Microplastics from textiles

Findings so far and how to mitigate..

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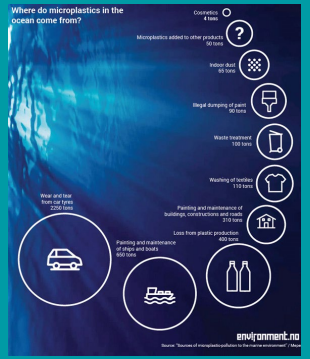
Content

- Short recap
- Findings so far..
- Steps for mitigation

Recap & background



- Textiles is regarded as one of the main contributors of microfibers (fibre fragmentation) in the oceans
- Both cellulosic and synthetic material contributes
- The fragmentation can occur from all phases of the textile life cycle (production, wearing, washing)
- Research concludes that there is currently insufficient data to draw any meaningful conclusions about microplastic fibres toxicity.*

*https://euratex.eu/wp-content/uploads/CIA-brochure-FIN.pdf

Consumers

- Buy good quality
- Use our bought clothes longer
- Filter solution for domestic washing machines – pass/fail level incl standard method?
- Washing (*only considering retention of fibres – not energy*)
  - Full machine
  - Short wash programme
  - Tumble drying

ZERO MICROPLASTICS CHALLENGE 2020

TextileMission

https://textilemission.bsi-sport.de/en/

Design &production

2 myths

- Fleece is automatically always worse than plain weave **False!**
- Recycled material is always worse than virgin material **False!**

- Many steps of interest (construction, dyeing, mechanical finishing, cutting)
- Water treatment (which is switched on!)

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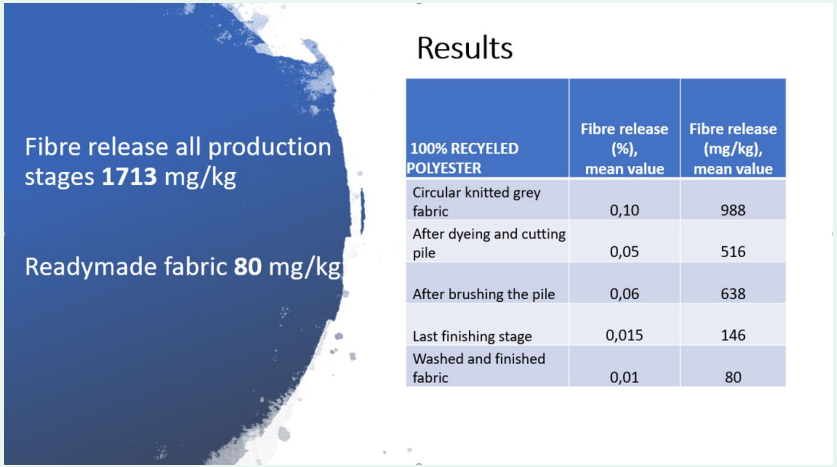
Example - brushing one or two sides

Polyester single jersey 225 gsm	Fibre release (%), mean value	Fibre release (mg/kg), mean value
A. Brushed one side (One side light brushed)	0,12	943
B. Brushed two sides (One side light brushed+ Top Peach Finish)	0,25	3344

Example – finshing steps



Results

100% RECYELED POLYESTER	Fibre release (%), mean value	Fibre release (mg/kg), mean value
Circular knitted grey fabric	0,10	988
After dyeing and cutting pile	0,05	516
After brushing the pile	0,06	638
Last finishing stage	0,015	146
Washed and finished fabric	0,01	80

Project – Herewear

WWTPs

- Reduction up to 95-99% with the latest technique (pore size imortant)
- Very small particles (< 10 µm) is difficult to catch
- Elevated concentrations of microplastics have been found in waters close to WWPTs
- High concentrations in production countries

Overflow!

Moving forward..

- No simple solution – all parties need to do their part
- Scientific approach
  - New standard for assessing fibre fragmentation from textiles CEN/TC248/WG37, prEN ISO 4484-1
- Mitigation as close to the source as possible
- Regulations, incentives and labelling
- Looking into to collaboration between large point source polluters and WWTPs
- RISE will continue to collaborate with CIA (Cross Industry Agreement) and TMC (The Microfibre Consortium) and investigating production steps in the EU-project HEREWEAR

Thank you for your attention!

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