Swedish Innovation Platform for Textile Sorting
SIPTex

Telaketju Textile Webinar 13th May 2020
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Sweden's leading organisation for applied environmental and sustainability research
Our vision

A sustainable society

We drive the transition by transforming
• Science into reality
• Environmental problems into opportunities
• Linear processes into a circular economy
Sweden's most extensive environmental profile

Our broad field of skills interact across four thematic areas.

- Stockholm, Gothenburg, Malmö, Fiskebäckskil (Sweden), Beijing (China) and Mumbai (India)
- 330 employees create environmental benefits and value for our customers
The aim of SIPTex

"The aim of SIPTex is to establish a fully automated industrial scale textile sorting facility in Malmö (south of Sweden) and to produce quality assured recycling products for fibre-to-fibre recycling that meet the requirements on the market"
Today’s market for recycled textile fibers

It’s easier to use pre-consumer material

There is almost no recycled material available

No one wants to buy recycled fractions

“What manual sorters offer is often different from what fibre recyclers and producers require”
SIPTex is introducing a new step in the value chain

- Fibre recycling
- Production
- Collection
- Manual sorting

Access to tailor-made incoming material

- Automatic sorting (SIPTex)
- Fibre recycling
- Production
- Collection
- Manual sorting

Access to large amounts recycled fibres with high and consistent quality

Higher profitability with increased amounts recyclable textiles in collected material

Will increase
Project data SIPTex

Funding from Sweden’s Innovation Agency, and their funding program *Challenge Driven Innovations*

**STEP 1 - Initiation**
Describing societal challenge
(2015-2016)

**STEP 2 – Collaboration**
Pilot study and business case
(2016-2018)

**STEP 3 – Implementation**
Full scale operation
(2019-2021)
2.2 MEUR funding + 3.3 MEUR inkind

Project coordinator - IVL Swedish Environmental Research Institute

**Timeline SIPTex 3**

- Procurement
- Construction works
- Installation
- Operation

- Dec ’19
- Now
- sept ’20
- Nov ’21

Support funding from Vinnova

Sysav
Technical data

● Capacity
  ● 8 000 tons/ year with one shift, 24 000 tons / year with 3 shifts
  ● 4.5 tons per hour sorting capacity

● Scanning technic
  ● NIR, (near-infrared radiation) for fibre-sorting
  ● VIS, (visible spectroscopy) for color-sorting
  ● Developed for high-quality and high-speed sorting

● Process
  ● For each textile batch the four scanner programs are matched with the composition of incoming material to optimize the sorting for fibre-to fibre.
  ● For each incoming batch we sort up to 3 fractions by fibre and/ or color.
  ● 4 scanning units (NIR/VIS) installed, 3 for recycling products and 1 cleaning stage for extra quality assurance
"SIPTex has a strong consortium with 21 partners from the whole value chain"
Work packages and activities
Today we handle three categories of inbound material

**TEXTILE FROM INDUSTRY**
Mixed textile material from industries. The material may be of different fiber types; cotton, wool, polyester etc. Size: max 2x2 meters.

**PRE-SORTED TEXTILE**
Sorted textile materials from manual sorting of specific product type, such as broken sheets or t-shirts. The material may be of different fiber types; cotton, wool, polyester etc. Size: max 2x2 meters.

**SORTING RESIDUES TEXTILE**
Sorted textile materials from consumer and industry, for example garments from charities that cannot be reused. The material may be of different fiber types; cotton, wool, polyester etc. Size: max 2x2 meters.

Today we focus on material that does not contain
- Multi layer materials, such as a jacket with a lining. The textiles are scanned on one side and therefore a lining can contaminate the final product.
- Balls of yarn and longer objects that are rolled up
- Upholstered materials, such as pillows and down comforters
- Elastic sheets, since they tend to tangle
- Carpets and curtains
- Textile that are soiled by paint or oil
- Flame retardant treated material
- All material must be clean and dry
SIPTex Sorting programs

- Today we focus on the following fibres
  - Cotton
  - Wool
  - Polyester
  - Acrylic
  - Polyamid
  - Viscose

- Quality
  - Sorting for high quality by fibre and color is what SIPTex does

- Flexibility
  - The sorting programs can and will be adapted to the market demand and specific customer requirements both for fibre content and color
Thank you for listening!

Let me know if you have any questions or are interested in cooperation

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Watch the SIPTex video on Youtube!