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PULPER REJECT (030307) AS RAW MATERIAL

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PROBLEM

In Slovenia, 14,500 tons of waste classified as 030307 – pulper reject – is generated annually.

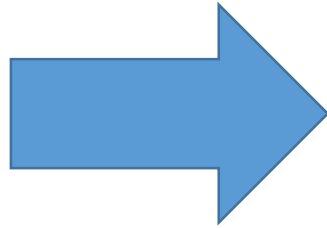
In Croatia, 20,000 tons (last year).

In Toscana, 120,000 tons.

Nowadays the disposal of this waste represents a cost for the paper mills.



TECHNOBELL
TECHNOLOGY



What is Technobell d.o.o

An engineering company specialised in:

- Continuous filament winding Technology for the production of Glass Reinforced Polyester (GRP) pipes.
- Engineering for chemical processes and supply of process equipment; Maleic Anhydride, Phthalic Anhydride
- Resins; Isophthalic, Ortophthalic and Vinylester

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ENGINEERING INNOVATIVE TECHNOLOGIES

TECHNOBELL IS AMONG THE WORLD'S LEADING COMPANIES IN THE FIELDS OF **CONTINUOUS FILAMENT WINDING, MALEIC ANHYDRIDE & PHTHALIC ANHYDRIDE** PRODUCTION TECHNOLOGIES & **RESINS PRODUCTION**.



GRP PIPES PRODUCTION
TECHNOLOGIES



CHEMICAL PROCESS
TECHNOLOGIES



PRODUCTION OF
UNSATURATED POLYESTER
RESINS







20.06.2016





What do we offer for paper industry

A **solution** to use pulper **reject** as a **raw material** in the plastics processing industry.

- End products can be made of up to **100% pulper reject**.
- End products meet all technical norms as regards the required **quality**.
- End products have a market attractive **price**.



How did we come up with this solution?

- In our search for the most cost- and quality-effective raw materials for the Injection Moulding of plastics we identified 4 possible sources.
- One of these is pulper reject.





Why was 030307 not used as raw material in plastics industry up to now?

Pulper reject contains a lot of **moisture** and a large portion of pulp **fibres**.

Plastics, representing 1/3 in the waste, are **non-homogeneous**, which is why they cannot be used on traditional machines for injection moulding of plastic.

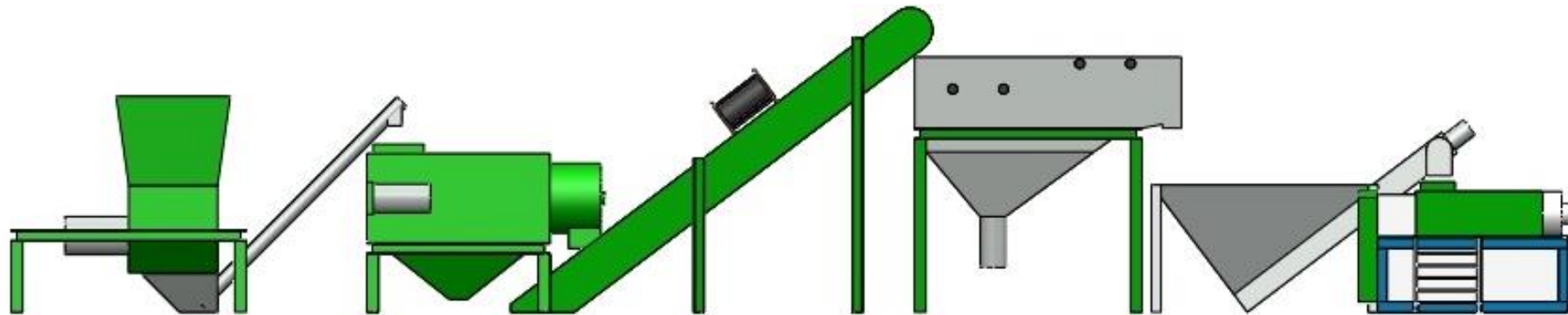


What solution do we use?

- The concept of understanding the plastic needed to be changed. A new paradigm: **plastic as concrete**. There is no need for a raw material to be 100% homogeneous in order to be used in injection moulding.
- Use of **modified** machines for injection moulding that can process **densified** pulper reject as a raw material. Machines are energy-wise and production efficiency.



- In order to use pulper reject as raw material we have to process it into a proper form that can be used on our machines. A major challenge was to construct a durable line that can **cleanse** and **thicken** paper mill waste.



Up to now, similar lines were ineffective either from technological or economical point of view. But a proper combination of know-how from various industries came up with the answer to that problem.



Can every reject be used as raw material for injection moulding machines?

There are two types of rejects:

- rejects coming from recycling '**Tetra Pak**' packaging and
- rejects from recycling **other** pulp sources.

Both types can be used as raw material, but they have different properties and quality characteristics for the users in plastics industry.



'Tetra Pak' reject

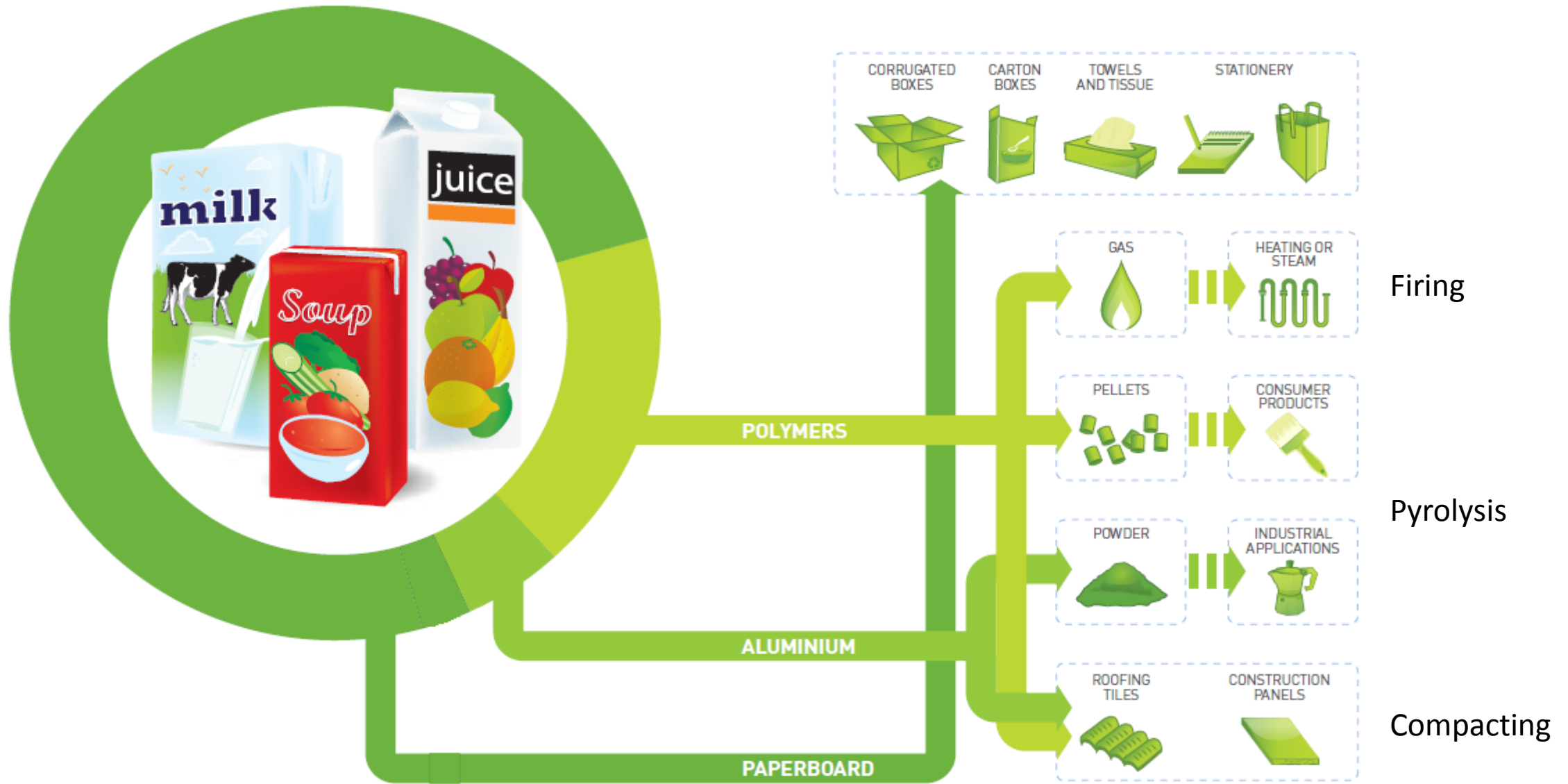
- Paper industry standpoint:

Economic justification for 'Tetra Pak' recycling? 20% recycling waste.

- Technobell standpoint:

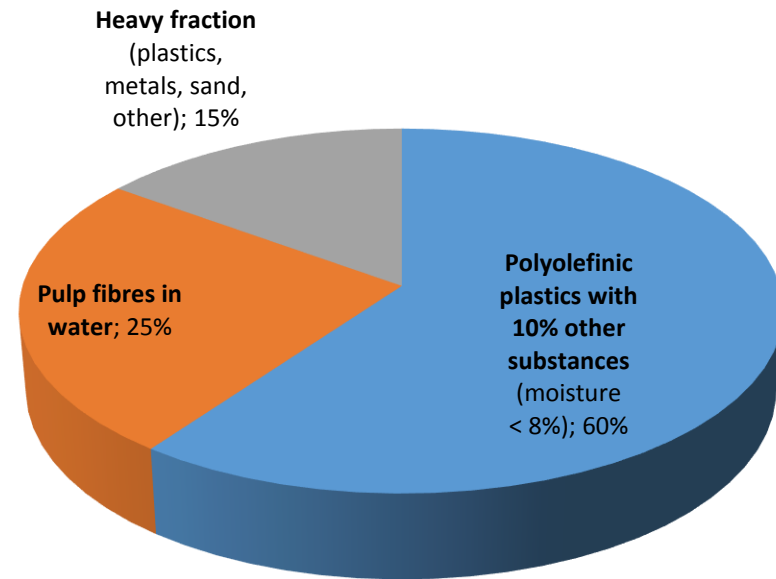
Waste from 'Tetra Pak' is very homogeneous. That is why it is cheaper for processing and it is easier to plan the quality of end products. Other rejects are easier to use as raw material if they are mixed with plastics of higher quality so that proper quality of end products can be ensured.

➤ Community standpoint: **Dead-end** in the development of food packaging?



Benefits for companies generating pulper reject

- **Reduction in volumes of 030307 by 85 - 95%**
- **Potential recovery of fibres from the waste**
- **Getting usable plastic raw material**



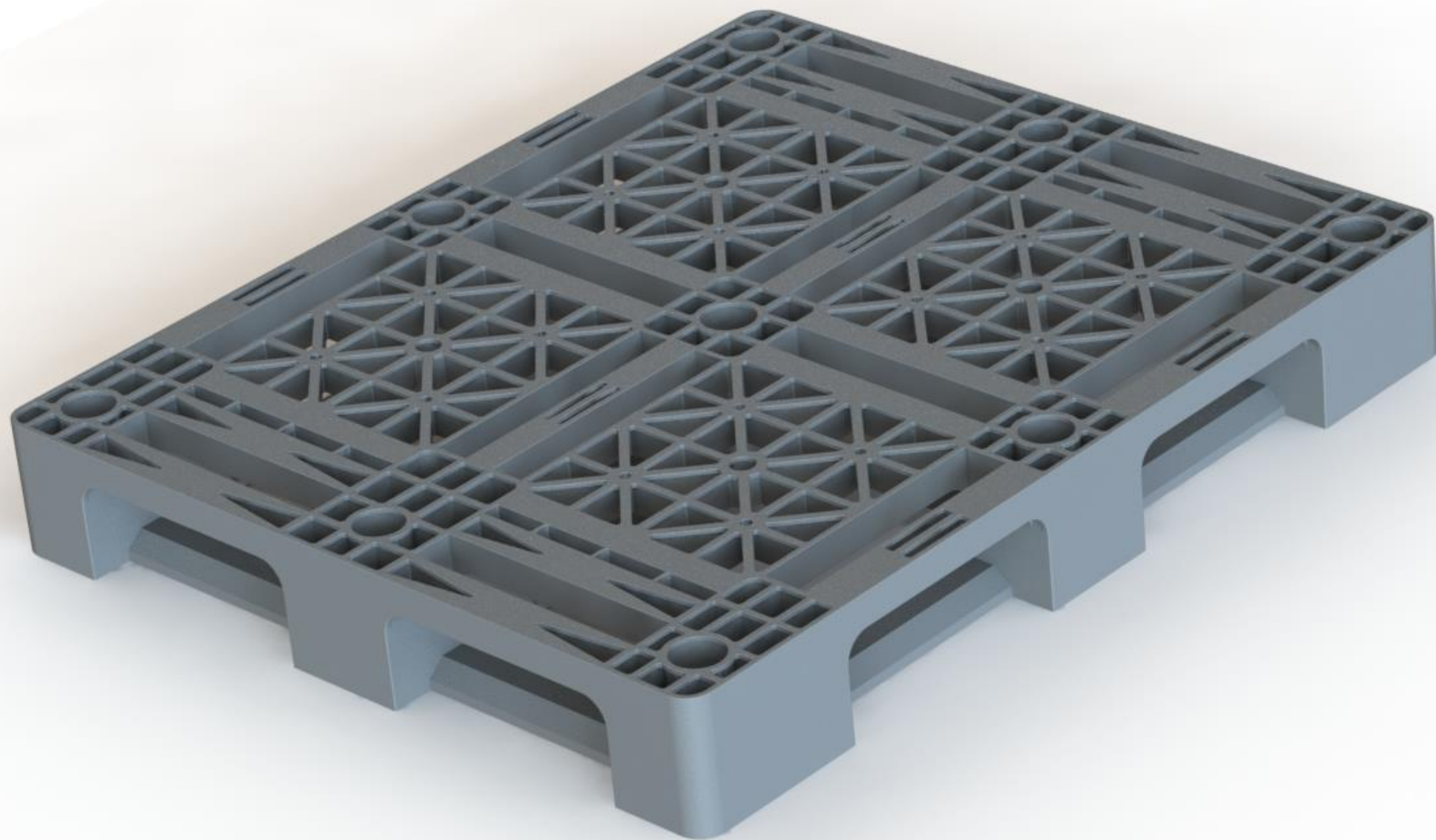


Setting up a line for processing reject into raw material in Slovenia?

- Economically justified.
- Conditions for the project to succeed:
 - To establish raw material users
 - Low price of raw material (transport costs) for end products to be competitive

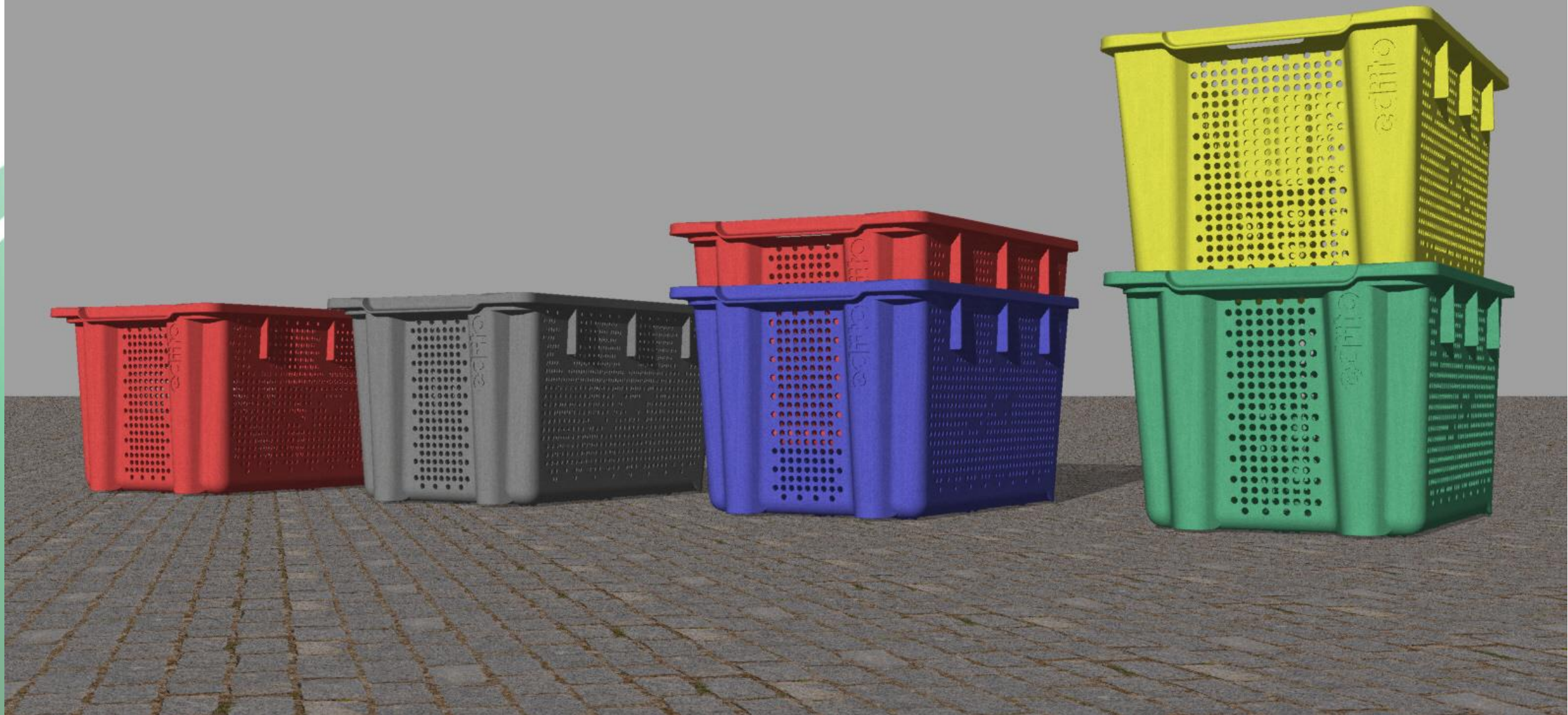


- Technobell expertise on mixing raw materials, designing tools
- Potential products:
 - farming and gardening,
 - urban installations
 - community infrastructure
 - transport





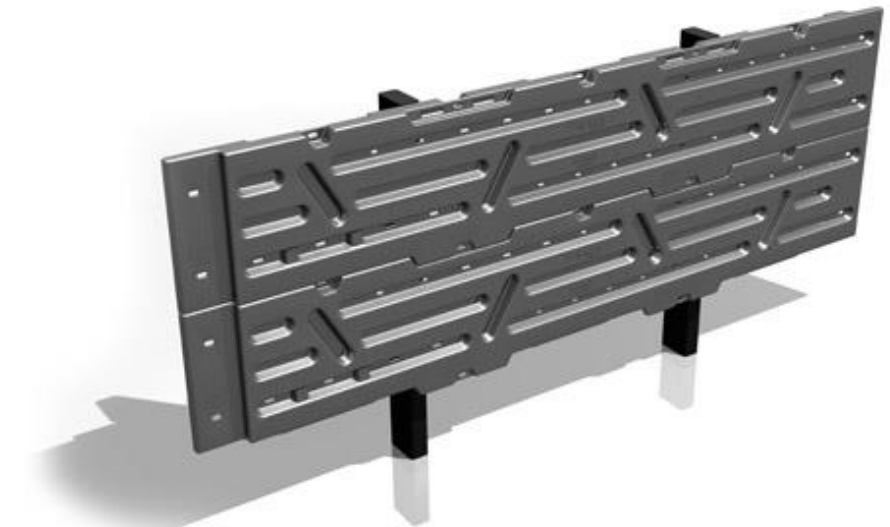


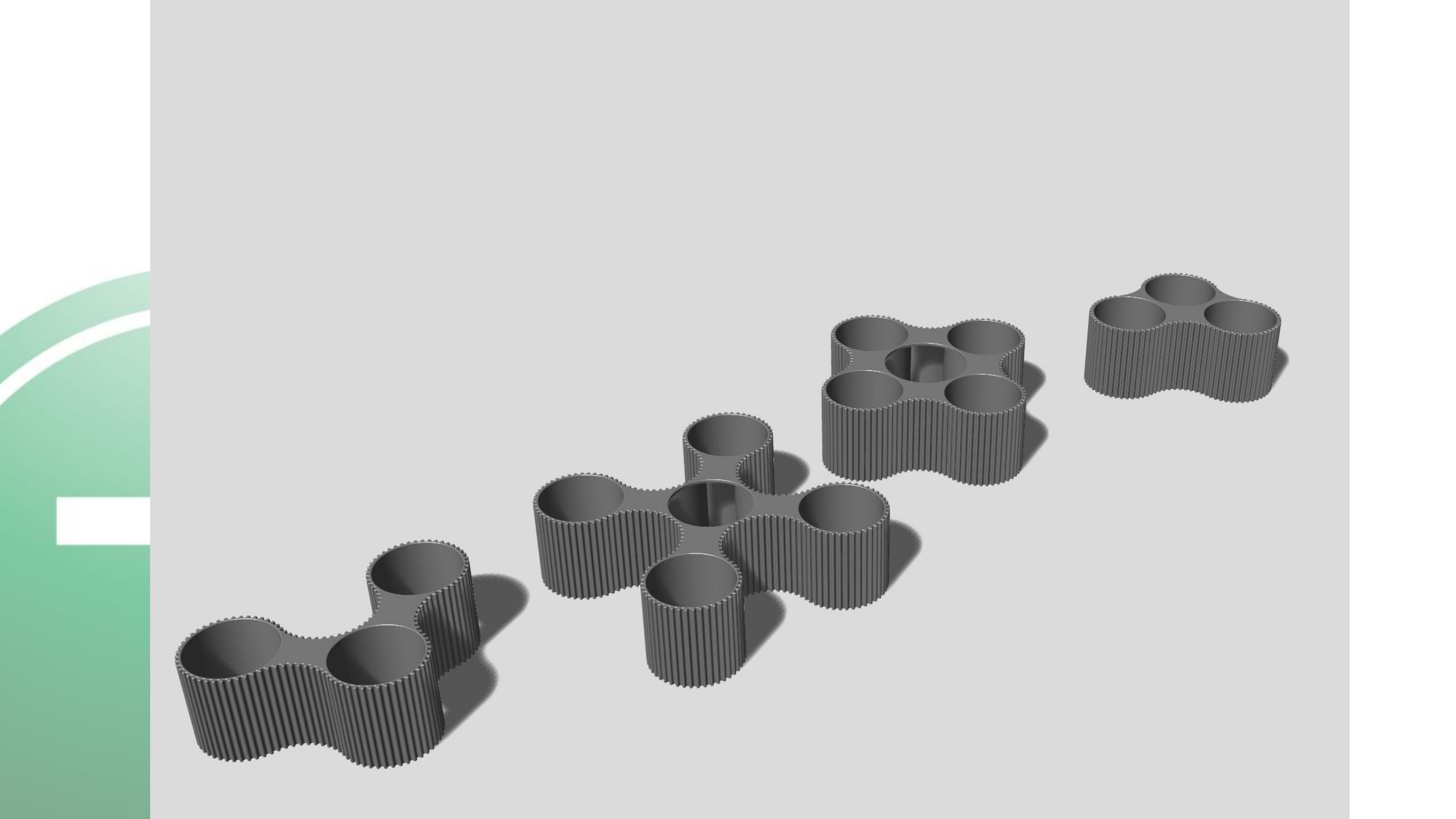


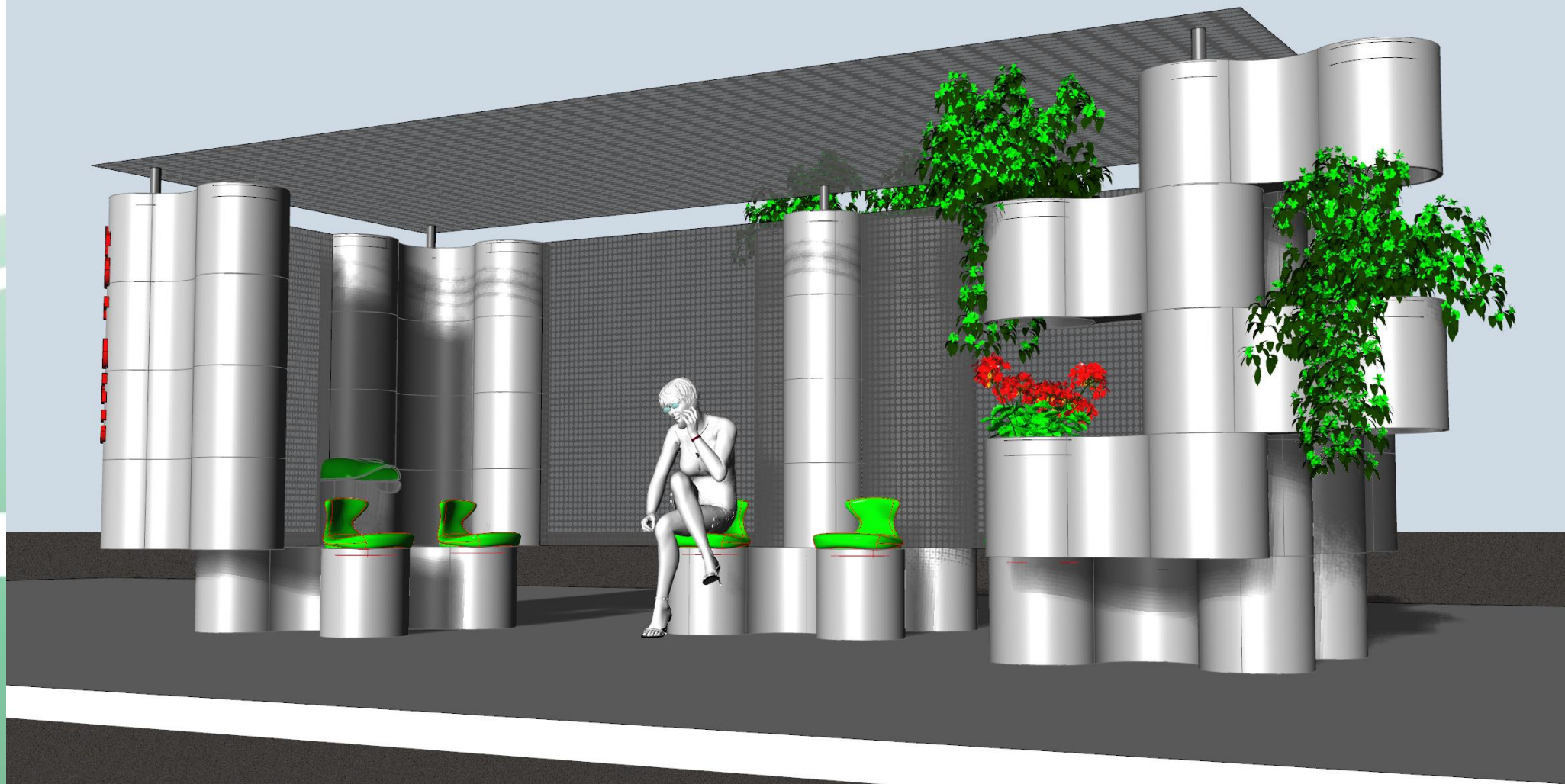


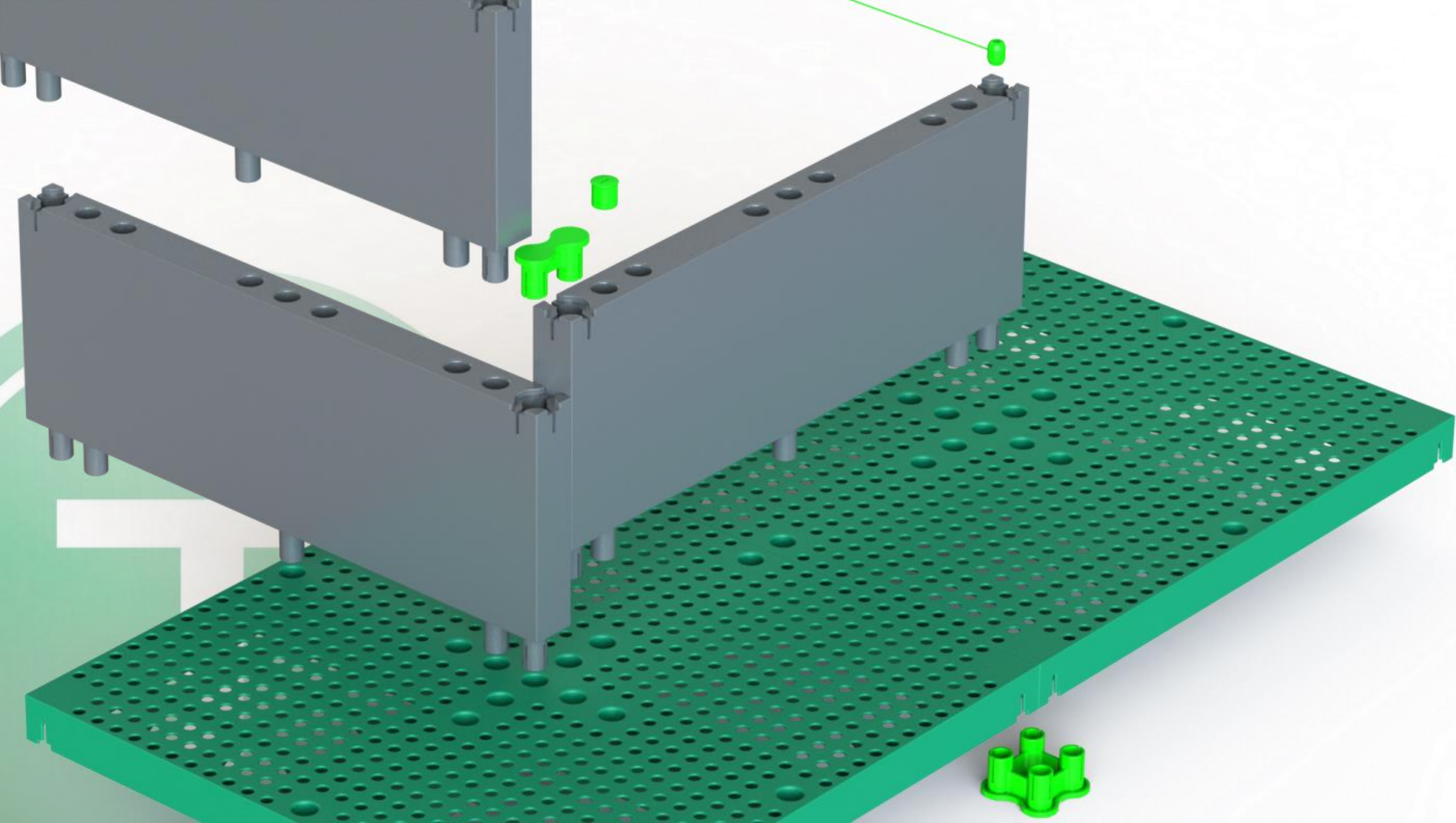
















Thank you for your attention

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