

CHEMICAL LEGISLATION AND THE NEED FOR INFORMATION SHARING SYSTEMS

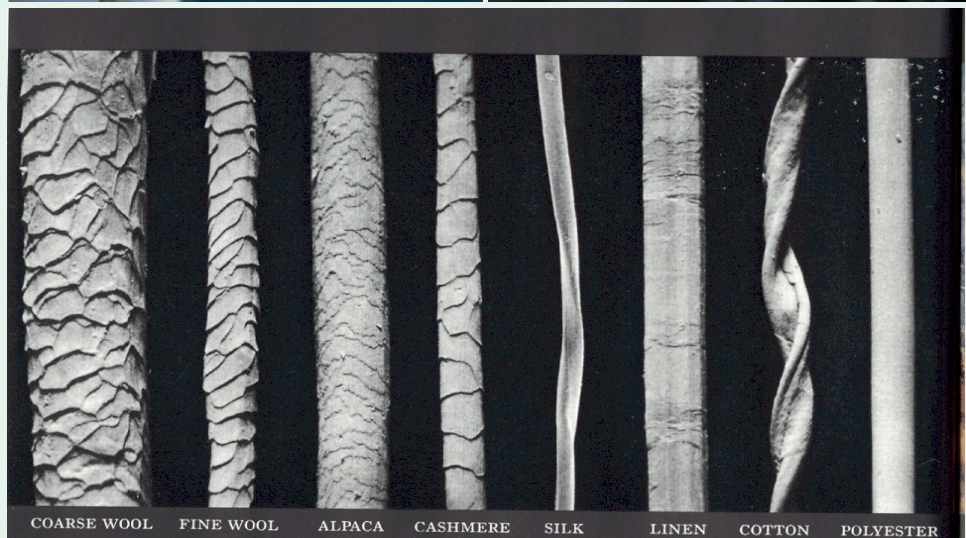
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Research Institutes of Sweden

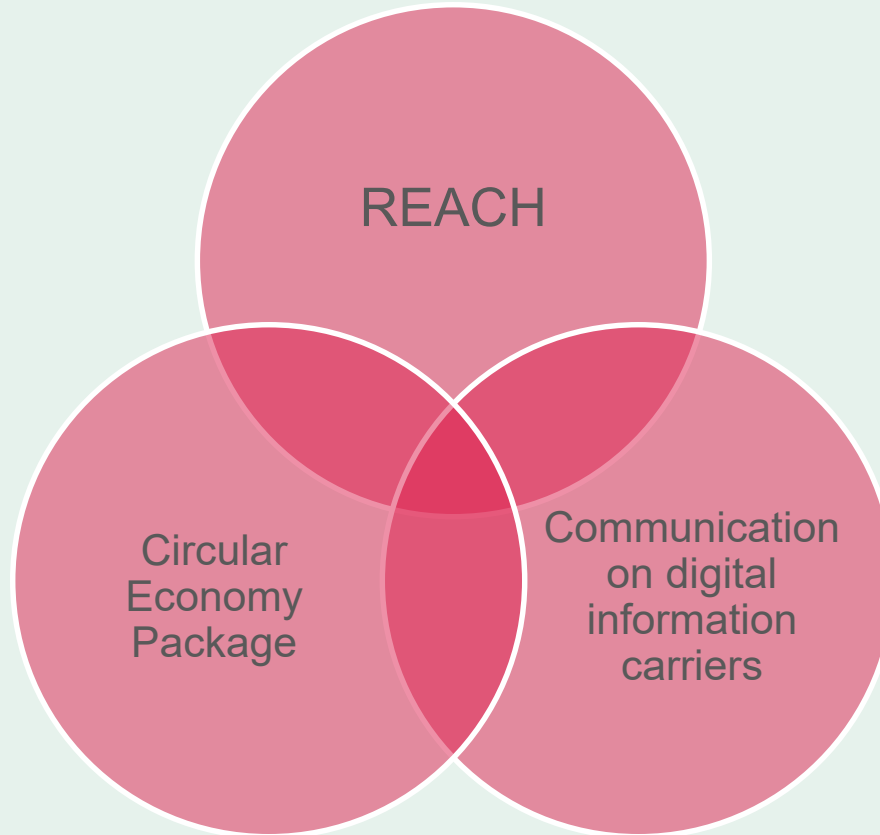
**MATERIALS & PRODUCTION
TEXTILES**





EU and national policy

EU-legislation & Communication





SUSTAINABLE DEVELOPMENT GOALS



REACH-legislation

- The production and use of hazardous chemicals and products are subject to strict EU rules adopted to protect workers, citizens and the environment from harm.
- No data, no market – data access is a prerequisite for a Circular Economy
- X number of restricted chemicals, whereof some relevant for textiles
- Each actor has the obligation to be in possession of information regarding chemical content to be compliant

”In Europe, compliance with chemical legislation is a bottleneck for Circular Economy”

Circular Economy Package – *adopted 2018*

- Textiles shall be collected separately in all Member States by 2025
- The European Parliament has for years advocated re-use and recycling of textile materials
- By 2024, the EC must consider whether targets for textile re-use and recycling should be introduced

Communication on digital information carriers in relation to Circular Economy

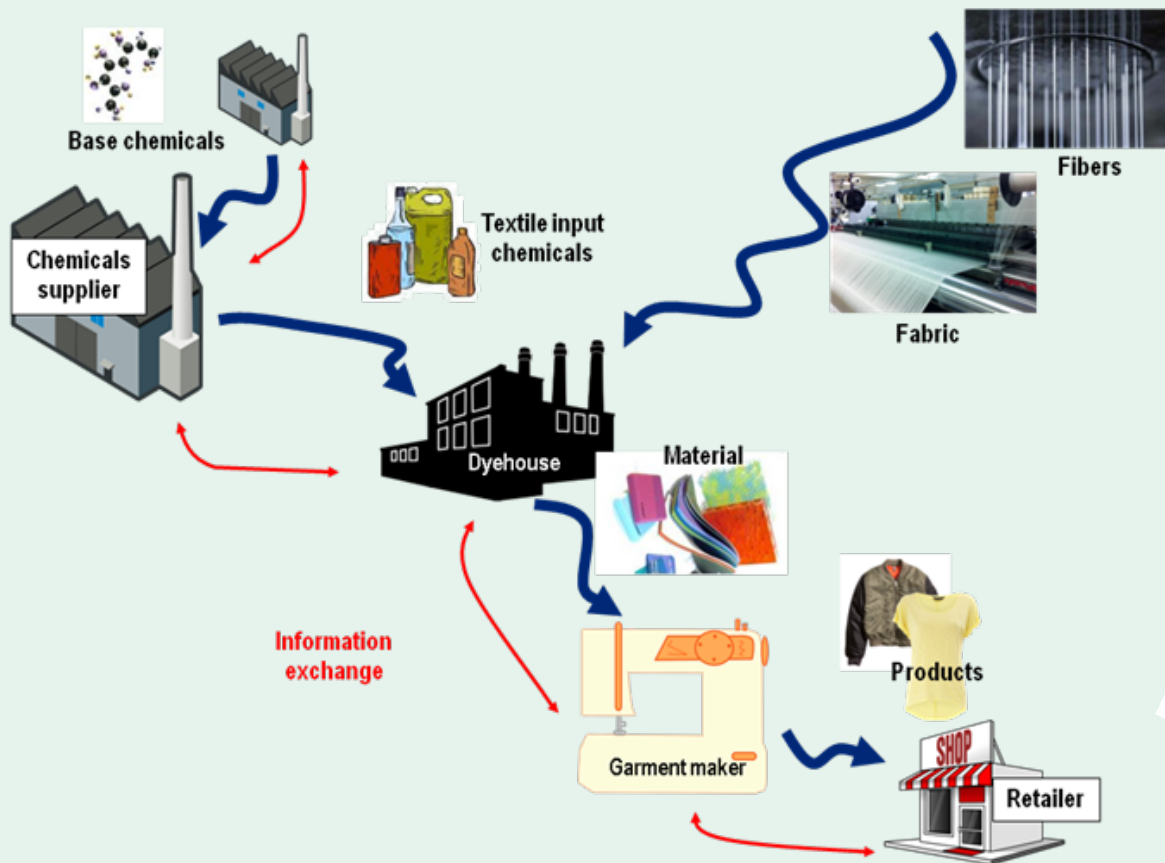
- Communication on the implementation of the circular economy package in regard to options to address the interface between chemical, product and waste legislation
- Highlights the need for information systems, innovative tracing technologies and strategies to share information along value-chains

”

...EPR for textiles will be implemented.

Possible routes to significantly increase reuse and recycling will be sought, involving the textile industry and non-profit organizations”

January-agreement, Swedish Government 2019



- RSL
- Contract
- Audits
- Material testing
- Dialogue
- Collaborations
- Transaction receipts
- SDS – connected to legislation

Dye stuff



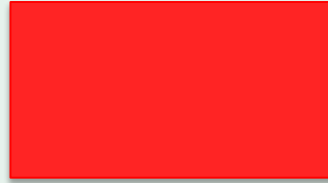
Dispersive Red 4



Dispersive Red 19



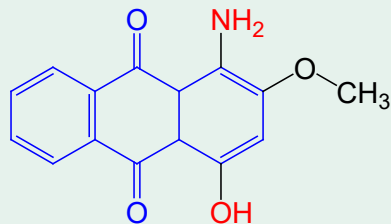
Dispersive Red 60



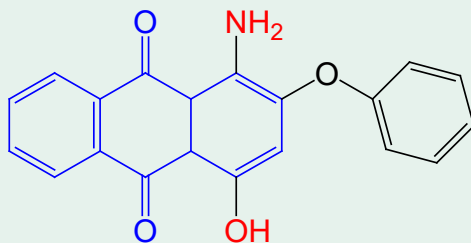
Dispersive Red 153

Chemistry can disturb processes

Anthraquinone

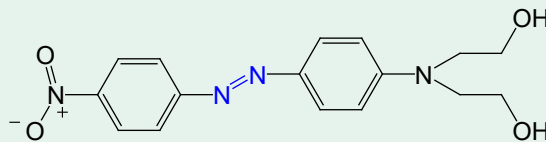


Dispersive Red 4

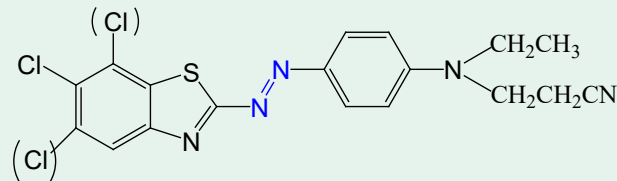


Dispersive red 60

Azo



Dispersive Red 19



Dispersive Red 153

Chemical profiles of selected textile materials

Poly- ester	Azo based dye/pigment	Cellu- lose	Azo based pigment/dyes	Wool	Azo based pigment/dyes
	Optical brighteners		Optical brighteners		Metal organic complex colourants
	Per- and polyfluorinated substances		Per- and polyfluorinated substances		Per- and polyfluorinated substances
	Toxic metals		Toxic metals		Toxic metals
	Alkyl phenols ethoxylates (APFO/AP)		Chlororganic substances		Alkyl phenols ethoxylates (APFO/AP)
	Chlorinated compounds		Non halogenated flame retardants		Silicones
	Biocides		Silicones		Biocides
	Byproducts/Breakdown products		Biocides		Optical brighteners
	Silicones		Alkyl phenols ethoxylates (APFO/AP)		Flame retardants
	Non halogenated flame retardants				

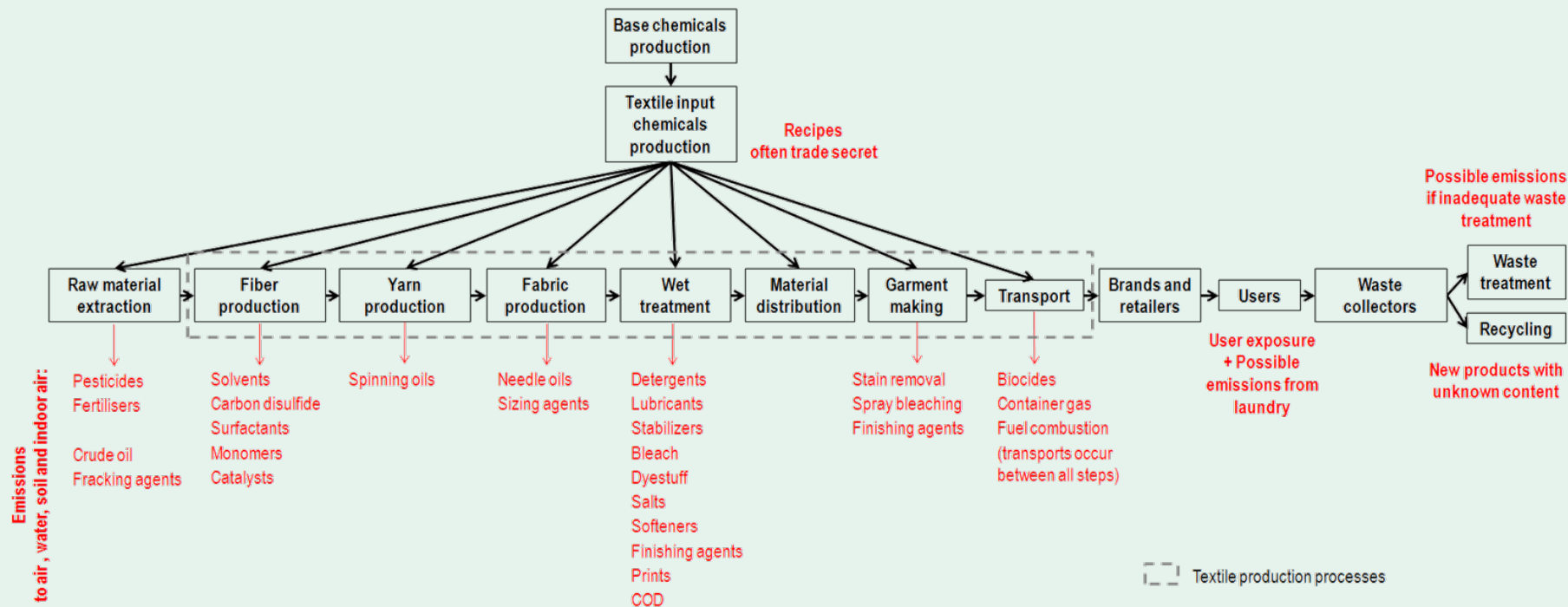


Chemical issues

Raw materials:	Fibre production:	Yarn spinning:	Fabric manufacturing:	Wet treatment:	Drying /finishing:	Garment making:	Transport:
Pesticides	Solvents	Spinning oils	Needle oils	Detergents	Air emissions	Stain removal	Biocides
Fertilisers	Carbon disulfide		Sizing agents	Lubricants	Prints	Spray bleaching	Container gas
Crude oil	Surfactants			Stabilizers	Finishing agents		Fuel combustion
Fracking agents	Monomers			Bleach			
	Catalysts			Dyestuff			
				Salts			
				Softeners			
				Finishing agents*			
				Water emissions			
				COD			

*Finishing agents are e.g. biocides, flame retardants, water/oil repellents etc.

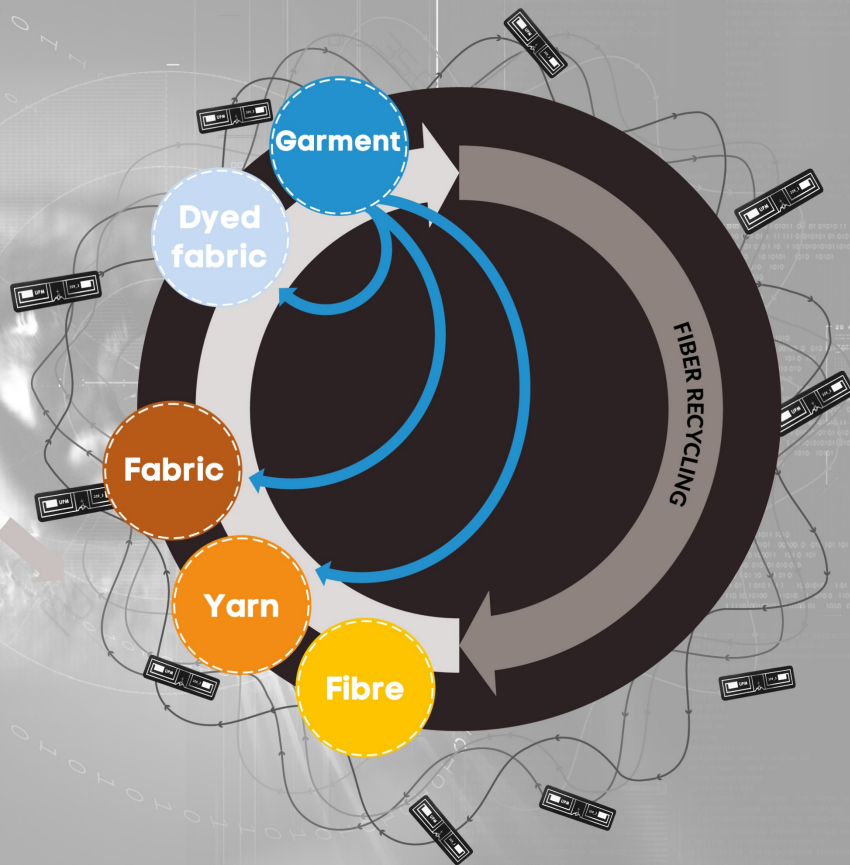
Material flow (& information flow)



LIFE LENGHT

HIGH VALUE

LOW VALUE



Information system

Spinning/
yarn



Weaving/
knitting



Wet
treatment



Garment
production



Retailing



Use



Reuse & Recycling



Fiber
composition,
origin, factory

Textile
composition,
construction,
origin, factory

Surface
treatments,
dyestuffs ...

Brand
information,
article number ...

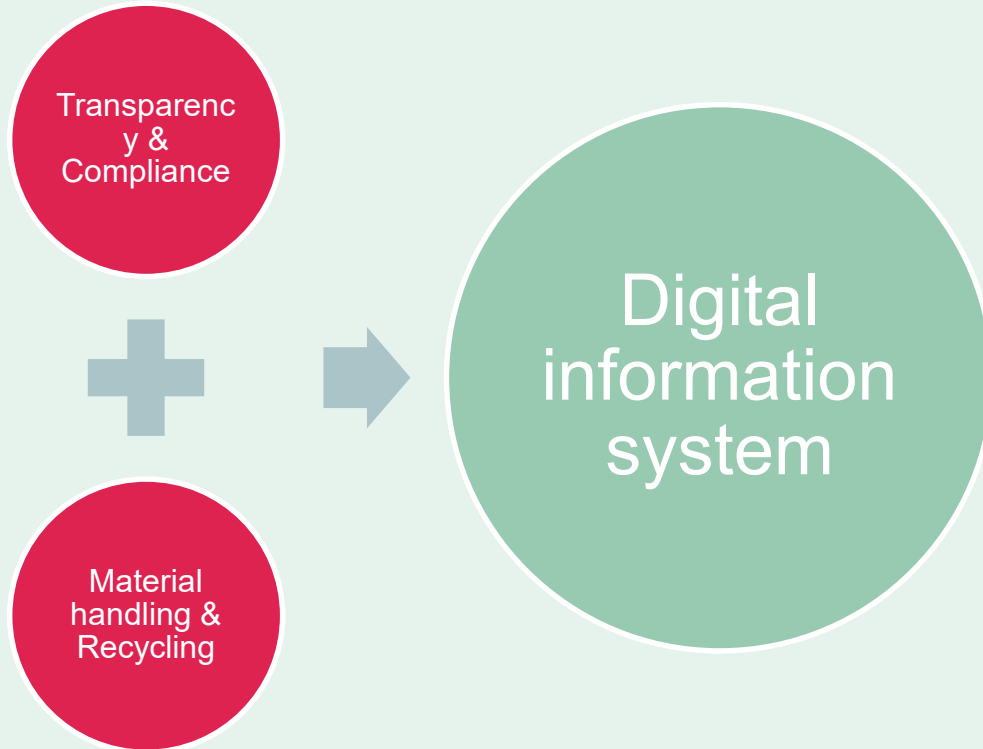
Inventory, anti-
theft,
consumer info

Care
instruction,
producer,
origin etc

Fiber content,
construction,
chemical
profile

Information
sharing

How did we get involved with RFID and digital information systems?



Our journey and experiences

- Information requirements, ongoing work since 15 years
- Started working on system level in 2016
- Proof-of-concept & finding gaps in regard to system approach
- Include the entire value-chain in the work – move in the same direction
- Dialogue and knowledge transfer, consensus
- Include standardization early on
- Visit reality! Know the field you will be working in

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
 - *of great value to all value-chain stakeholders, contributing to logistics, inventory & consumer communication*
 - *as key enabler for closing the loops and allowing effective sorting of textile materials – for reuse as well as material recycling*
- Standardization is invaluable

Partners

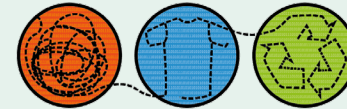
17 fashion brands & label producers

Standardization organisations	GS1 & SIS
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Trade associations	EOG, TEKO
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3 Textile producers

3 Work-wear brands



Tex.IT

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*
- *Global RFID system*
- *Information management*
- *Access rights*
- *Data security and privacy issues*

<https://www.sis.se/nyheter-och-press/nyheter/standardisering-ska-minska-miljopaverkan-pa-textil/>

