

ECONYL Regeneration System

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INFORMATION ON THE ECO-INNOVATIVE SOLUTION PROVIDER

Aquafil has been established in the late 60s' and has become one of the leading players, both in Italy and globally, in the production of Polyamide 6.

Aquafil has always been committed to product innovation and sustainability; this commitment to R&D leads to regular renewal of processes and products due to massive and steady investments in terms of both finance and knowledge.

After more than 50 years, Aquafil has 15 production plants throughout 3 continents, 8 Countries with total revenues at 549,3 Mio in 2017 and is listed in the Italian Stock Exchange.

SHORT DESCRIPTION OF THE ECO-INNOVATIVE SOLUTION

The ECONYL® Regeneration System is the world's most efficient industrial system for the production of Nylon 6 from 100% waste materials. Conceptualized and designed entirely by the Aquafil Group, with an investment of nearly 25 million €, this innovative system was introduced in 2011 to produce Nylon 6 polymers from:

- Post-consumer waste (i.e. end-of-life products) made from Polyamide 6 including fishing nets, fluff (the top part of carpets and rugs)
- Pre-consumer waste such as oligomers, plastic scraps, plastic components, fabric scraps etc.

INDUSTRIAL SECTOR – MARKET SEGMENT AND ACTUAL APPLICATIONS IN INDUSTRY

Market Leader in Nylon Fibres and Polymers for:

- Flooring solutions;
- Fashion and sportswear textile applications;
- Polymers for engineering plastics solutions

INDUSTRIAL CLASSIFICATION - NACE CODE

54023200	Nylon yarn (twisted/not twisted)
54023100	Texturized nylon yarns (twisted/not twisted)
54024500	Twisted nylon yarns
3908100	Polymers

1. DESCRIPTION OF ECO-INNOVATIVE SOLUTION

Technical aspects of the eco-innovative solution

The ECONYL® Regeneration System is the world's most efficient industrial system for the production of Nylon 6 from waste.

The system is:

- 1) Infinite, as the Polyamide 6 waste can be regenerated an infinite number of times to produce new polymers with technical characteristics and quality equivalent to products obtained from fossil materials;
- 2) Innovative, as it is the only system of its kind anywhere in the world in terms of efficiency and productivity;
- 3) Sustainable, as it recovers waste which would otherwise end up in landfills or oceans (fishing nets), causing serious damage to the entire ecosystem. It also enables real savings in terms of natural resources — about 70,000 barrels of oil per 10,000 tons of regenerated caprolactam produced — as no virgin caprolactam is used to produce it (as in common Nylon)

This has led to the development of the ECONYL® Regeneration System which has enabled us to substitute non-renewable virgin raw materials with secondary raw materials such as end-of-life fishing nets and used carpet.

Economic and environmental benefits of the eco-innovative solution

One of Aquafil's strategic objectives is to create and distribute high quality products with lower environmental impact. To this aim, it is essential to measure environmental performance in order to gain a better understanding of which phases of the life cycle need to be improved. Therefore, for over three years Aquafil has used life-cycle-assessment (LCA) as a tool for determining the environmental impacts of its products.

The LCA approach has shown that most of the environmental impacts generated when manufacturing nylon thread result from the production of raw materials.

The growth of the ECONYL® Regeneration System lead to a significant 35% of total PA6 production deriving from waste.

2. AVAILABILITY OF THE ECO-INNOVATIVE SOLUTION AND BUSINESS PARTNERSHIP

Market readiness, Trade mark, existing market coverage, commercialization strategy

ECONYL® Regeneration System started 2011, being now fully operative

Requirements to adapt the solution to the local market and potential applications/market size

To be eligible as a qualified supplier/partner, specific guidelines are set and will become operative in summer 2018.

ECONYL® Regeneration system requires that the recovered yarns/fishnets contain at least 80/85% PA6 to be eligible for recycling.

On site-after-sales services support and the technical assistance requirements

No after-sales services are required

Targeted local business partners

Aquaculture industry

Fishing industry

Fishing nets distributors/repairers

Any waste management stream capable of supplying the company with the required yarn.

Type of local business partnership sought

Supply agreement. Contracts will be structured on a case-by-case basis, depending on the counterpart and on the characteristics of the waste.