

RESPECT LIFE

THE FUTURE OF THE FABRIC



HEALTHY AND
SUSTAINABLE

INDEX

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ABOUT US

The projects between

**I.R.C.C.S San Matteo
Hospital
and
Respectlife**

A joint testing project for use bed sheet in operative hospital setting is currently underway.

The knowledge related to the development of innovative materials, and Respectlife applications, are they completed with the scientific expertise in the medical field of the I.R.C.C.S. Hospital San Matteo, with particular attention to the epidemiological aspects.

Respectlife

A social startup applies solutions to the textile world. It combines the traditional expertise of the textile industry, new technological methods in the treatment of yarn, fabric and finishing creating textiles and consequently products with strong innovation, that go well with the new needs of health protection, well-being and respect for the environment.

The three founding members ensures a deep knowledge of the complexities and needs of textile solutions in the hospital; as well as of fabrics, their applications and the construction of clothing, the production process and the skills of the individual actors in the supply chain.

For more <http://www.respectlife.it/>

The Progress Tech Transfer fund entered the capital of Respectlife with a stake of 10% at the end of December 2019, which brings to the company, in addition to the financial endowment, the skills of its advisors, specialized in technology transfer, protection of intellectual property, development strategies.

The Progress Tech Transfer Fund is the first Italian fund dedicated to technology transfer in the field of public research in the field of sustainability. The current budget of the Fund is € 40 million (subscribed jointly by the Deposit and Loan Fund and the European Investment Fund).

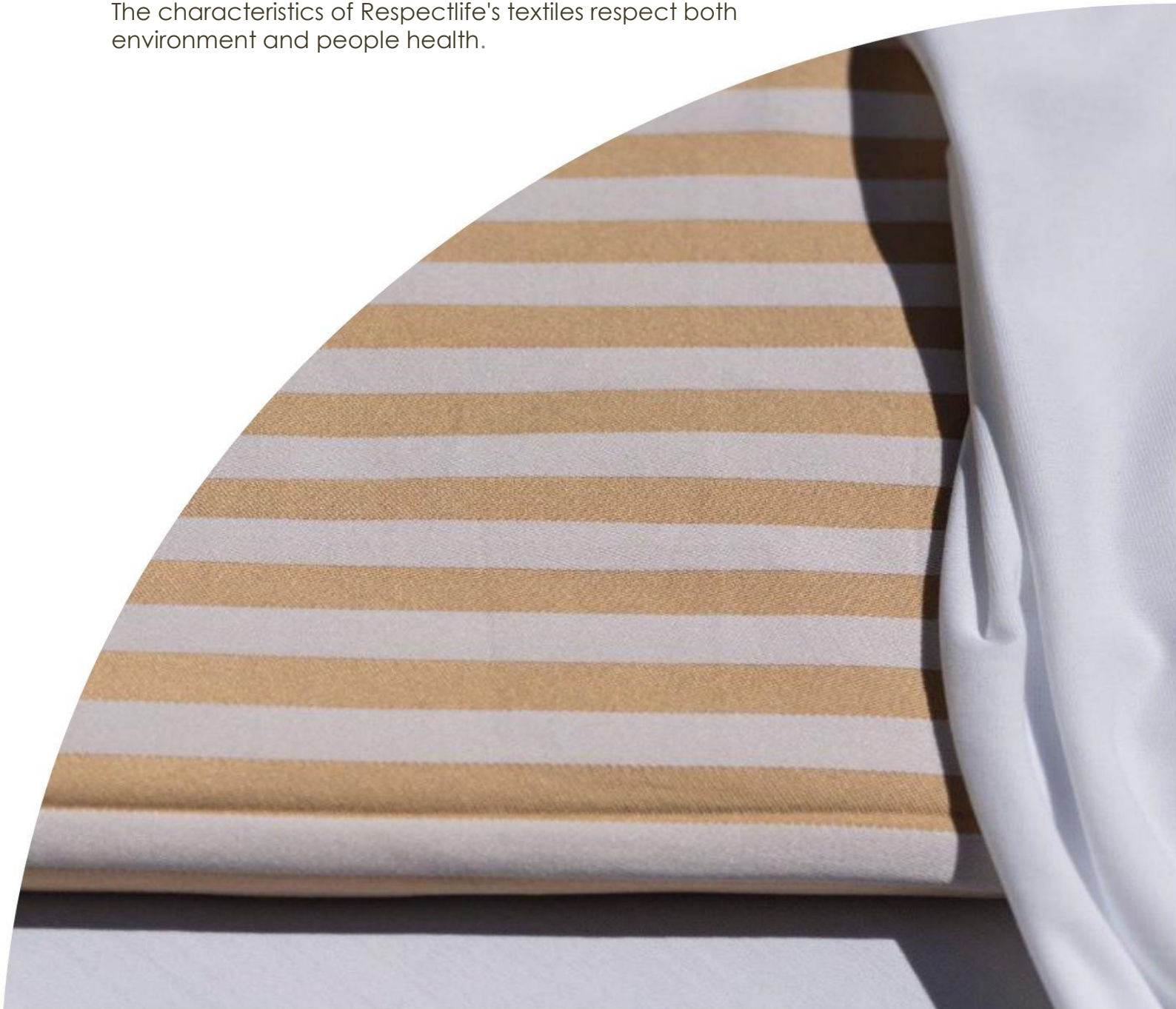
For more <https://www.progressttfund.it/>



at a glance

Respectlife designs and produces innovative fabrics and garments totally made in polypropylene thread devoted to countless industries.

The characteristics of Respectlife's textiles respect both environment and people health.



What does Respectlife do

PP, which is super-hydrophobic, does not allow bacterial colonization and decreases the possibility of virus transfer.

It does not absorb the dirt that remains on the surface and is it easily cleaned.

The PP fabrics produced by Respectlife have a long life.

They wash and dry quickly and can be washed several times a day. They last up to 200 times, without losing the technical characteristics.

Breathability, thermal properties and lightness guarantee maximum comfort during use, improving the lives of workers and patients.

At the end of their life, they become second raw material.

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*Comfortable, healthy
and ecological fabrics
manufacturing.*

*Do not allow bacterial
colonization and
decrease the possibility
of virus transfer.*

Functional properties of textile

- ✓ Respectlife are inherently resistant to the growth of bacterial, fungal and mold, without generating bacterial mutations (CENTROCOT certification).
- ✓ Made of 100% pure Polypropylene (PP), therefore intrinsically hypoallergenic. The PP are also compatible with living cells, tissues, organs or systems, without toxicity risks, since its biocompatibility has been used in the human body since the 1960s for cardiac stents or hernia repair.
- ✓ Continuous multi-filament not leaves fibers or lint (transmission vectors for the spread bacterial and virus like COVID-19).
- ✓ Breathable thanks to the thinner thread of a hair. Each PP thread contains 80 threads, to ensuring maximum softness and breathability.

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- ✓ Polypropylene is the lightest of all fibres ($0.91 \text{ gr} \times \text{cm}^3$)
 - ✓ They have a value of PH 4.0 - 7 (OEKOTEX 100 class 1). The pH value of human skin is usually mildly acidic (between 5.5 and 7.0). Where pH value of textiles exceeding the limit, causes itches, bacterial infraction and even dermatitis.
 - ✓ Fiber is it colored during production by pigmentation. The pigments used for polypropylene fibers give very good light fastness ratings of 7 and higher.
 - ✓ The color is safe (REACH compliant).
 - ✓ The Respectlife textile are free of toxic and chemical substances, the production and reconditioning is with a low environmental impact and
- ✓ Because of their extremely low water absorption, fibers resist stains better than any other fibers.
 - ✓ Excellent resistance to most acids and alkalis.
 - ✓ They are washed at 40 degrees and dry quickly (less energy needed)
 - ✓ Last an average of 200 washing without losing any of its functional characteristics
 - ✓ Compared to cotton, they need 50% less water to wash and they involve very limited use of detergent and chemical additive.
 - ✓ The fabric is lower weight, allows you to wash several garments at the same washing cycle. By not leaving and absorbing dye, it is possible to washing different color in the same time. (therefore a saving also in terms of polluting dispersions in the environment)
 - ✓ Full recyclable, there is an existing market for recycled PP in a very wide range of products according to the concept of Circular Economy

Certifications



OEKOTEX 100 class I: textile PH value 4.0-7.5, Articles also for babies and toddlers.

Color REACH-compliant (European Union regulation, adopted to improve the protection of human health and the environment from the risks by chemicals, and heavy metals)

CENTROCOT: antibacterial properties certification

Comparison with other materials

Over the past 20 years, some of the most important players in the national and international context have ventured into the attempt to make pure polyolefin yarns. These have never been antibacterial (at least aseptic); in addition, the fabrics made to date in PP have a consistency that makes them difficult to use due to the poor elasticity and wearability.

The table below compares RespectLife solution with the available alternatives, according to the key required performances.

The higher recyclability allows a better cost-competitiveness vs the other solutions.

| Value Element | Bacterial survival days | Not microbial resistance | LINT Generation | Durability | Comfort and wearability | Recyclability |
|-----------------------|-------------------------|--------------------------|-----------------|------------|-------------------------|---------------|
| RespectLife | 0 | YES ⁽¹⁾ | NO | HIGH | HIGH | HIGH |
| Cotton | 26 | YES ⁽²⁾ | HIGH | LOW | MEDIUM | LOW |
| Cotton and polyester | 26,5 | YES ⁽²⁾ | MEDIUM | MEDIUM | LOW | LOW |
| Textile antibacterial | 0 | NO | MEDIUM | MEDIUM | MEDIUM | LOW |
| Disposable | 1 | YES ⁽²⁾ | LOW /MEDIUM | SINGLE USE | LOW | NONE |

(1) Antimicrobial resistance (AMR) is the ability of a microorganism (like bacteria, viruses, and some parasites) to stop an antimicrobial (such as antibiotics, antimicrobial) from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others.

(2) It do not inhibit microbial growth.

HOSPITAL

Currently, at least 700,000 people die each year due to drug-resistant diseases, including 230,000 people who die from multidrug-resistant tuberculosis.

Hospital linen and staff uniforms are they clearly recognized as a reservoir for microorganisms and could be a vector of disease transmission.

Respectlife fabric prevent the spread of microbial and virus transfer.

Passive surfaces repel bacteria, they do not actively interact with or kill bacteria; therefore, it does not generate microbial resistance.



FASHION TECH

The fashion industry has a disastrous impact on the environment. In fact, it is the second largest polluter in the world.

Respectlife making a circular economy a reality

*It is greener than natural fibers, and it is the best for the sustainability in the measurement of environmental and social & labor impacts "HIGG Index".
It is also soft, dry, light and comfortable.*

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HOME

Anti-mite: sensitization to the mite is the largest risk factor for the development of asthma

Stain-resistant: because it does not bind chemically with other substances, it is particularly resistant to dirt. Suitable for tablecloths, bed and bath kit.



RESPECT LIFE

SUSTAINABILITY REPORT



Environmental impact of textile and clothes industry

The textile industry has a disastrous impact on the environment. In fact, it is the second largest polluter in the world, just after the oil industry. In addition, the environmental damage is increasing as the industry grows.

The 2017 Pulse of the Fashion Industry report, put together by GFA and the Boston Consulting Group, estimated that in 2015, the global textiles and clothing industry was responsible for the consumption of **79 billion cubic meters of water, 1 715 million tons of CO2 emissions and 92 million tons of waste**. It also estimated that by 2030, under a business-as-usual scenario, these numbers would increase by at least 50 %.

In the face of climate change, resource depletion and shifting consumer expectations, it is necessary increasingly to drive meaningful change and to back up to sustainable products.

Respectlife performed a project looking at the entire value chain of manufacturing, use and reuse sustainable textile.

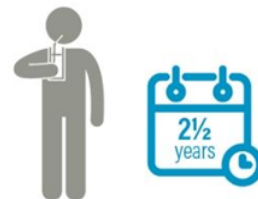
COTTON

The greatest amount of water is used in agriculture (the 'production' phase) with cotton having the largest impact of crops grown for clothing production. The total water footprint of clothing consumed in one year, 2015, in the EU is 46, 400 million m3. The burden placed by crop production, especially cotton, is greater depending on where it is growing (WRAP, 2017c)

It Takes 2,700 Liters of Water to Make One Cotton Shirt



Enough Water for One Person to Drink for 2½ Years



Source: National Geographic

WORLD RESOURCES INSTITUTE

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RAW MATERIAL ISSUE

Polyester Production is Carbon Intensive



Source: MIT

WORLD RESOURCES INSTITUTE

POLYESTER

The carbon footprint of a garment largely depends on the material. While synthetic fibers like polyester have less impact on water and land than grown materials like cotton, they emit more greenhouse gases per kilogram. A polyester shirt has more than double the carbon footprint of a cotton shirt (5.5 kg vs. 2.1 kg). Polyester production for textiles released about 706 billion kg of greenhouse gases in 2015, the equivalent of 185 coal-fired power plants' annual emissions. (WRAP 2017)

Textile dyes

20% of
water
pollution
comes
textile
from
treatment
and
dying

Organization for Economic Cooperation Development estimated that 7–20% of acid dyes, 5–20% of direct dyes and 20–50% of reactive dyes were lost in the effluents in Europe.

A large percentage of pollution generated by the textile industry can be attributed to salts, sizing agents, preparation agents, detergents and organic acids

For example, reactive dyeing of 1 kg of cotton requires about 150 L of water, 0.6–0.8 kg of NaCl and about 40 g of reactive dye. One can easily imagine the total amount of generated pollution. (*Environment & Ecology* 35 (3C): 2349–2353, July–September 2017)



WASHING

The use phase typically dominates most environmental profiles, due to the large consumption of water, energy and chemicals used in the laundering process.

The 8 most significant impact categories for laundry detergents in Europe are Freshwater Eutrophication, Human Toxicity, Freshwater Ecotoxicity, Marine Ecotoxicity, and Natural Land Transformation.



DIRTY LAUNDRY?

Laundry washing day should result in clean clothes. Instead they wind up full of **dangerous chemicals** that spend hours right against our skin.

DANGEROUS CHEMICALS IN LAUNDRY PRODUCTS

- Phosphates
- Formaldehyde
- Chlorine Bleach
- Ammonium Sulfate
- Dioxane & Diethylene Dioxide
- Optical Brighteners & UV Brighteners
- Sodium Lauryl Sulfate & Sodium Lauryl Ether Sulfate
- Quats or Ammonium Quaternary Sanitizers
- Nonylphenol Ethoxylates
- Fragrance & Parfum
- Dyes
- Benzyl Acetate
- Dichlorobenzene

W A S H I N G

END OF LIFE

Textile waste

ECAP, an EU LIFE funded project which aims to reduce textile waste across Europe, has estimate for the amount of fabric disposed of as waste across European countries.

| Tier 1 countries | Pop. (2014) | Quantity of clothing waste in residual | | Tier 2 countries | Pop. (2014) | Quantity of clothing waste in residual | |
|------------------|-------------|--|-----------------|------------------|-------------|--|-----------------|
| | | (tonnes) | (kg per capita) | | | (tonnes) | (kg per capita) |
| Denmark | 5.7 m | 15 735 | 2.8 | Belgium | 11.2 m | 32 140 | 2.9 |
| Germany | 81.2m | 280 972 | 3.5 | Spain | 46.5 m | 306 744 | 6.6 |
| Italy | 60.8 m | 440 179 | 7.2 | France | 66.4 m | 214 920 | 3.2 |
| Netherlands | 16.9 m | 71 374 | 4.2 | Sweden | 9.7 m | 31 919 | 3.3 |
| | | | | UK | 64.9 m | 302,000 | 4.7 |

RESPECT LIFE

**Sustainable
values**





RESPECT LIFE

Since Respectlife's innovative products, are totally made in polypropylene, their related footprints regarding energy, water, detergent consumptions are dramatically lower than the other materials.

Moreover, Respectlife's fabrics and garments are fully recyclable.

Raw material

*Respectlife
Implement water,
energy, and
chemicals
efficiency*

*for raw material,
production and
end of life stages in
compliance with*

**European
guidelines.**

The RespectLife come from PP raw material, the PP is greener than natural fibers, and it is the best for the sustainability in the standardized value chain measurement of environmental and social & labor impacts "HIGG Index", developed by "Sustainable Apparel Coalition" for apparel, footwear, and textile industries.

According to the competition benchmark above reported, our solution is very well positioned vs the alternatives.

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A cradle-to-gate [Higg Material Sustainability Index report](#) show that, **PP 37**, **Polyester 44**, **Wool 82**, **Cotton 98**, **Silk 681**.



"A smart, innovative and sustainable plastics industry, where design and production fully respects the needs of reuse, repair, and recycling, brings growth and jobs to Europe and helps cut EU's greenhouse gas emissions and dependence on imported fossil fuels. "EUROPEAN STRATEGY FOR PLASTICS IN A CIRCULAR ECONOMY".

Dyes impact

The fibers having a nonpolar paraffinic character are generally undyeable by the classical bath-dyeing method, therefore the substantial part of the PP fiber is colored with pigments insoluble in water

The substantial part of colored PP fibers are prepared as spun dyed fibers. Mass coloration includes dispersion and homogenization of pigments or dyes in a polymer before extrusion and spinning.

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The dyes are color substances dissolved in polymer. Pigments are solid color particles insoluble in polymer, usually also water-insoluble. The PP melt is, in principle, not colored by the dyes and pigments directly (besides some special developed processes) but by means of concentrated color dispersions called also masterbatches. (Polypropylene pp 172-177 [2])

Respectlife uses only color European chemicals laws (Registration, Evaluation, and Authorization of Chemicals) **REACH conformed.**

Registration, evaluation and authorization of chemicals (REACH) represents a recent regulatory **initiative by the European Union commission to protect human health and the environment from potentially hazardous chemicals.**

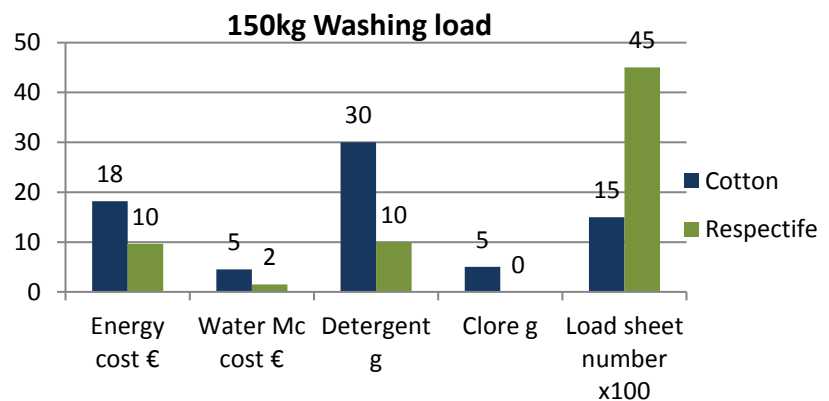


WASHING

| | |
|---|-------------------|
| ↓ | water |
| ↓ | energy |
| ↓ | time |
| ↓ | Chemical additive |
| ↓ | chloric |
| + | color jointly |
| ↑ | product life |
| ↑ | machinery life |
| ↑ | output |

Respectlife material is easy to wash and dry, for hydrophobic characteristic use less water and detergent, low temperature save energy, it is light thus it is possible to wash more heads with the same load. The water absorption of polypropylene the amount of water absorbed in a humid atmosphere is virtually nil (0.05% at 65% RH, 21 °C).

The very low water absorption make it resistant to stain, easily cleaned without high energy, with less water and environmentally unfriendly methods. Furthermore, low moisture pickup requires less energy to dry products



Recycling

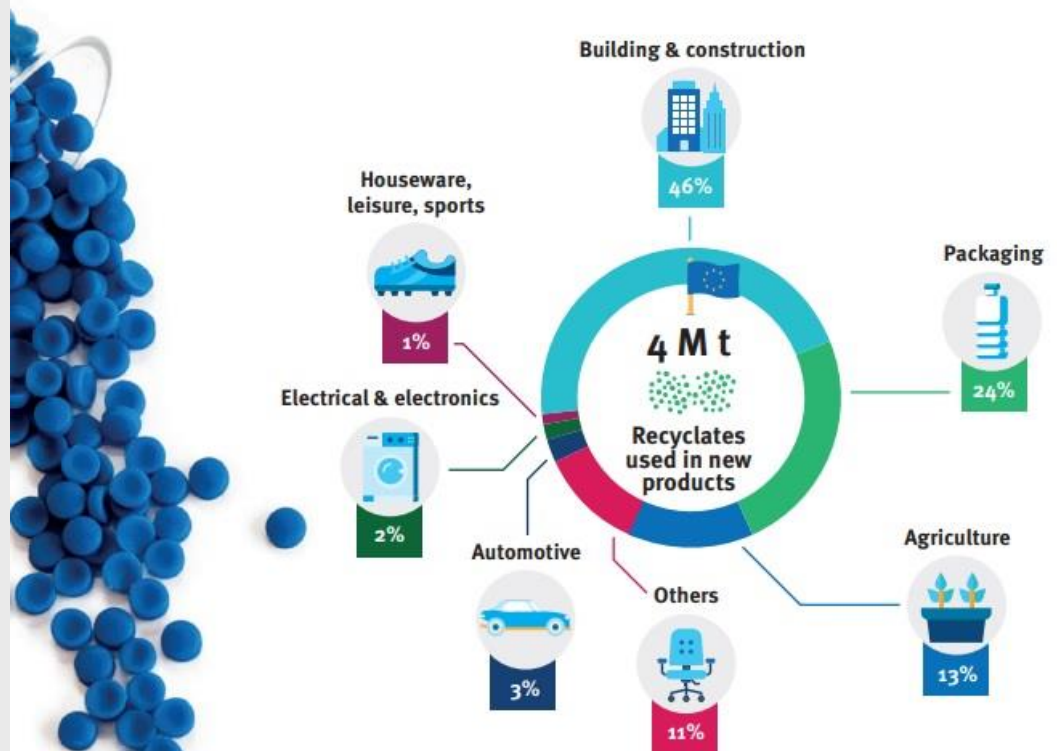
In December 2015, the Commission adopted an **EU Action Plan for a circular economy**. There, it **identified plastics as a key priority** and committed itself to 'prepare a strategy addressing the challenges posed by plastics throughout the value chain and taking into account their entire life-cycle'. In 2017, the Commission confirmed it would focus on plastics production and use and work towards the goal of ensuring that all plastic packaging is recyclable by 2030.

In 2016, more than 8.4 million plastic tones waste collected in order to be recycled inside and outside the EU. **19.3% was PP converted** in food packaging, sweet and snack, wrappers, hinged, caps, microwave, proof containers, pipes, automotive, parts, bank notes, etc. (Plastic Europe The Fact 2017).

*Making the most of our
resources
How plastic
re-enter the economy*

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WHERE ARE PLASTIC RECYCLATES USED TODAY?



Plastic Europe

Thermal valorization

In addition, plastics-rich waste fractions that cannot be sustainably recycled represent a valuable source of alternative energy. Indeed modern combined heat and power recovery plants (CHP Plants) can use waste plastics together with other high calorific input materials. This provides a valuable source of heat and power, which can account for up to 10% of some EU countries' energy needs. (Plastic Europe)

Energy recovery programs divert plastics from landfills and result in using those materials to generate an added source of energy. The overall sustainability profile of energy recovery is positive. The U.S. Environmental Protection Agency (EPA) recognizes energy recovery as an advantageous end-of-life approach, stating that it is a “clean, reliable, renewable source of energy” with a lower total environmental impact than most other energy sources.

PP staple fiber has a very high calorific value (table) when incinerated as part of a mixed waste stream, providing a high-energy value for CO₂ emitted. It's also clean burning, with no toxic emissions

*Making the most of our
resources
How plastic
re-enter the economy*

| Material | LVH* MJ/kg | Useful profit MJ/kg | calorific |
|----------|---------------|---------------------------|-----------|
| PE | 43 | 22 | |
| PP | 44 | 24 | |
| PS / PSE | 40 | 22 | |
| PVC | 17 | 9 | |
| PET | 22 | 12 | |

* Lower Heating Value



**RESPECT
LIFE**

goals recap

RESPECTLIFE'S STRATEGY
IS LED BY A FIVE-YEAR
EXECUTION PLAN.

UNDER THE COMPANY'S
VISION OF GENERATING
CARE TO THE
ENVIRONMENT AND
PEOPLE THROUGH ITS
PRODUCTS

Basic value

GOAL

*Design, manufacture and sell
Fabrics and garments*

100% polypropylene-MADE THAT

Protect environment and care people

USP

100% sustainable,

100% antibacterial,

Very comfortable,

Very convenient

Fabrics and garments

Business model



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Target Market

60% Health Industry,

40% FashionTech Industry

Revenue stream



70% fabrics,

30% garments



Overview



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Value chain

100% based in Italy

Business Expansion

*t1=Italy,
t2=Europe,
t3=ROW*

Growth plans

Resolved investments

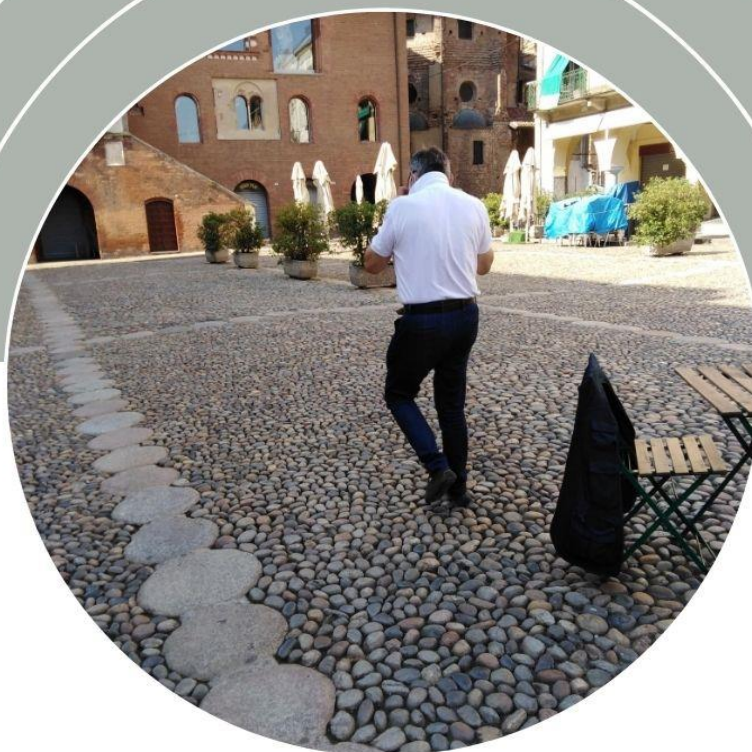
Progress Tech Transfer Fund invested at seed-level. It plans to invest at Round A level in 2021

Required investments

Round A

Expected growth

| €/000 | Y0 | Y1 | Y2 | Y3 | Y4 |
|--------------|------|------|-------|-------|-------|
| NET REVENUES | - | 400 | 1.400 | 2.600 | 3.900 |
| EBTDA | -750 | -300 | - 90 | 300 | 700 |



**RESPECT
LIFE**

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