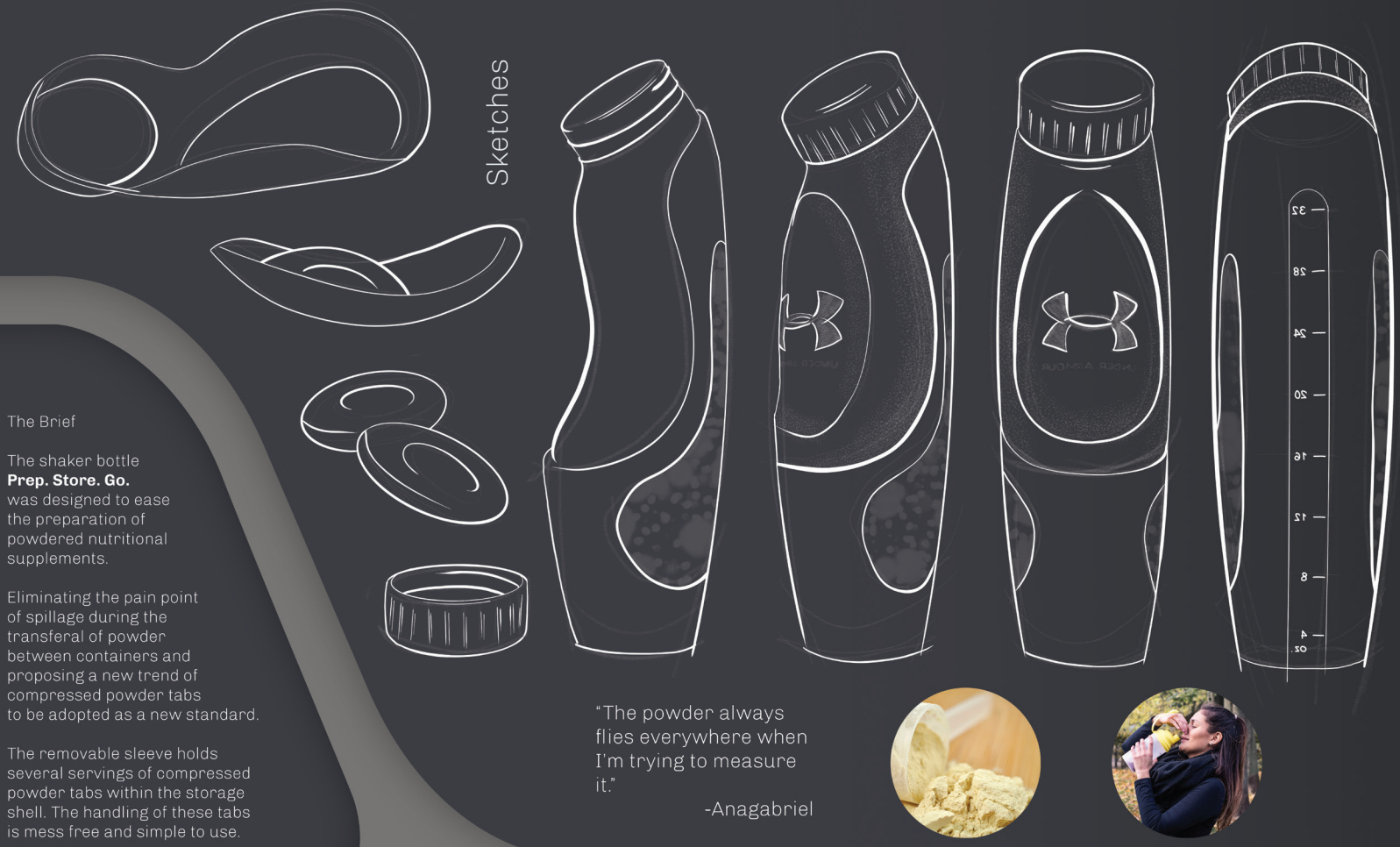
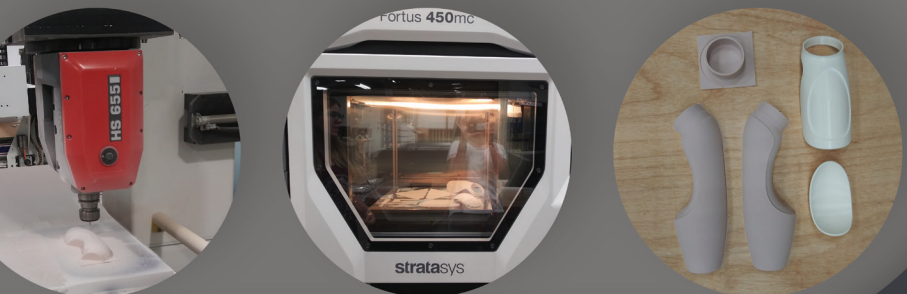
Eliminating the pain point of spillage during the transfer of powder between containers and proposing a new trend of compressed powder tabs to be adopted as a new standard.

The removable sleeve holds several servings of compressed powder tabs within the storage shell. The handling of these tabs is mess free and simple to use.

Contextual Research



Manufacturing Technologies



"The powder always flies everywhere when I'm trying to measure it."

-Anagabriel



Usability

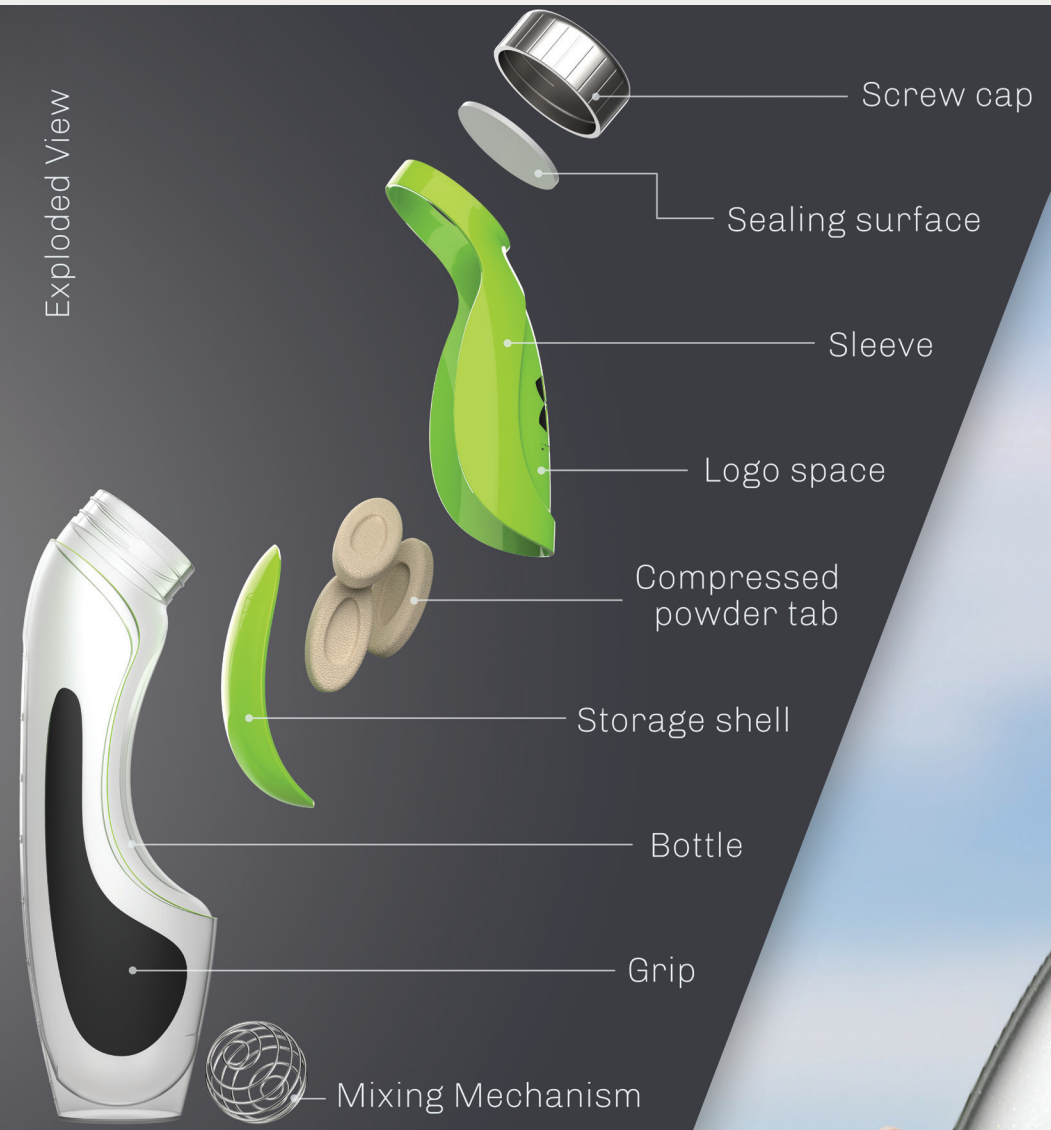


"Powder compressed in tablets will result in sustaining efficacy of product, and removable sleeve to drag tablets from storage shell seems very convenient."

-Akshay



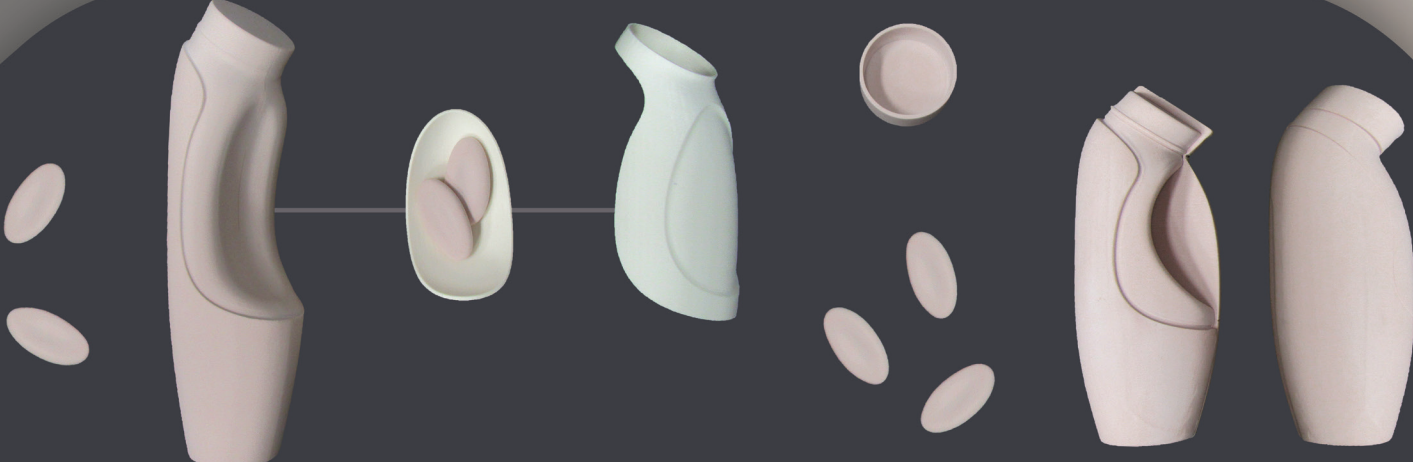
Exploded View



PREP.
STORE.
GO.



Materials



ANNEX

PREP, STORE & GO

IDUS 748 - INDUSTRIAL DESIGN M.A. FINAL PROJECT

PREP, STORE & GO
CONTEXTUAL RESEARCH
SURVEY RESPONDENTS

	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12
User of powder supplements	Yes	Yes	No	No	No	Yes		No	Yes	Yes	No	Yes
Name	Maria	Beatriz Paredes	Anonymous	Anonymous	Anonymous	Monica de Obarrio	Lee Adams	Michelle Richa	Ana Patricia Giraldez	Anagabriel Quiroga	Anonymous	Anonymous
Type of interview	Survey	Survey and Interview	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey		Survey

U13	U14	U15	U16	U17	U18	U19	U20	U21	U22	U23	U24
Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	Yes
Leandro Perversi	Priyanka	Anonymous	Anonymous	Anonymous	Anonymous	Aeriell Herrera	Anonymous	Anonymous	Anonymous	Anonymous	Oliver Hoang
Survey and Interview	Inteview	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey

U25	U26	U27	U28	U29	U30	U31	U32	U33	U34	U35	U36
No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Anonymous	Anonymous	Felipe	Anonymous	Luis Alberto	Timmy	Kelly Bailey	Armando Mora	Vivian de Mora	Pablo Portilla	Joseph Smith	Austin Johnson
Survey	Survey	Survey	Survey	Survey	Survey	Survey	Interview	Interview	Interview	Interview	Interview

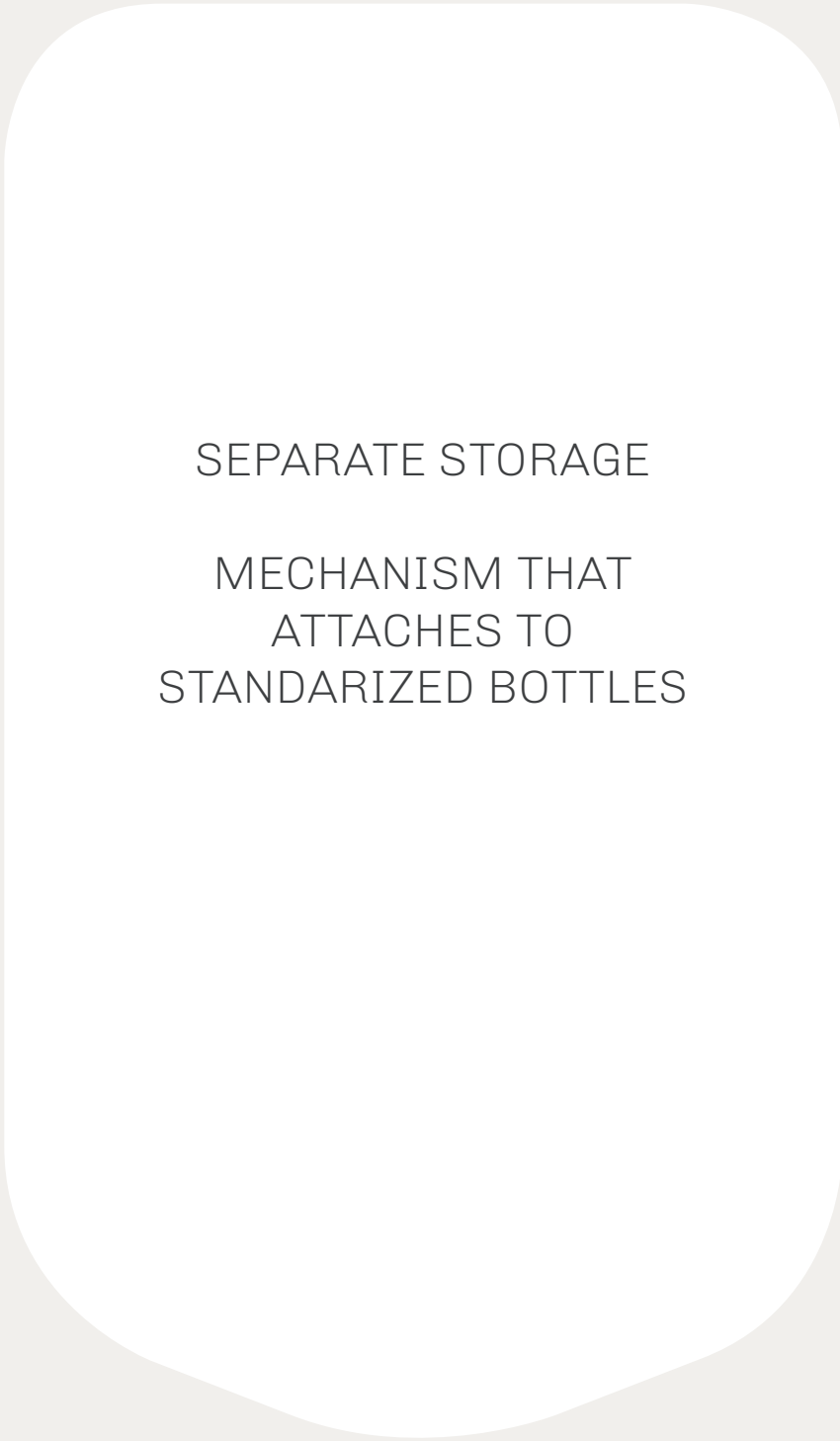
PREP, STORE & GO
CONCEPT DEVELOPMENT
POTENTIAL PLATFORMS

CONCEPT
A



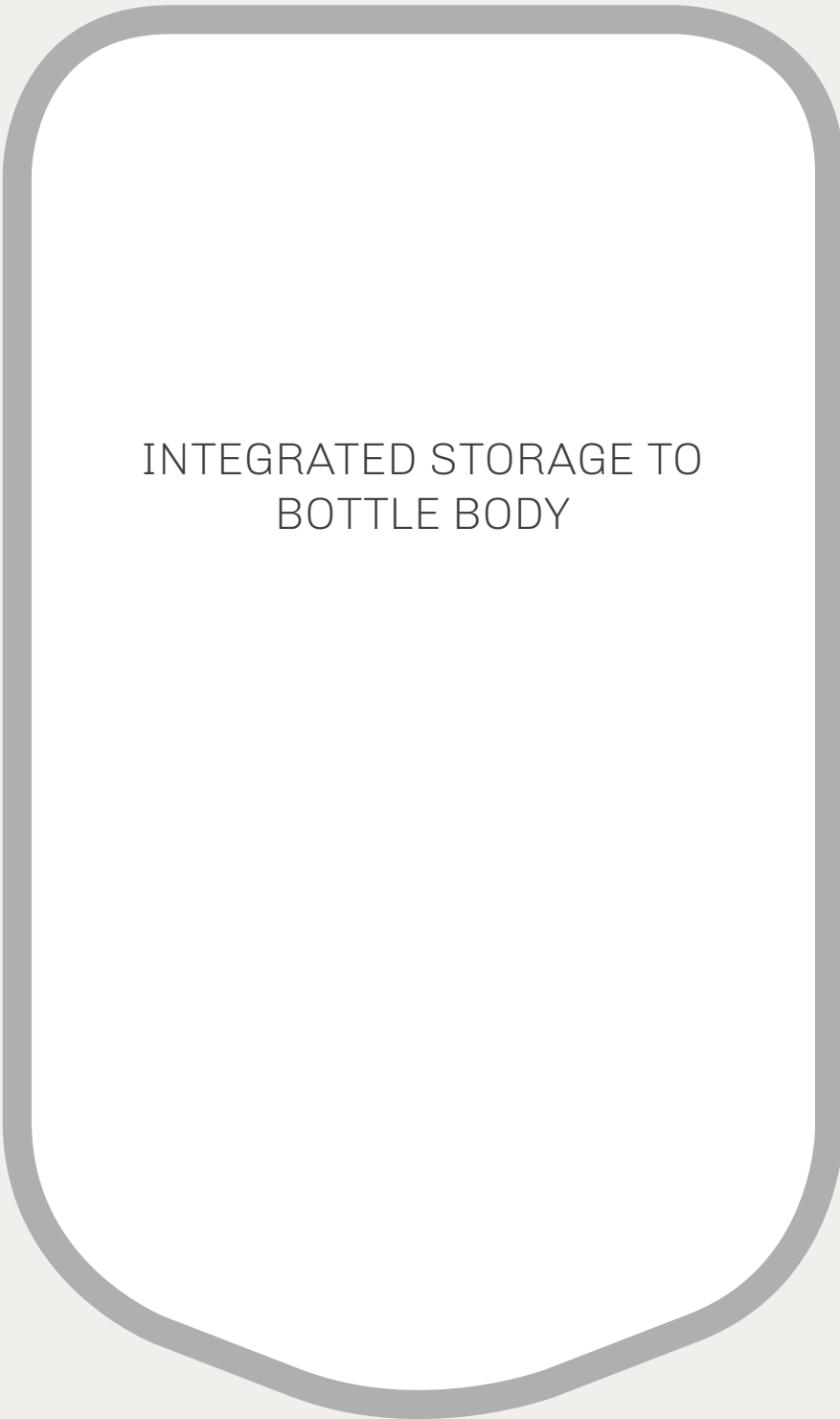
SEPARATE STORAGE

CONCEPT
B



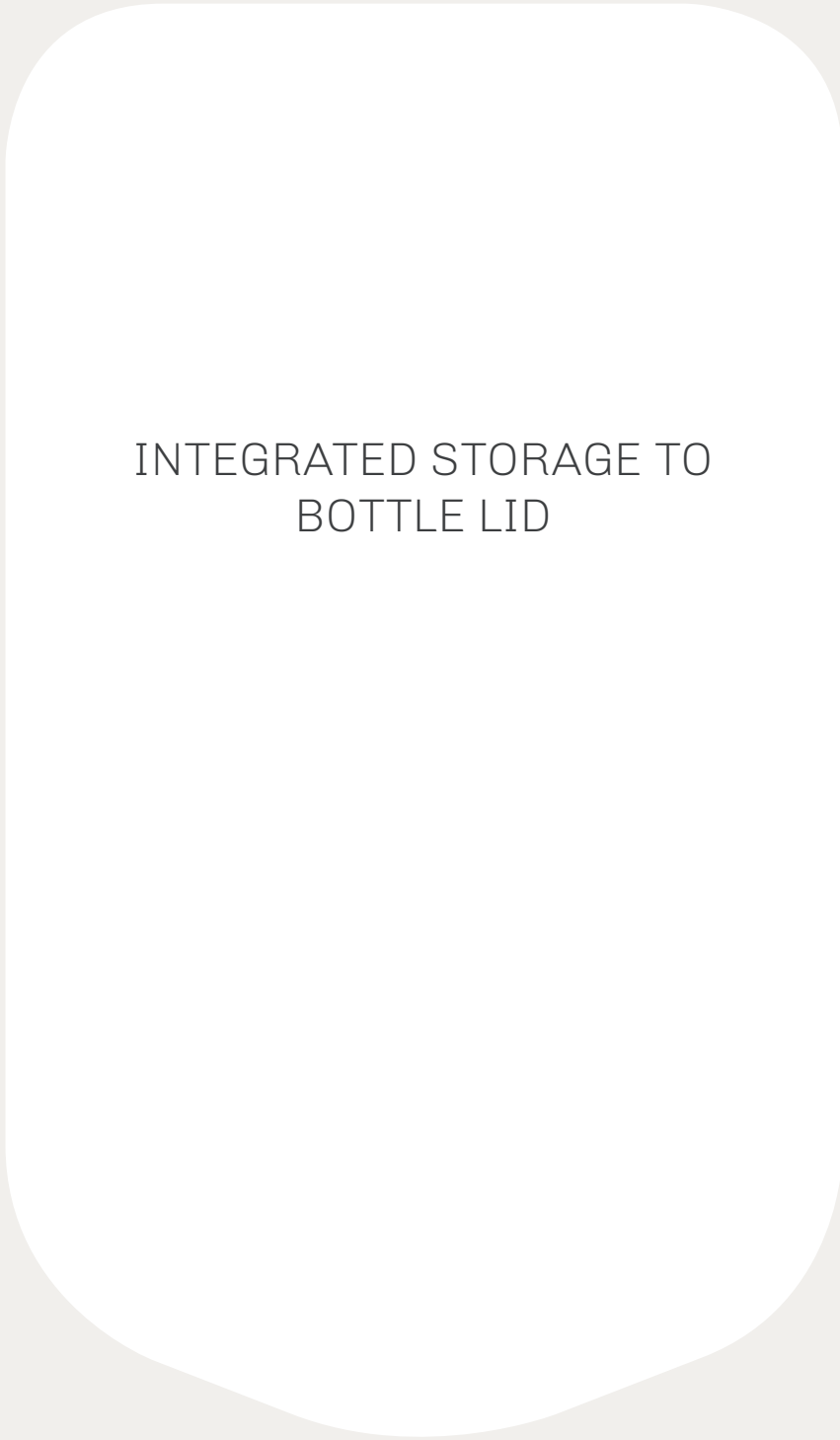
SEPARATE STORAGE
MECHANISM THAT
ATTACHES TO
STANDARIZED BOTTLES

CONCEPT
C



INTEGRATED STORAGE TO
BOTTLE BODY

CONCEPT
D



INTEGRATED STORAGE TO
BOTTLE LID

CONCEPT
E



INTEGRATED STORAGE ON
BOTTLE
SMART TECHNOLOGY
UV PROTECTION FOR
LIGHT SENSITIVE
CONTENTS

