

# TRASH CASH

PRESS RELEASE:

10 October 2018

## Residual Colour; O° Shirt

- From Coloured cellulose textile waste regenerated through the Ioncell Process
- Into zero waste Novel fashion shirt
- Overcoming problem of dyes during chemical recycling, dyes remain during the recycling process



The Trash-2-Cash project utilised textile waste streams as a sustainable feedstock for recycling into man-made fibres. Textile waste often contains a complex mixture of unknown colouration and finishing chemicals which is problematic to the fibre regeneration process. During chemical recycling of cellulose these unknown chemicals pollute the dope during fibre regeneration stages; the dope is developed when the textile waste is mixed with an ionic liquid to create a cellulose solution from which cellulose filaments are extruded and staple fibres then cut. If the dope is polluted more waste rather than new fibres is created.

Currently the only way to prevent the pulp being polluted is through bleaching textile waste before the fibre regeneration process stage. In terms of colour this means dyes are removed from waste textiles to be reapplied once fibres have been regenerated. The Trash-2-Cash consortium identified these additional processing and chemical application stages increase the environmental impact of the recycled cellulose fibres being produced.

Designers from Grado Zero Innovation & University Arts London were keen to explore the problem of colour in chemical recycling of textile waste through



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collaborating with scientists using the ioncell process, developed by the research of Prof. Herbert Sixta's research group from Aalto University. The ioncell process is a sustainable technology that turns cellulose pulp, used textiles, or even old newspapers into new textile fibres without using any harmful chemicals, the ionic liquid used in the ioncell-F process is an environmentally friendly and inherently safe alternative to the solvents used in current man-made cellulosic fibre production processes.

The Trash-2-Cash collaboration have developed design and technology methods that enable certain types of dyes to be preserved during the ioncell process. This means colour does not need to be removed prior to chemical recycling and no additional dyes are required following fibre regeneration at initial production stages as residual colour embedded within textile waste can be utilised in the products produced from the regenerated fibres.

0° Shirt demonstrates the design and technology methods developed, the shirt links the technology advances with a design design strategy that extends the life of the garment through a recoloration service using dyes that can be preserved at regeneration. Through changing it's colour the shirt can be worn and used for a longer period of time before it is finally recycled using the developed method for residual colour. Life cycle assessment results along side prototype samples & technical information will be presented at our showcase at **Klokgebouw** during Dutch Design Week 2018, you can see for your self if this process has the potential to revolutionise chemical recycling of coloured textile waste!

For more information about Trash 2 Cash go to [www.trash2cashproject.eu](http://www.trash2cashproject.eu)

Ends



NOTES TO THE EDITORS:

## **18 partners in 10 countries turning textile waste into new high-value products**

Trash-2-Cash is an EU funded textile research based project centred around fibre-regeneration in the circular economy. Taking waste and making new fibres is the project mantra. 18 partners across 10 European countries in the fields of science, design and manufacturing collaborate together.

Cotton and polyester, mainly in blends, make up 80 percent of fibres used globally. Both industries present serious environmental problems, many of which are in developing countries. With global



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textile waste doubling annually in volume in many areas of the developed world, the T2C consortium believe fibre regeneration in tandem with recycling can help to address most of these issues.

## The Vision:

The Trash-2-Cash project aims to progress us towards the sustainable textile industry of the future, one that benefits both people and the planet. Growing problems with paper fibre waste from the paper industry and textile fibre waste, originating from continuously increasing textile consumption, is being challenged through design-driven innovation.

***“All the clothes that we throw out and fibres wasted in production are actually a valuable resource that we can’t afford to discard. This project gives us the opportunity to challenge that.”***

*Emma Östmark, RISE Research Institutes of Sweden*

Every year we throw away over 3 million tonnes of textiles in the EU28 countries. In this unique collaboration between designers, scientists and manufacturers, the EU-funded Trash-2-Cash project tackles the growing problem of textile waste by thinking through design and developing state-of-the-art fibre recycling methods, to create profitable new high-performance fibres.

## Collaboration is Key:

Designers, design researchers, scientists, raw-material suppliers and end-product manufacturers from across Europe make up this cross-disciplinary and cross-sectorial consortium. 18 partners, from 10 countries, are working on this Design-Driven Material Innovation (DDMI) project, where the whole supply chain is represented. Having all of these specialists on board means that new fibres can be spun and woven, knitted or formed into textiles and hard materials, which can then be made into innovative new products.

## User Needs First:

The partners are working together to develop state-of-the-art textile recycling technologies to produce new fibres that are ‘designed’ for the kinds of products people want.

***“The new Trash-2-Cash fibres will not only be ‘made from waste’ but will be created to be used appropriately and fully before going into future recycling processes. We’re using less harmful processes for people and the environment, and we’re designing-in performance so that these fibres offer a full package for consumers and the environment.”***

*Prof. Rebecca Earley, University of the Arts London*

## Made for Future Recycling:

Together the collaborators are defining material properties and evaluating newly developed eco-efficient cotton fibre regeneration processes and polyester recycling techniques. Novel materials are being constructed in order to generate new textile fibres and other products that will be compatible with the environment for a sustainable future. Prototypes – for high quality fashion, interiors and



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automotive contexts – are currently being developed to be produced in a realistic test production environment.

#### **New Models:**

The T2C team is not just aiming to create amazing new regenerated fibres, it is also pioneering 'Design-Driven Materials Innovation' a whole new approach to developing materials. In many ways the team see this as the legacy offer – a model for other creative designers to work in collaboration with science and industry to create sustainable change.



#### **Trash-2-Cash project statistics:**

Total budget: 8,928,994.75 €  
EU Contribution: 7,933,461.00 €  
Duration: 42 months  
Start date: 1 June 2015  
End date: November 2018  
18 partners from 10 countries  
9 work packages (WPs)

**[www.trash2cashproject.eu](http://www.trash2cashproject.eu)**



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