Strong sewing thread made of compostable material

Summary

A Swiss company has launched its first compostable clothing line. In order to achieve compostability for a piece of clothing, the guidelines for design and production are very strict. As a consequence of these guidelines, the company is looking for a sewing thread with the strength and properties of polyester. The company is seeking partners who have the know-how for this kind of sewing thread. Commercial, technical or research agreements could be possible.

Creation Date	06 July 2016
Last Update	26 June 2017
Expiration Date	03 January 2018
Reference	TRCH20160706001

Details

Description

A Swiss company recently launched its first compostable clothing line with t-shirts, pants and shirts. In order to achieve compostability for a piece of clothing, the guidelines for design and production had and have to be very strict. They managed to find a compostable sewing thread, but up to this day it is not as strong as a standard polyester sewing thread.
They are now looking for know-how or technologies with properties and strength matching polyester. The technology or know-how to apply should not compromise on the compostability of the clothes.

The existing clothing line has following characteristics:

Grown in Europe
The fabric is made from bast and cellulose fibres grown in Europe like Tencel or Modal, a cellulose fiber produced from raw material wood or wood pulp designed to minimize environmental impact. Producing these native fibres protects the soil and requires much less water than cotton which is easier to process.

Other fibres fitting the same criteria (low footprint, European, biodegradable) would be possible. Plant-based fibres are preferred and production has to be in Europe according to the concept of sustainable development of the company.

Short transport routes
Compared to common textiles, the path from fibre to product is a short trip. The various production steps for the fabric take place at a distance of maximum 2’500 kilometres (1’600 miles) from Zurich.

Not toxic
While flax and hemp cultivation requires almost no pesticides, they also use as few chemicals as possible when further processing bast fibres. The company avoids bleaching altogether. This

means that the fabric may also be recommended for babies and infants without any restrictions. This is the conclusion reached by Oeko-Tex® Standard 100 (product class I), an independent control and certification system.

Factory proof
Fabrics and garments have to be long-lasting and sturdy. The Swiss company uses it as workwear in the factory and also at the bar after work. The employees subjected all fabrics and products to strict testing, also taking style into account.

For the compost
The fabric satisfies the toughest factory requirements and yet is 100 % biodegradable in compost within just a few months.

Background of the company
The company is design driven and a pioneer in its area. Several products of their other product line are exposed in well-known museum collections. Products can be purchased world-wide.

Cooperation
The company is looking for partners or research partners who have either the know-how or are willing to develop it together with the company respectively with a thread producing company. The company believes that the solution could come from the textile sector but more likely from other industries like e.g. bioplastics.
Following cooperation types might be considered:
- Commercial agreement with technical assistance: with a partner that offers the suitable solution
- Technical cooperation agreement: with a partner who has a solution which has to be adapted to the requirements of the Swiss company
- Research cooperation agreement: with a research partner to develop the solution as no existing solution is available

Technical Specification or Expertise Sought

- Strength equals polyester
- The solution has to be washing machine proof
- Available in various diameters on standard production spools
- Possibility to dye with GOTS or Oeko-tex low impact colours
- The end solution – the new thread - has to dissolve completely in regular compost within a few months. = Cradle to Cradle approach
- If possible, the solution should be vegan

Keywords

Technology

02007018	Advanced Textile Materials
02007020	Biobased materials
03005005	Non weaving related to Textiles Technology
03005007	Textile fibres
10003001	Biotreatment / Compost / Bioconversion

Market

07004001	Clothing, shoes and accessories (including jewellery)

09004003	Textiles (synthetic and natural)

NACE

C.13	Manufacture of textiles
C.15.1.2	Manufacture of luggage, handbags and the like, saddlery and harness
G.46.1.6	Agents involved in the sale of textiles, clothing, fur, footwear and leather goods

Network Contact

Issuing Partner

ASTER - SOCIETA CONSORTILE PER AZIONI

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Open for EOI : Yes

Dissemination

Send to Sector Group

Environment

Client

Type and Size of Organisation Behind the Profile

Industry SME 50-249

Year Established

1993

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
Swedish
German
French

Client Country

Switzerland

Partner Sought

Type and Role of Partner Sought

The specific area of activity of the partner:
For all the three cooperation types the sought partner should be active in the production of sewing threads and meet the above mentioned criteria (in research stage or further developed).

The tasks to be performed by the partner sought:
- Commercial agreement: Provide the suitable solution.
- Technical cooperation agreement: Adapt an existing solution to the required specifications of the Swiss company.
- Research cooperation agreement: Develop the suitable solution together with the Swiss company.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Commercial agreement with technical assistance
Technical cooperation agreement
Research cooperation agreement

Attachments

Indicator washcloth to detect irritating agents in personal care products

Summary

An Austrian research institute has developed an innovative, cost-effective, ecological washcloth featuring an indicator which changes colour from green to red if an irritating (alkaline) washing agent is used. The washcloth is useful for infants with highly-sensitive skin, for those with dermatitis/other skin conditions and for the elderly. The research institute seeks partners for licence/commercial agreement, in addition to those interested in further technical development and manufacturing.

Creation Date	20 July 2016
Expiration Date	25 July 2017
Reference	TOAT20160719001

Details

Description

The research institute develops solutions and technologies for businesses and industries across a wide range of sectors and conducts top-level research at an international level. It has developed a specialised washcloth aimed at infants, the elderly and those with skin conditions.

The acid mantle of the skin has a pH of around 5.5, which is slightly acidic. This protects the skin against bacteria, fungi and dryness. Therefore, skin-friendly (pH skin-neutral) detergents, shampoos and shower gels have a slightly acidic pH. Soaps and low-cost cleaning products however, are often alkaline (pH above 8), which can lead to skin irritation in both infants and dermatitis patients.

The washcloth is stained with a pH indicator. This indicator shows a colour change corresponding to the pH of the washing solution. Green signifies a pH value in the skin-friendly pH range, while red means that the pH is above 8, indicating that skin irritation may occur. This colour system is more user-friendly and unambiguous than the colour spectrum used with pH strips.

The washcloth is designed exclusively for personal care products. The washcloth may be immersed into the cleaning solution (e.g. in the bathtub), or used in the shower. Personal care products may also be tested prior to use by mixing a few drops of the product with water and dipping the washcloth into the solution. The indicator washcloth only shows the pH value correctly when the measuring area (the coloured heart) is sufficiently wet. Before reusing the washcloth, it should be rinsed several times with tap water to remove any traces of the previous cleaning product. In order to estimate the pH accurately, a colour comparison chart can be used. The washcloth should be washed at a maximum of 60 °C (conventional washing machines) with white textiles only. As the dye is sensitive to UV light, the washcloth should not be exposed to direct sunlight.

The dyeing procedure is practically identical to conventional textile dye chemistry and should therefore be compatible with established fabrication processes. Cotton, viscose, linen and cellulose can be dyed in this way, where dyeing is carried out in an aqueous solution at room temperature. The research institute has developed reactive dyes which form covalent bonds,which are stronger than hydrogen bonds.

The washcloth is specifically aimed at infants, the elderly and those suffering with skin conditions. Parents can get immediate information regarding the pH level of infant care products, thus enabling them to decide on alternatives if desired. In addition, since manufacturers frequently change their product compositions without informing the consumer, continuous monitoring of personal care products is advisable. The washcloth enables those with highly-sensitive skin to control the quality of their personal care products in this way.

The washcloth can also give additional information concerning the textile purging efficiency of the washing machine. If, after machine washing, the damp washcloth is red, then there are still detergent residues in the textile. Thus, the machine washing was insufficient and the textiles may be irritating when brought into contact with the skin.

The Austrian research institute would be open to licensing the product to interested parties with the aim of launching the product on the market, possibly in the form of a commercial agreement with technical assistance. It would also like to hear from partners who are in a position to cooperate on further development of the technology, specifically with regard to the fabrication process where yarn is coloured with the innovative dye and this yarn is then used to embroider the washcloth. Manufacturing partners who can assist with scaling-up the production for larger quantities are also of interest.

Advantages and Innovations

Irritating products are indicated immediately

Allows for improved care of infants, dermatitis patients, the elderly, and those with highly-sensitive skin

Enables continuous monitoring of products where the composition might change without prior warning

Simple technology using an unambiguous colour system

Low maintenance as the washcloth can be used repeatedly and washed in conventional washing machines

Cost-effective and environmentally friendly compared to pH strips which are discarded after one use

Stage of Development

Prototype available for demonstration

IPR Status

Secret Know-how

Comment Regarding IPR status

Patents concerning design and trademarks may be submitted together with the future industrial partner.

Profile Origin

National or Regional R&D programme

Keywords

Technology

02007012	Optical Materials
02007018	Advanced Textile Materials
03005003	Dyeing related to Textiles Technology
06001005	Diagnostics, Diagnosis
06001022	Medical Textiles

Market

05001007	Other diagnostic
05010001	Safety for the elderly
07004002	Health and beauty aids
08001019	Speciality/performance chemicals
09004003	Textiles (synthetic and natural)

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering

Network Contact

Issuing Partner

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Open for EOI : Yes

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Experience Comments

The safety of the staining with the indicator dye chemistry is certified by OekoTex.

Languages Spoken

English
German
French

Client Country

Austria

Partner Sought

Type and Role of Partner Sought

The ideal partner should be have expertise in dyeing of textiles and be in a position to up-scale the production and fabrication of the washcloth for larger quantities. The partner should also be in a position to launch the product on the market and have the necessary marketing and distribution contacts and skills.
Partners with experience in dermatology or venereology would be of particular interest.
The partner should be capable of manufacturing the indicator washcloth (parts of the process may be sub-contracted) and should also be able to carry out the relevant marketing and distribution activities.

In the initial stages, up-scaling the fabrication can be done in cooperation with the Austrian research institute. A partner interested in further product optimisation would be ideal.

Type and Size of Partner Sought

SME 11-50,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Manufacturing agreement
Commercial agreement with technical assistance
Technical cooperation agreement

Attachments

ph sensor wash cloth.JPG

