Towards circularity of Textiles

Lounais-Suomen Jätehuolto Oy
Sini Ilmonen
Public Waste Management Company in South-West Finland

Owned by **18** municipalities

**440 000** citizens and

holiday homes about **40 000**

over **100** employees

Turnover **28 M€**
End-of-life textile from households is a waste fraction under municipal responsibility. It includes both reusable textiles and textile waste. So far it has mainly ended up in energy recovery in Finland.
Vision

To find the best circular solution for all end-of-life textiles collected from households
62 000 t of new clothes and household textiles supplied to Finland. The total consumption, both public and households, is 11.3 kg/capita.
Municipal waste management companies working together
Regional collection and pre-sorting with local partners
Cooperation with charity organizations
All textiles to be sorted with same instructions

Together agreed to collect end-of-life textiles – the message is the same to citizens in whole Finland.

Sorted textiles are transported to LSJH
Contracts and shared costs between MWMC’s

A high-quality collection chain, from households to sorting, prevents textiles from spoiling during collection and enables high-quality textiles in the further processing phase.
2022 – 2023
Nationwide operation model

- National post-consumer household textile collection mandate comes into effect 1.1.2023 in Finland.
- Expansion to nationwide textile collection will be organized in phases by 2023 and negotiations of co-operation with the remaining waste companies during this year.
- Support of KIVO ry.
  - Nationwide communication campaign in fall 2022 is being planned in collaboration with KIVO and municipal waste companies.
  - To secure residents wholistic understanding of sorting instructions and textile collection.
Mutual sorting

Sorting instructions is provided by LSJH. All textiles will be sorted by following Circular Economy principles:

1. Presorting
   • Sort out damaged textiles (mold, dirt, moisture) and remove textiles which don't belong to the collection.

2. Reusables
   • Sort out textiles which are good enough quality for reuse as such.

3. Recyclables
   • Sort out textiles which don't have recycling solutions yet.

4. Material sorting
   • Sort by material content
   • Quality scanning with handheld NIR scanner
Sorting Principles

• Organization of localized presorting close to material sources, when possible
  ➢ to reduce transportation costs
  ➢ to support local employment and infrastructure

• Sorting Hubs?

• Utilizing organizations for co-operation in presorting f.e.
  ➢ workshops and employment services
  ➢ charities

• Creation of wholistic, efficient cross national way-of-working for sorting end-of-life textiles from households

• LSJH involved in supporting the organization of localized presorting.
Professional Sorters

High quality sorting of post-consumer textiles from household for high quality recycled raw materials

- material purity
- reusables - vintage
- recyclables
- elastane content
- color
- texture
Paimio Green Field Circular Hub: pilot facility started operating 11.2021

LSJH´s mechanical opening line operates under the same roof with Rester Oy, which takes care of the B2B sectors textiles. Joint capacity of 12 000 t/a

www.poistotekstiili.lsjh.fi/en
Mechanical opening
Recycled Fibers for companies, industries and research
Materials

Natural fibres
- Cellulose 70/30
- Hand cotton 80 %
- NIR cotton 98 %
- Viscose
- Wool
- Linen
- Denim

Synthetic fibres
- Synthetics mix 70/30
- NIR Polyester/Polyamide
- Knitteds

Mixed fibres

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Topinpuisto end-of-life textile refinement plant

LSJH has received Business Finland funding for larger processing facility in Turku Topinpuisto

End-of-life textile refinement plant receives funding from Business Finland - End-of-life textile refinement plant (lsjh.fi)
Full scale processing plant in Circular Economy center Topinpuisto, Turku 2025?

• Enables the recycling of household end-of-life textiles in Finland (fiber opening capacity 15,000 t/a).

• The investment costs of the processing plant are estimated at €20.5 million (excluding financing costs), BF funding 5.17 millions.

• The direct employment of the processing plant are estimated at 100 to 150 persons / year.
Wholistic solution delivered by municipal waste companies

**Collection & presorting**
- All of the municipal waste companies (during 2022)

**Sorting**
- LSJH quality control
- Local sorting hubs by regional waste companies

**Waste-to-energy**
- district heating plant Lounavoima

**Reuse**
- LSJH own store

**Mechanical processing**
- 2021 processing plant, Paimio
- 2025 national refinement plant, Topinpuisto

**Recycled fiber markets**
Piece of Jeans

Unique denim products from LSJH’s end-of-life textiles
Household post-consumer textiles collected by LSJH are used in the production of Infinna™-fibres. The main ingredient in the new fibres are cellulose based textiles, for example cotton.
Nordic Upstream uses post-consumer textiles in their furniture and wall panels.
Globe Hope makes yoga products from LSJH’s shredded end-of-life textiles and opened fibre.
Jokipiin Pellava

Jokipiin Pellava produces towels, that have utilized linnen from European flax and cotton from Finnish post-consumer textiles.
More information and latest news:
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