

CYCLE-LOGIC®: from PET plastic bottles to textile chemistry

RUDOLF GROUP implements the manufacturing of chemical auxiliaries for textile based on chemically recycled PET plastic waste.

Plastics offer many benefits in everyday life and they are often a better alternative to other materials. However, the challenge lies in the responsible management and recycling of post-consumer plastic waste.

One of the most advanced and progressive frontiers of textile chemistry is the transformation of waste into materials that can be further used for a greener and sustainable world. The majority of the research work in this area concerns organic waste which can be upcycled into bio-carbon based innovation. The RUDOLF GROUP currently addresses this progressive field through their recently launched BIO-LOGIC® brand.

Glass, metal and plastic can also be recycled and given a new life, but while glass and metal are nearly infinitely recyclable, plastic is a very different and much more challenging story. Solving this challenge and building a more circular economy for plastics requires innovation and joint efforts throughout the supply chain.

Polyethylene terephthalate - or PET - is the most commonly produced plastic and it has many properties that make it an extremely useful material. Plastic bottles is what first comes to mind when mentioning PET. However, while there's a constant increase in the demand for plastic bottles (more than 1 million plastic bottles are purchased around the globe every minute), the majority of globally produced PET is still used for clothing. Out of the 30.3 million tons of PET produced in 2017, up to 60% was processed to synthetic fibers and only the remaining 30% was used for the production of bottles.

Chemical recycling is the chemical depolymerization (or breaking down) of plastic polymers into their basic building blocks which are then used to make other, different substances and materials. **Through the chemical recycling of PET, RUDOLF GROUP's R&D has studied new options which are additional to the traditional bottle-to-bottle recycling. PET plastics can now be recycled to raw materials used as inputs in RUDOLF's manufacturing and therefore partially replacing fossil resources.**

There are 2 extremely good reasons behind the importance of full PET recycling:

- the negative environmental impact of PET when it is improperly disposed of;
- the effort and the energy required to extract the crude oil necessary for its production - 1.9 kg crude oil is necessary to produce 1 kg PET.

Markets and society expect the industry to come up with innovative and constructive solutions to deal with plastic waste that can be complementary to the existing recycling and waste management processes.

In order to meet those expectations, the RUDOLF GROUP introduces manufacturing practices and product propositions that position polyester waste as a precious resource rather than an environmental threat.

RUDOLF GROUP renews its genuine commitment to the environment through the launch of the CYCLE-LOGIC® brand and product family. CYCLE-LOGIC® captures tremendous technical innovation and pioneers a new path: the upcycling of post-consumer, disposable and non-returnable plastics - such as beverage PET plastic bottles - into valuable textile chemistry.

“Recycled PET bottles, in the form of washed flakes, can now be the raw material for the manufacturing of some of our textile auxiliaries without attacking new, virgin resources” states Dr. Dirk Sielemann, R&D Director at RUDOLF GROUP. *“We are determined to find environmentally benign ways of unpicking plastics to then design other materials”* he concludes.

“A more circular economy for plastics requires innovation and collaboration” says Dr. Gunther Duschek, Managing Director at RUDOLF GROUP. *“RUDOLF contributes by developing innovative technologies and products that promote the recycling of plastics”*, he continues.

Today, RUDOLF GROUP launches the first 3 CYCLE-LOGIC® chemical auxiliaries for textiles based on post-consumer, recycled PET bottles:

- FERAN® UPCYCLE ICT: the first intelligent moisture management technology for PES textiles;
- RUCOGEN® UPCYCLE RNB: most advanced dispersing agent for indigo washing;
- RUCOLIN® UPCYCLE SDS: first, all-in-one, multi-functional, high-affinity polymer dyeing auxiliary.

CYCLE-LOGIC® is part of RUDOLF Aspirational Chemistry®.

Information on RUDOLF GmbH:

Reinhold Rudolf in Northern Bohemia founded RUDOLF GmbH, which, today, is based in Geretsried, Bavaria, in 1922. It is specialized in innovative and high-quality chemical products, predominantly textile auxiliaries, products for textile care as well as construction chemicals.

1745 employees in 45 countries around the world guarantee logistical as well as technical service.

The combination of backwards integration, development know-how, exact knowledge of market requirements and thorough technical application expertise make RUDOLF GmbH an experienced and competent partner for the customers of the textile finishing industry, co-producers and many other industries. Quality Management and certification according to DIN ISO 9001:14001 go without saying. RUDOLF offers products that comply with the OEKO-TEX Standard and GOTS, is committed to ZDHC and is a bluesign system partner. In addition, as a member of the chemical industry, it lives the philosophy of the voluntary Responsible Care initiative, which stands for responsible action in the fields of environment, safety and health.

Press Contact:

EFFE-BI SRL PR & COMMUNICATION email: gbarbara@effe-bi.it mobile +39.348.5313401

RUDOLF GmbH
Altwaterstraße 58–64 D-82538 Geretsried Tel.: +49 (0)8171 53-0
Fax: +49 (0)8171 53-191 marketing@rudolf.de www.rudolf.de