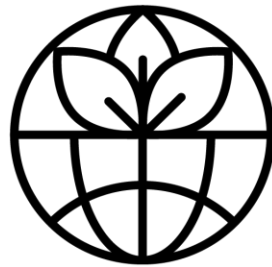

Sustainability Initiatives



Green Manufacturing and Logistics



Agenda

1 Plastic-free packaging

2 Plastics recycling

3 Eco-friendly paints

4 Green manufacturing

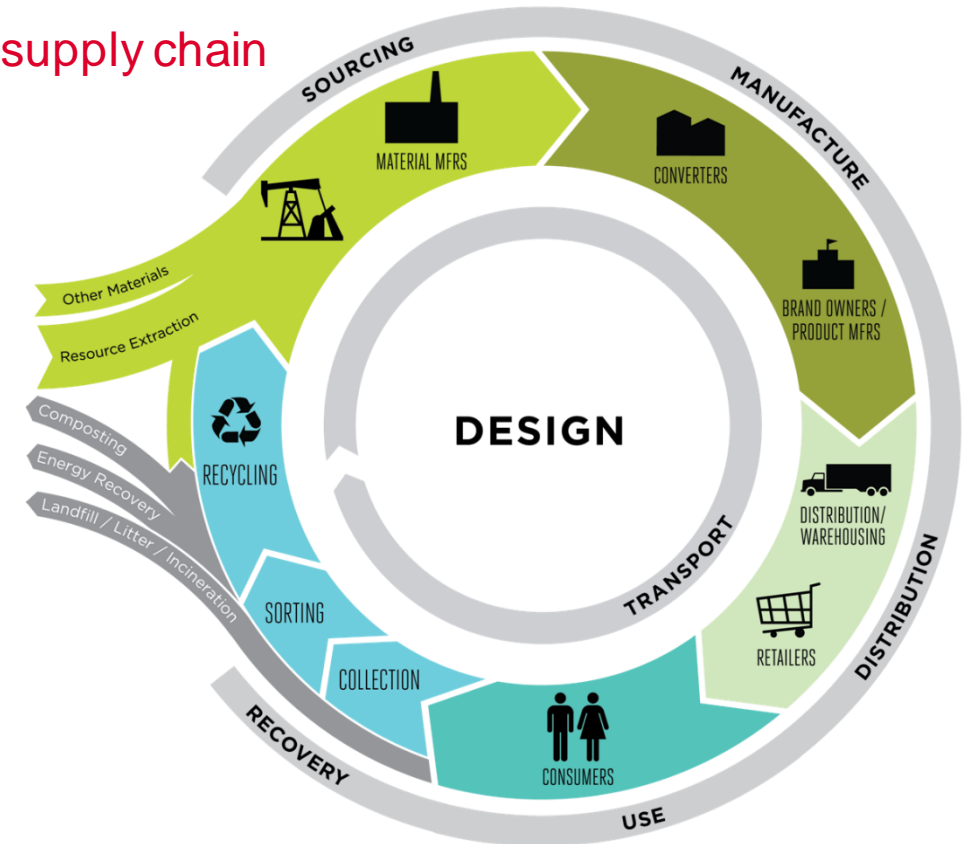
5 Remanufacturing: *Like New* program

UEI Sustainability program



UEI supports customers with sustainable initiatives throughout the supply chain

- **Green by Design:** UEI's R&D continually works towards more eco-friendly use of materials, including water-based paints and options for reuse of plastics.
- **ZeroPlastic:** UEI can deliver SUP-free packaging (free from Single-Use Plastics) and reduces use of plastics throughout the supply chain.
- **RubberFree:** UEI offers alternatives to Silicon Rubber used for keypads
- **Green initiatives:** UEI offers to remanufacture remotes returned to operators by consumers: the **Like New** program. For Comcast, UEI has re-built 6.8 M XR11 and XR15 remotes since 2017.

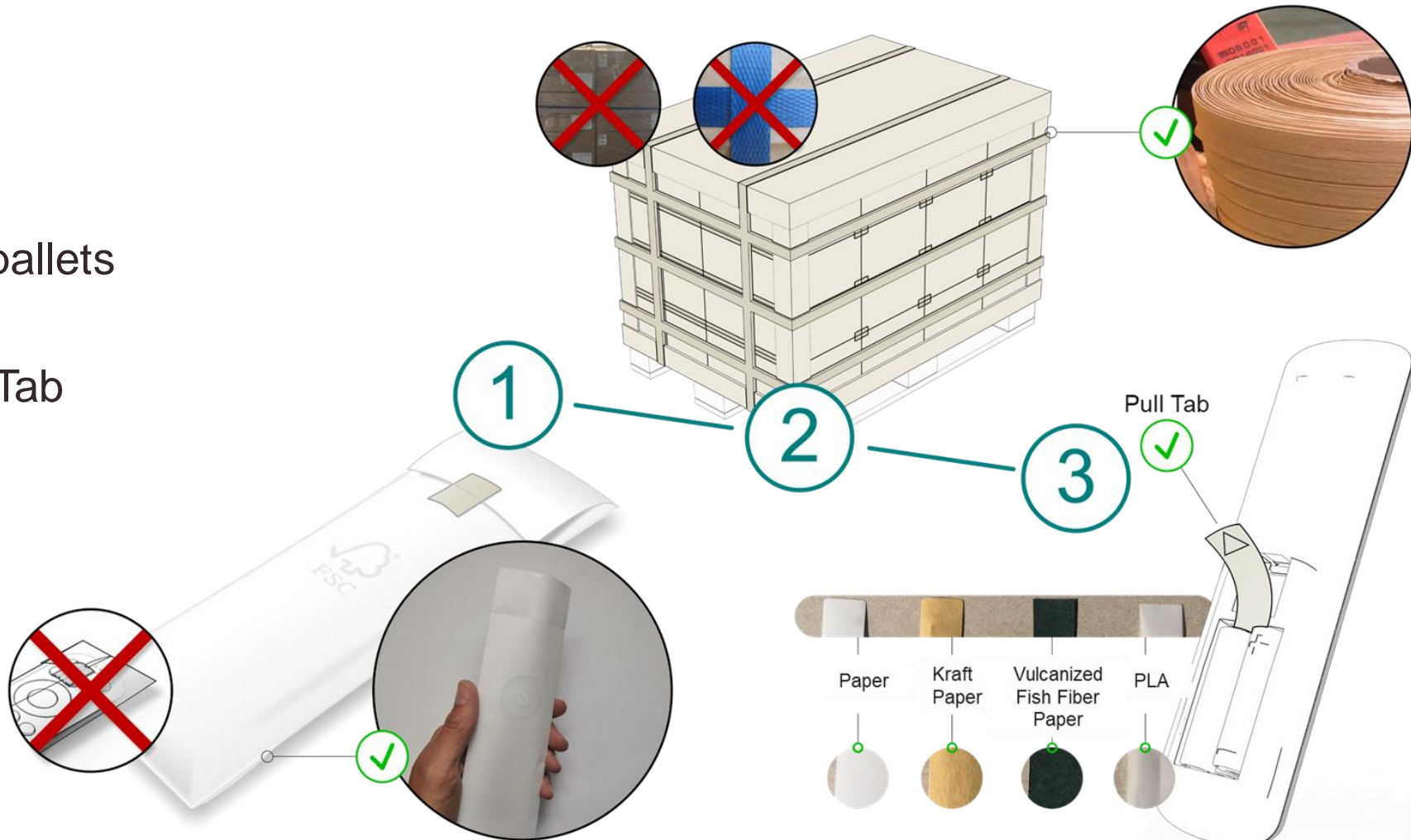


Plastic-Free Packaging

An abstract graphic consisting of several thin, white, curved lines that originate from the bottom left and fan out towards the right side of the slide, creating a sense of motion and flow.

Eliminating single-use plastics in packaging

- ① Paper bag
- ② SUP-Free pallets
- ③ Paper Pull Tab



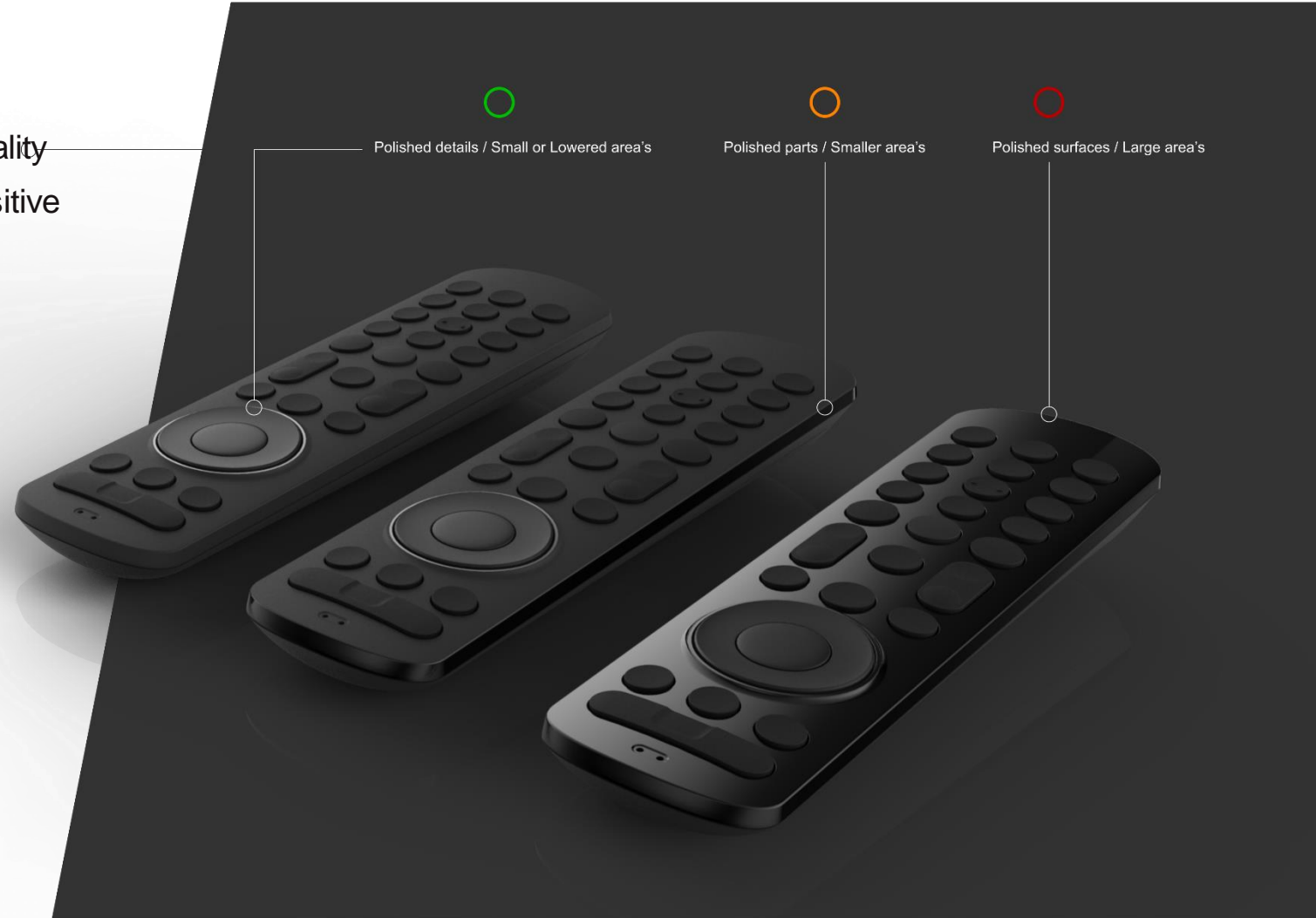
Considerations / Design & Finishes

Texture considerations

Textures will impact the perceived quality
Polished areas are more sensitive

- Increased texture coarseness will help to maintain appearance

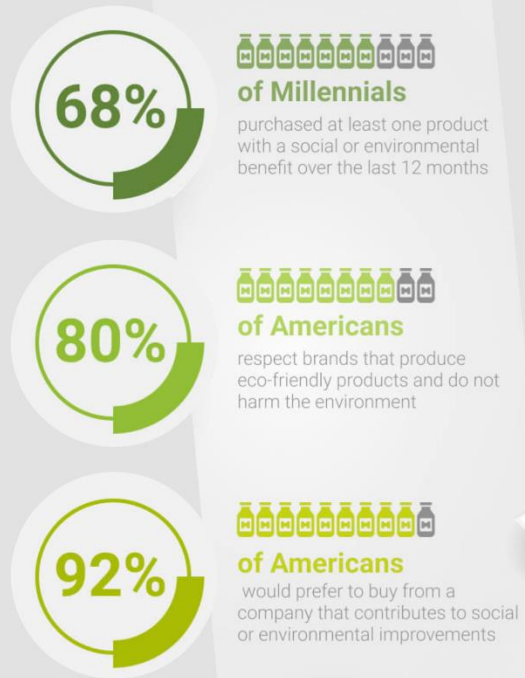
Example / VDI3400 29-32



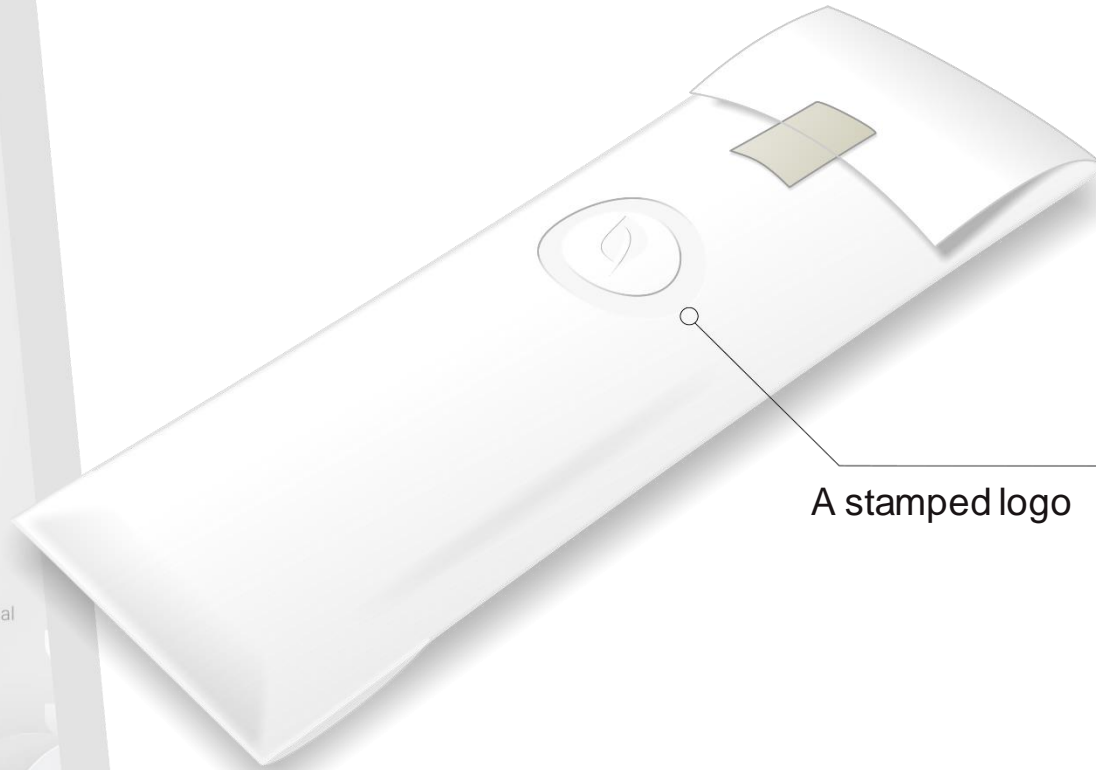
User satisfaction / A better World

Perception

A new Out-of-the-Box experience - A powerful message will win



www.belvg.com



A stamped logo



Plastics Recycling

An abstract graphic consisting of several thin, white, curved lines that originate from the bottom left and fan out towards the right side of the slide, creating a sense of motion and depth against the red background.



Recycled
ABS





PCR ABS



PCR HIPS



OCEAN PET

Specifications



Availability



Trial injection molding

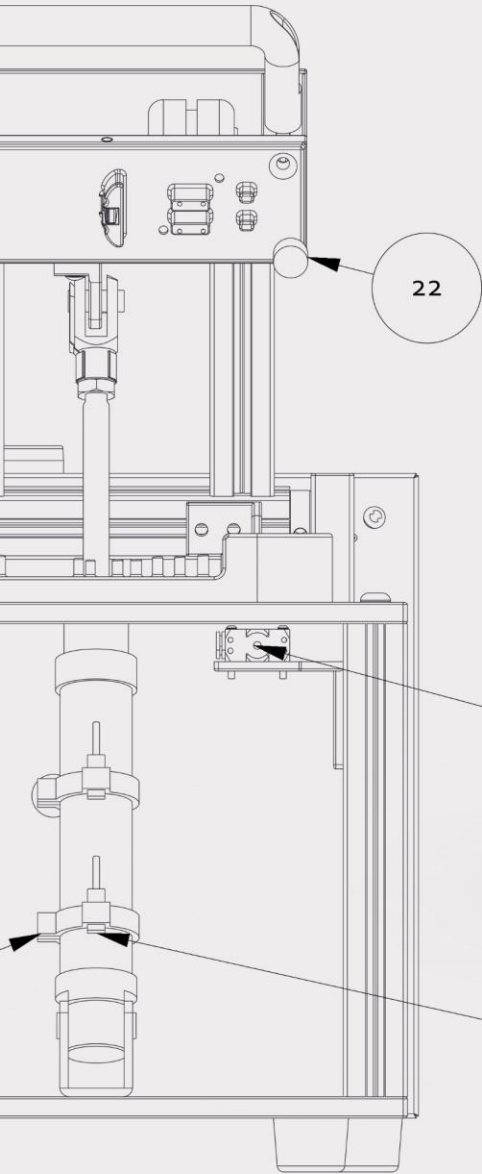


Product testing



Mass trials





22

15

21

Key webs



Designed for refurbishment

Re-Use
&
Re-Cycle



Rubber-free keypad

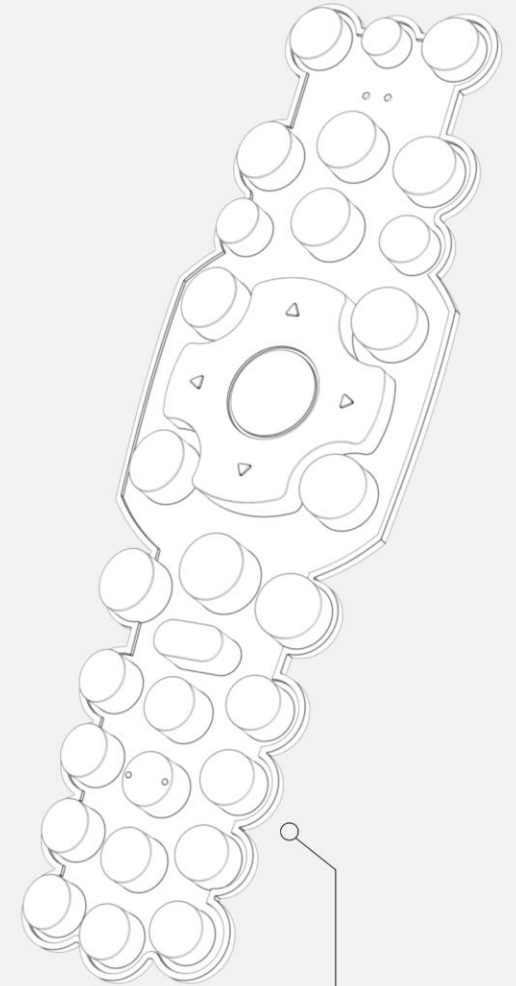
NO RUBBER, WHY?

Can keypads be recycled?

Step 01 / Assessment

Pre cured soft, rolled and coloured silicone rubber is the raw material used for keypad manufacture.

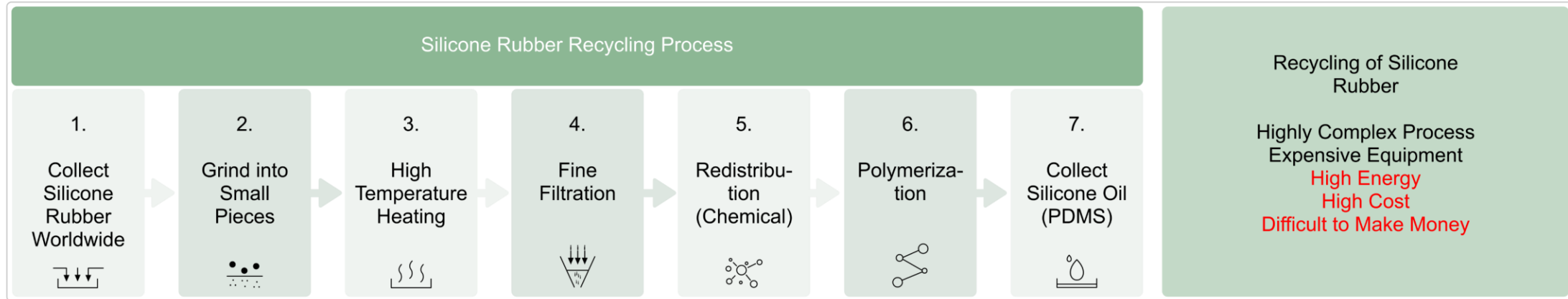
Keypads cannot be recycled back into this raw material. Once the keypad compression-molding process is completed, the silicone rubber is chemically set (thermoset material).



Raw silicone and RCU rubber pad

Can keypads be recycled?

Step 01 / Assessment

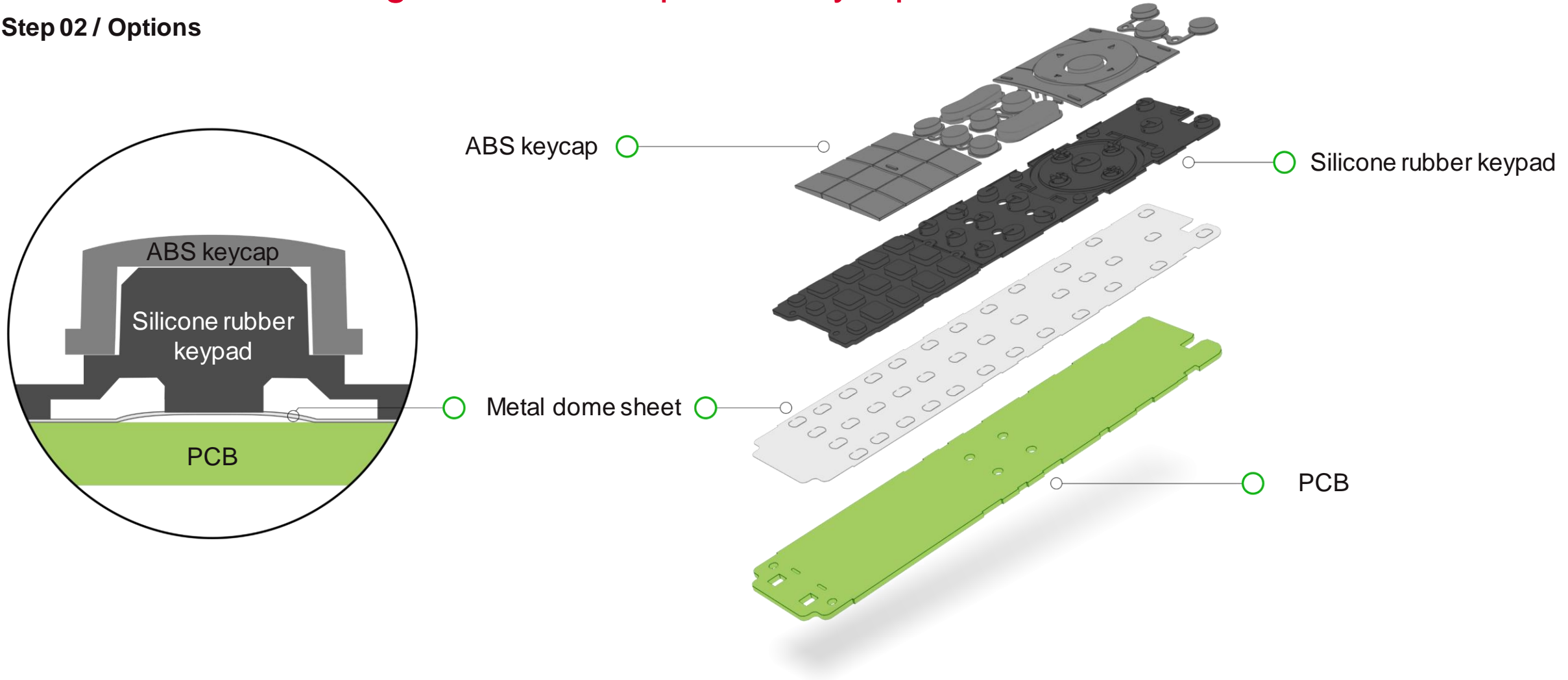


More information at : [Silicone Rubber Recycling Process | ECO USA \(ecousarecycling.com\)](https://www.ecousarecycling.com)

Silicone rubber can however be gathered and turned into PDMS. PDMS is a microfluid used in cooking oils, SLA machine basins and many other applications. It is widely known as silicone oil.

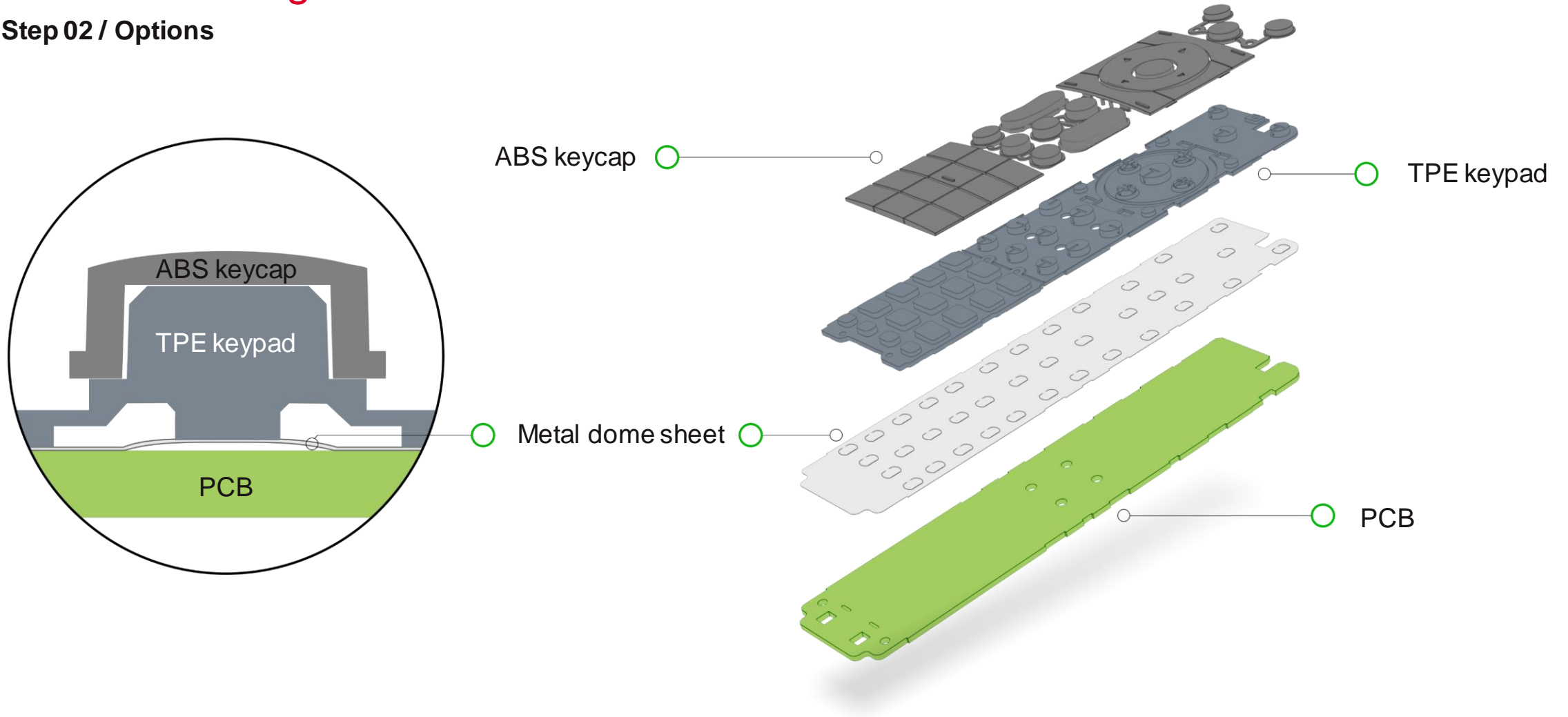
Standard rubber design with a hard plastic keycap

Step 02 / Options



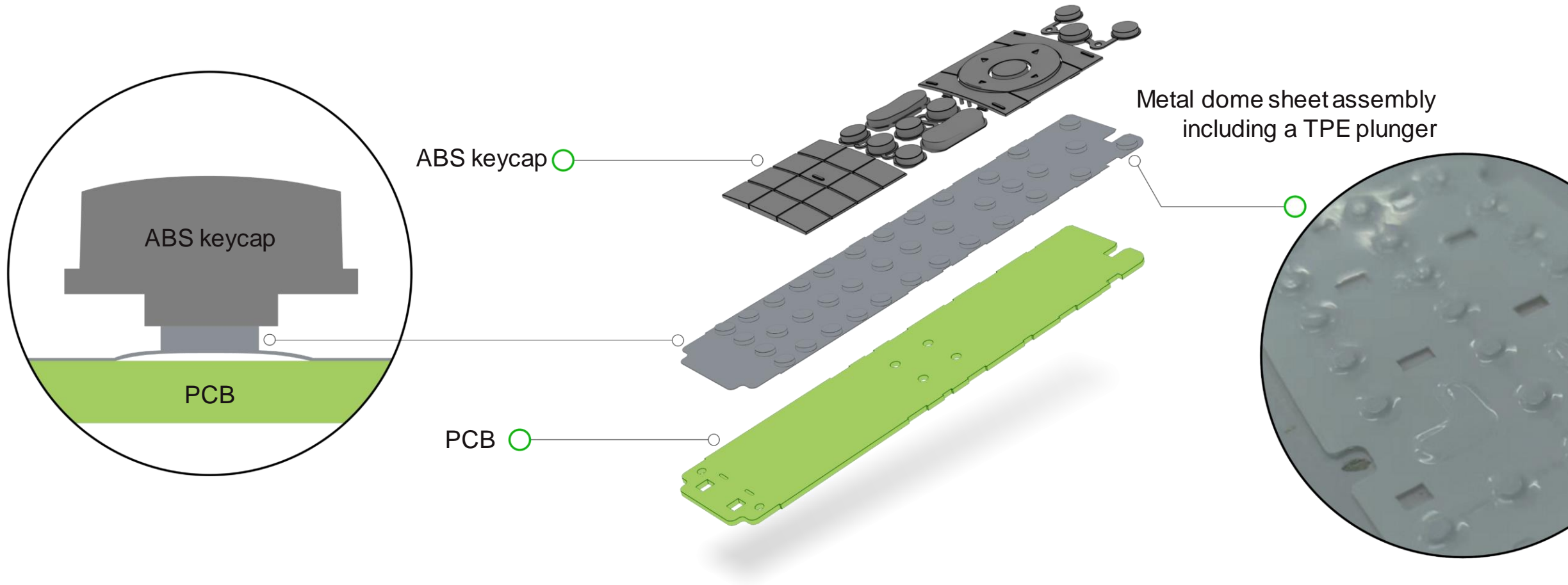
No rubber design 01

Step 02 / Options






No rubber design 02

Step 02 / Options



Rubber design comparison table

Step 02 / Options

Type	Ease of Recycling	Reliability	Key feeling	Cost impact
Standard (silicone keypad) 	poor	proven	Good, tried and tested	
No rubber 01 (TPE keypad) 	Improved from our standard design	Low risk but further testing required	OK, higher key force, will need a discussion with customers product management	Tooling is higher than standard Unit cost is slightly higher than standard
No rubber 02 (TPE plunger) 	Improved from our standard design	Low risk but further testing required	OK, different key force, will need a discussion with customers product management	Tooling cost is higher than a standard dome sheet but no keypad tool needed Unit cost is slightly higher than standard and 'No rubber 01'

*There are a couple of basic demo units of the 'no rubber 2' design available at BV ME, please ask if needed

Like New Re-manufacturing

RECYCLING OF REMOTE CONTROLS

Like New program

- As of 2016, UEM has become our first site for re-manufacturing of remote controls that returned from the field due to churn with pay-TV service providers
- As lead development partner for many of the original RCUs, UEM was the ideal re-manufacturing partner to recycle field returns and create economic and ecologic value
- Expertise in efficient disassembly, inspection and cleaning, updating software, re-assembly and testing of RF and voice devices
- 100% original quality with full warranty on workmanship, cosmetics and functional performance
- As of 2021, UEM has processed over 15 million units of returned remotes for major U.S. service providers



15 Million “Like News”

RECYCLING OF REMOTE CONTROLS

Like New program

Over 95% of the materials in used remote controls are recycled or reused

- ABS is ground and used in recycled molded plastics
- Silicon is ground and reused in products like playground mats
- PCBA is cleaned, tested, updated, and reused in new remotes
- Provides a “green” eco-friendly message/image

Purchase “Like New remotes” at a discounted price

- Reduce the ASP for remotes
- Like-New remotes carry a full warranty for wear and operation



Reducing Carbon Footprint



Saving Money

LIKE NEW

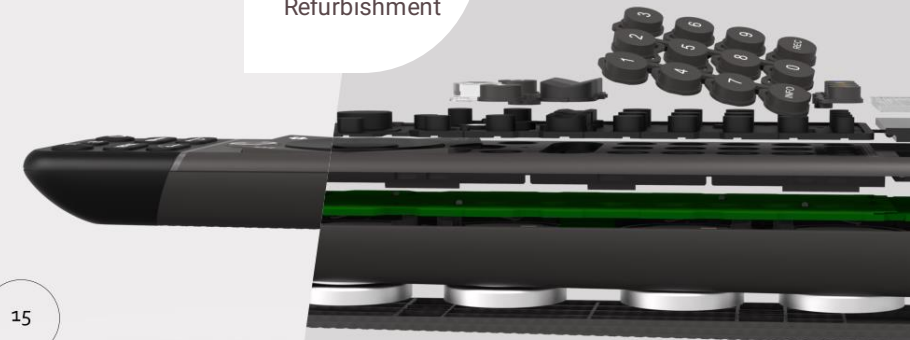
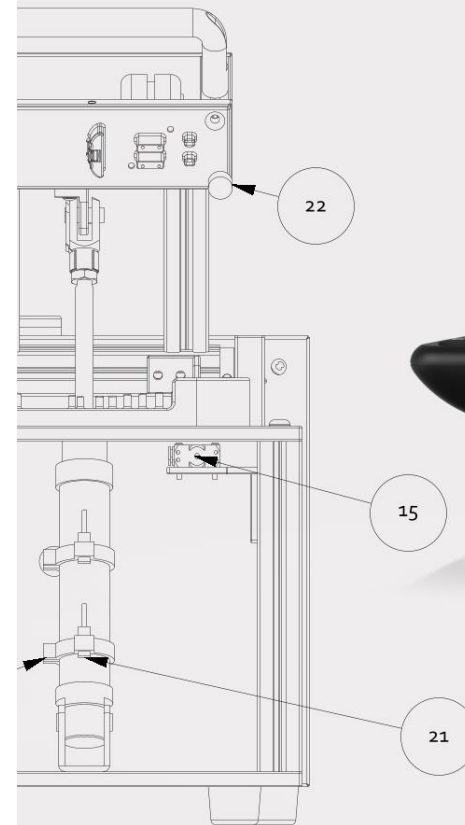


UEI sells the Like-New remotes back to customer at a reduced price. These warrantied remotes are used by customer in new installations

SUSTAINABILITY – END OF LIFE RECYCLING

Design for easy recycling or refurbishment

- Refurbishment centers can easily open appropriately designed UEI remotes as an easy first step in their clean and screen process.
- Since 2016 refurbishment centers have been purchasing UEI plastics for use in refurbished remote controls.
- Spare part purchasing quantities vary from part to part, showing that our patented technology is already helping customers reuse post consumer parts in refurbished products.
- This maximizes the length of time until UEI's customer parts become waste.
- Since 2016 UEI has been supplying customers with fixtures that aid both the end-of-life recycling and refurbishment process.



UEI's patented design for disassembly allows our customer to easily separate our remote control aiding simple EOL recycling.

Thank you!

