



SUSTAINABLE TEXTILES – PART VI

REF: TT/ JUNE 2022/ WK 1

Recycled polyester

Recycled polyester, also called rPET (recycled polyethylene terephthalate) is made from recycled plastic bottles. It is a great way to divert plastic from our landfills and oceans. Plastic accounts for large amount of marine debris because of its resistant to break down. Much of this is in the form of micro plastics – tiny particles that are hard to see with the naked eye.

GOOD TO KNOW

Over 300 million tons of plastic are produced every year for use in a wide variety of applications.

At least 14 million tons of plastic end up in the ocean every year.

Plastic makes up 80% of all marine debris found from surface waters to deep-sea sediments.

Plastic pollution threatens food safety and quality, human health, and contributes to climate change.

Marine species ingest or are entangled by plastic debris, which causes severe injuries and death.

Ref: iucan.org

Recycled polyester develops non-virgin polyester supply chain to reduce overall virgin plastic consumption. This way, there could be a sustainable plastic cycle where single-use waste becomes recycled PET which then becomes clothing and then transformed back into single-use, and so on. This process can continue, as long as the chemical structure of the polyethylene terephthalate is maintained.

There are numerous environmental benefits associated with recycled polyester, it requires less energy to produce than the regular variety. It reduces CO2 emissions and helps to protect against climate change. It also helps to reduce the impact of crude oil extraction from the natural environment. Taking natural gas and oil out of the ground is environmentally damaging and often leads to habitat destruction. If the oil supply were to dry up suddenly, countries with a high dependency on polyester would struggle to source the raw materials needed to create new products. But when there is more recycling capacity, sources of new polyester become much more secure and diverse.

Like recycled cotton, recycled polyester is also made from two sources.

- 1) **Pre-consumer recycled polyester** – Derived from polyester production discards and PET plastic bottles which cannot be used in the food industry and are recycled to produce recycled fibers.
- 2) **Post-consumer recycled polyester** - From plastic waste collected in the environment, mainly in oceans and landfills.



Manufacturing of recycled polyester

Both the above types of manufacturing processes constitute collecting plastic waste, crushing it into fine flakes, purifying and re-polymerizing and creating the polyester chips. They are spun into fibers and then woven or knit into fabrics.

Manufacturers begin their production processes with truckloads of plastic bottles from local waste collection. They then feed these into their machinery to break them down into constituent parts to turn into wearable threads. Old bottles, food packets, and wrapping materials are broken into small pieces during the plastic shredding process, transforming regular single-use plastic waste into items of clothing.



While recycled polyester is made from plastic bottles that are recyclable, the resulting product i.e. garments are not. Because manufacturers blend PET with other materials such as cotton, to give their products the consumers' properties. So recovering the original plastic is more challenging in fabrics than in other applications. Research is in progress on processes that will make it possible in the future.

Fig 1.1 Recycled polyester from PET bottle

Ref: researchgate.net

References:

1. <https://www.beanbagsrus.com.au/>
2. <https://agood.com/>
3. <http://www.fibre2fashion.com/>
4. <https://textilevaluechain.in/>
5. <https://therunningrepublic.com/>

.....To be continued.....

UNSCRAMBLE THE JUMBLE WORDS
LLOCECTGIN
FORMSTRANGIN
RAGNEMST
SISOPBEL

Last week`s Answers: 1) CONSUMER 2) PROCESS 3) DECORATIVE 4) SORTING

Wishing you a great week ahead!

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arc@resil.com | www.resil.com