



MUOVITEOLLISUUS RY
COMPOSITES GROUP
Finnish Plastics industries Federation

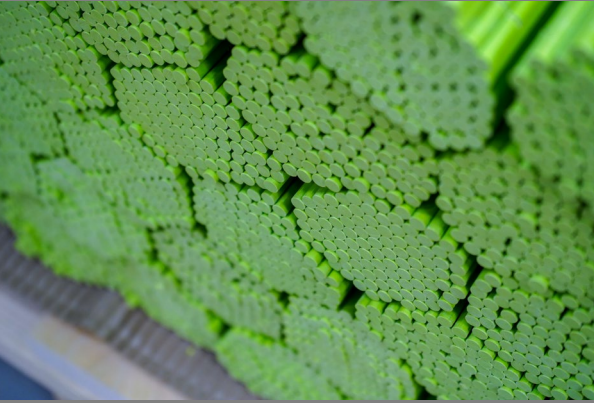
The KiMuRa project

for
Recovering plastic composite waste

a Finnish pilot project to find out:

How to recycle crushed composite waste in a
parallel process in the cement industry

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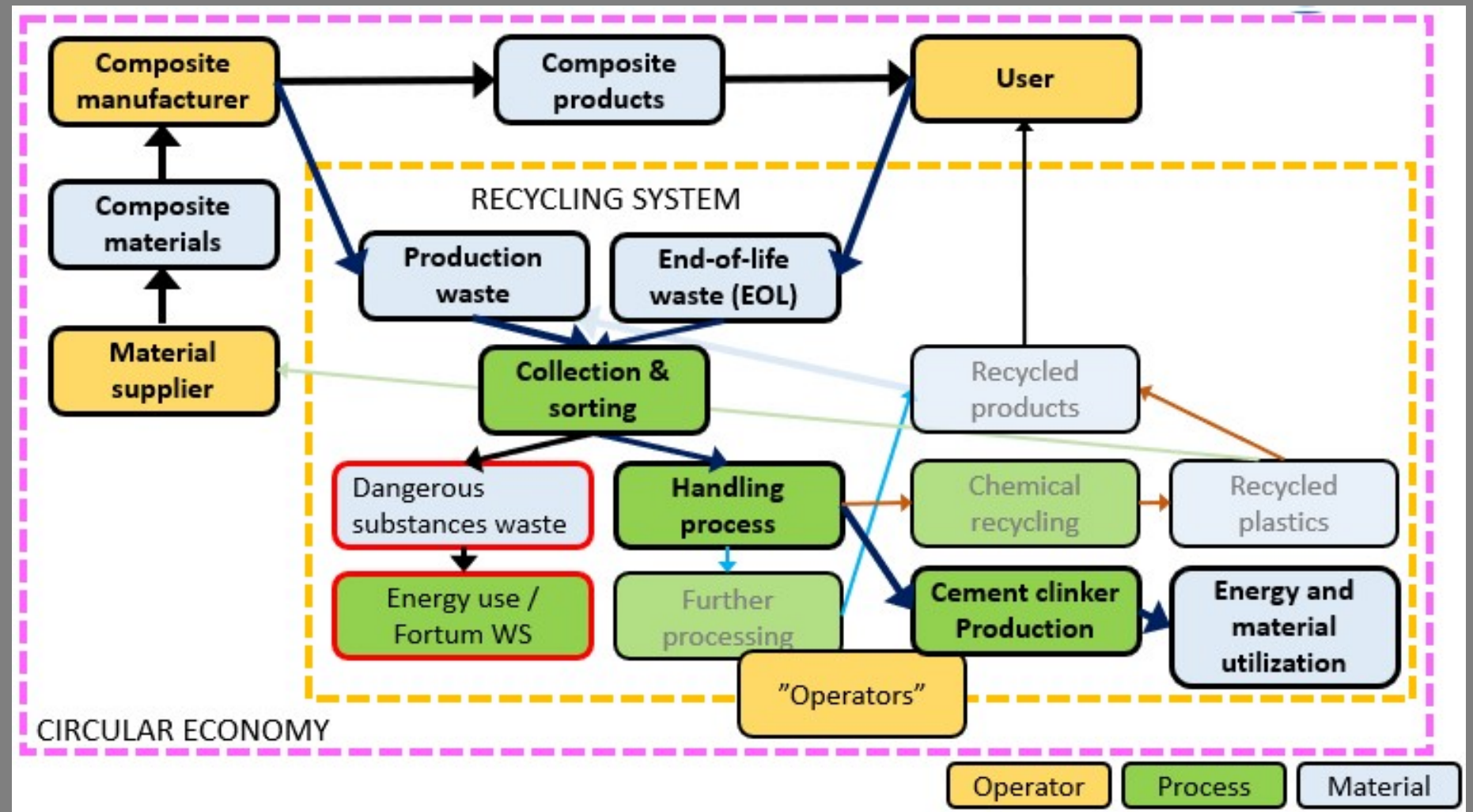


In this presentation

- Circular economy for composites, models & methods
- Sustainable design for composites products
- Recycling technologies/methods

- KiMuRa project
 - KiMuRa name comes from the Finnish words :
 - Kierrätetty Murskattu Raaka-aine meaning Recycled Crushed Rawmaterial

The Circular Economy Model for Composites Products



Sustainable Design of a Composites Product

Sustainable Design of a Composite Product

- a big advantage of products longevity
- reduction of waste generation
- development of materials
- technological development
- design

Sustainable Waste Management

- reuse
- repurpose

Recycling of Materials

Recycling technologies for Composites



- Mechanical grinding
- Pyrolysis
- Electromechanical treatment
- Solvolysis
- Fluidised bed
- Use in a parallel process of cement production

KiMuRa-project

- Goal: to find a technically and economically viable recycling process for industrial composite waste
- Funding from Finnish government (environment) as part of the Plastics Road Map funding
- Time frame: 1.1.2021 - 31.9.2022

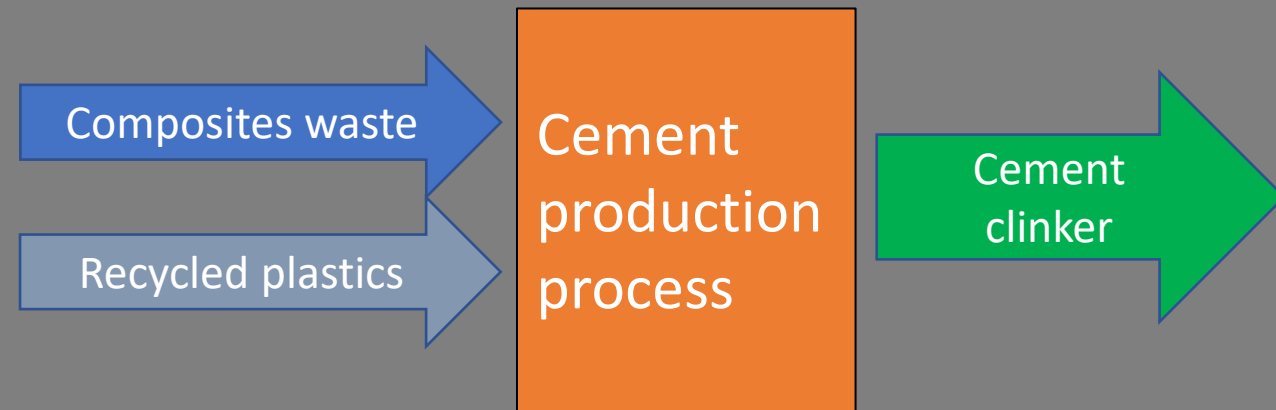
Ekin Muovi Oy, Exel Composites Oyj, Fenix Marin Oy
Muovilami Oy, Muovityö Hiltunen Oy, NCE Oy, Patria
Aerostructures Oy

Kuusakoski Oy, Finnsementti Oy

Muoviteollisuus ry (FIPIF), Finnboat ry
Suomen tuulivoimayhdistys ry, YTP ry

KiMuRa: Partners as Circular Economics Operators

- Collection at Kuuskoski collection plants at
 - Hyvinkää, Imatra, Joensuu, Jyväskylä, Kalajoki, Kuopio, Tampere
- Kuusakoski crushes the material
- Transportation to Finnsementti
 - Quality requirements for COMPO waste
 - Magnitude and uniformity of the waste stream



KiMuRa: Challenges



**Industry / company with
composites waste from
production**

Sorting

Transport to recycling plant

**Industry / company that uses
the circular raw material**

Amount of waste is scarce

Waste is geographically
dispersed i Finland

KiMuRa: Next steps

- Industry / Companies
 - Collect waste according to instructions
 - Arrange transportation to agreed collection points
- Kuusakoski Oy
 - Optimize crushing technology
- Finnsementti Oy
 - Develop dosing technology



KiMuRa: Current Scaling Possibilities

- KiMuRa is ready to take test batches
- Companies / industry outside the project can already deliver composites production waste to Kuusakoski
- EOL-waste
 - Boats and wind turbine blades
 - Dismantling before circulating the composite



KiMuRa: And then what?



- Piloted technically viable logistics ready for recycling composites in Finland
- EOL-waste in the near-by future
 - Wind turbine blades becoming into changover age
 - Collecting and dismantling boats
 - Used containers and pipes
 - Consumer waste



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More information on the KiMuRa project

- [https://www.plastics.fi/komposiitti/kimura -
projektihanke/](https://www.plastics.fi/komposiitti/kimura-_projektihanke/)
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