

RFID MARKING OF TEXTILES

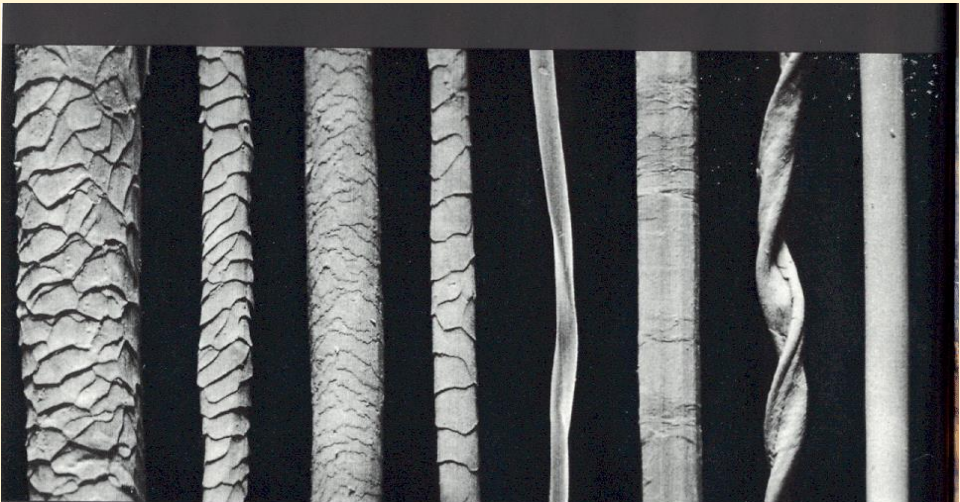
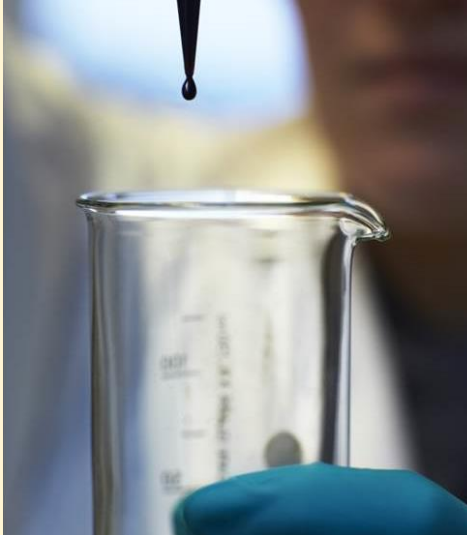
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October 7th 2020

Research Institutes of Sweden

**MATERIALS & PRODUCTION
TEXTILES**



COARSE WOOL

FINE WOOL

ALPACA

CASHMERE

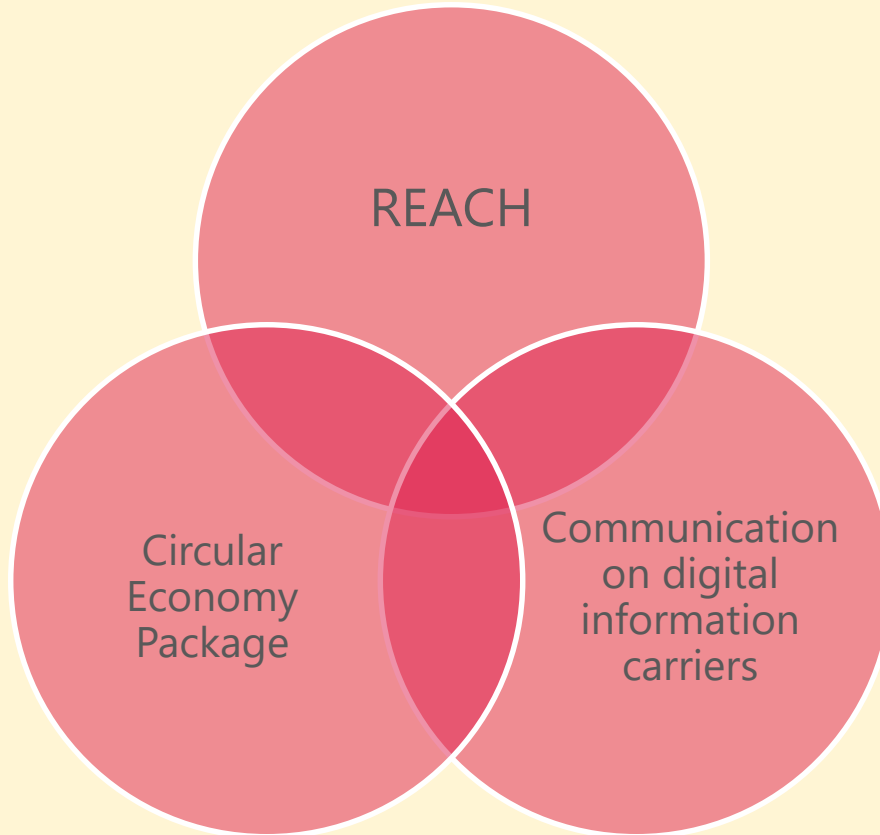
SILK

LINEN

COTTON


POLYESTER

EU-legislation & Communication



What is the challenge around textiles?

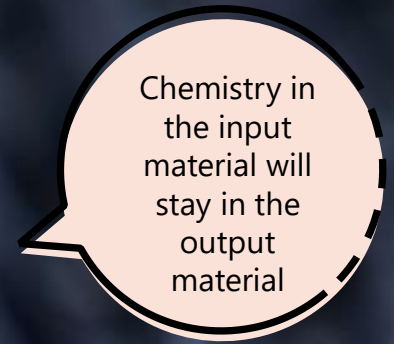
- Complex material stream
- No “one size fits all” solution regarding recycling technologies
- Insufficient knowledge regarding chemical content
- Insufficient transfer of information related to chemical content
- Non-harmonized legislation
- Low competence in regard to chemicals and chemistry



Sorting is done manually today. No information is forwarded relating to garment specifics or chemical content

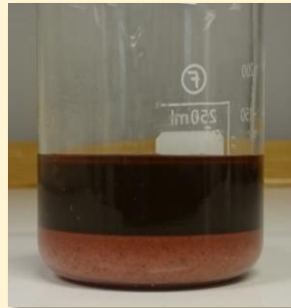
Information is always key!

- Fiber type and fiber blend as well as material construction has a large impact at mechanical processing and for products based on recycled material
- Woven and knit fabric behave very differently
- Quality of input determined quality of output



Many processes under development benefit from transparency and information sharing....

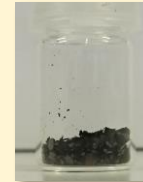
Chemical content can disturb processes



PET monomer



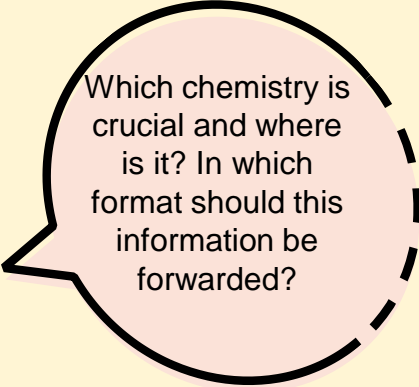
Ethylene glycol



Pigment

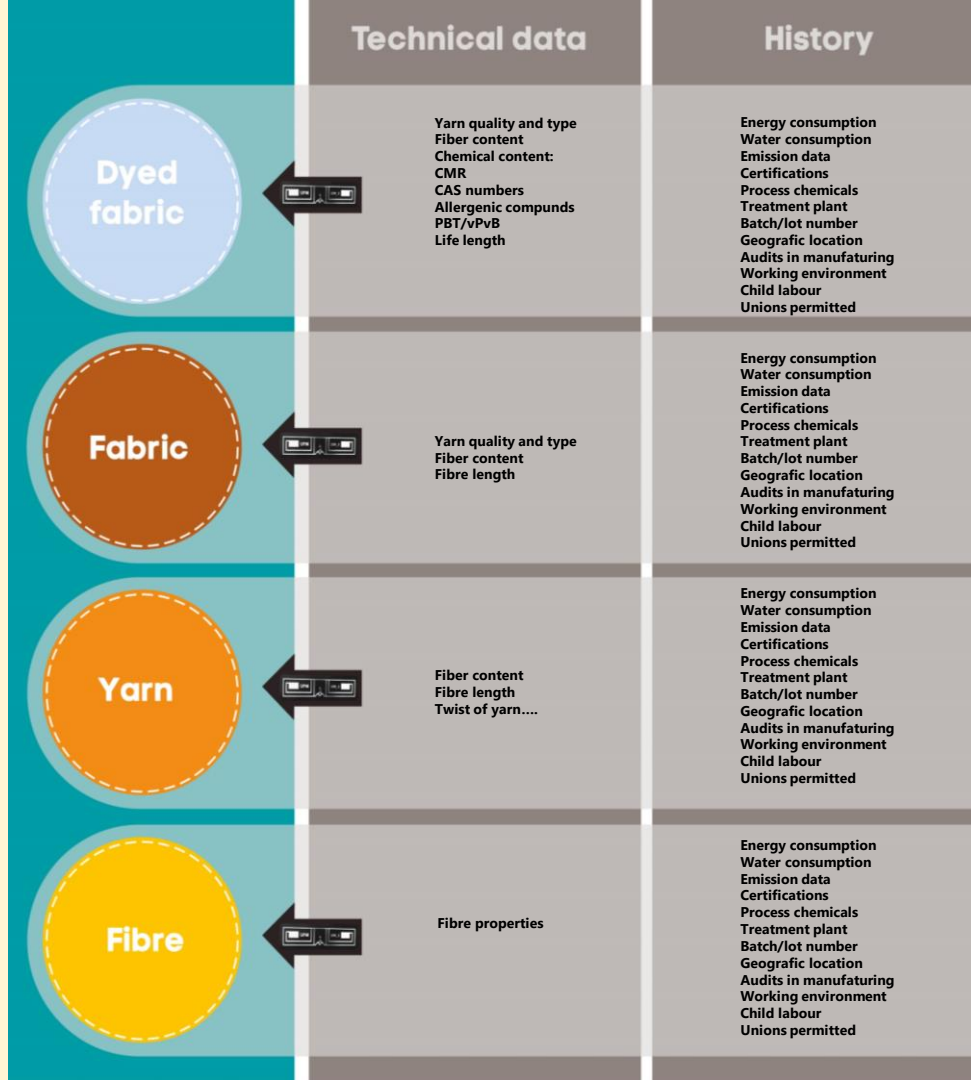
Prerequisites for circulating textile

- Information need:
 - Correct information on fiber type/types and fiber quality, fabric construction
 - Correct information on selected upstream processes and chemical content
- With information access we can:
 - Direct material to the most suitable recycling method and enable effective processes
 - Find the most suitable application for a secondary raw materials



Which chemistry is crucial and where is it? In which format should this information be forwarded?

Digital information carriers are a potential solution



2D-code & RFID data carriers

Different Data Carriers with the same information



(01) 0 7350053 85003 3
(21) 123456



(01) 0 7350053 85003 3 (21) 123456



RFID – Radio Frequency Identification

- **RFID is an electronic barcode but:**
 - Does not need to be “seen” to be read
 - Reads many tags at the same time
 - Reads at high speed
 - Able to read at long distance
 - Able to withstand harsh environments
 - Can store extra information in memory



Dialogue with the Commission and the Swedish Chemicals Agency on RoHS

- Since July 22, 2019 RoHS includes category 11 (catch-all) – implies the need for CE-marking
- Meeting with the Commission - DG Environment, Waste Management & Secondary Materials – on August 26th 2019
- KemI addressed this issue in a meeting with the Commission late 2019
- Ongoing discussion related to product passport, on national as well as European level (Ecodesign directive)
- Addressing circularity as well as the need for non-toxic material and product streams

Tex.IT - Information system based on RFID

- Larger initiative focussing on a system for information access and traceability based on digital information carriers in the form of RFID
- One common system as a *key enabler for closing the loops and allowing effective sorting of textile materials – for reuse as well as material recycling*
- Standardization is a key focus

Partners

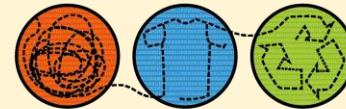
17 fashion brands & label producers

Standardization organisations GS1 & SIS

Trade associations EOG, TEKO

3 Textile producers

3 Work-wear brands



Tex.IT

Data requirements on different levels



Company level



Production level



Product level



Material level



Chemical level



Labelling

Globality & Standards


Very important to work with a common system for structuring information in order to fully utilize this technology - a technology with a large number of possible applications as focus and area of interest differ among value-chain stakeholders

Important aspects:

- *International standardization*
- *Set terminology*
- *Global RFID system*
- *Information management*
- *Access rights*
- *Data security and privacy issues*



Standardization

- SIS /TK 160/AG 9 Textila miljöaspekter 
- ISO TC 38 WG 35
- Opportunity to work on standards for transparency and data sharing
- Great teamwork with SIS and industry partners