

TECHNICAL TEXTILES – PART XXIII

REF: TT/ APR 2022/ WK 3

OekoTech or Ecological Protection Textiles

OekoTech technical textile category includes textiles used in environment protection applications. The environmental protection market has become one of the fastest growing areas of application for technical textiles. Technical textiles can reduce energy usage, water usage, waste production, pollution and noise.

The application areas of these textiles consist of

- Filtration media
- Erosion protection material
- Floor sealing
- Sealing of toxic waste
- Air cleaning
- Water cleaning
- Waste treatment or recycling
- Product extraction, etc.

Filtration media - Technical textiles play a major role in filtration media. A wide variety of fibers, **dref yarns***, nonwoven fabrics, multifilament and monofilament woven fabrics and combination of these are used in filtration applications.

***Dref yarns are bulky, low tensile strength yarns; they can be spun from asbestos, carbon fibers and used for various purposes.**

Nonwoven fabrics are one of the widely used filtration fabrics. This segment utilizes man-made polymer and inorganic fibers to produce the filters. Polyester and polypropylene are mostly used ; nylon, fiberglass, meta-aramids, fluoropolymers and other polymers are also used because of their special properties.

Polylactic acid (PLA) fibers are used in disposable filters such as vacuum cleaner bags, coffee and teabag filters, etc.



POLYLACTIC ACID FIBER (PLA FIBER)
An environmentally friendly, plant-derived thermoplastic fiber.
Derived from naturally occurring sugars like sugar beets and corn.
The fiber forming substance is a lactic acid polymer in which at least 85% by weight are lactic acid ester units.
These fibers are fully bio-degradable and biocompatible.

The four mostly used nonwoven man-made fabrics in filtration media are: needlefelts, wetlaid, spunbond and meltblown fabrics.

Monofilament fabrics are made using polyester or nylon with other polymers used in smaller volumes. Applications include medical filters, automotive transmission filters, air conditioning and fuel injection filters, filters used in flour and wheat processing, as well as heavy fabrics used as sludge dewatering belts. Raschel, circular-knit and tricot knitted fabrics are used in filter media, although consumed in very limited volumes.

Wetlaid filtration media are used in oil and engine air-intake filter common in auto and truck vehicles. Many laboratory use filters and hydraulic filters are made from wetlaid micro and macro fiberglass. These are combined with a spunbond nonwoven carrier fabric too.

One of the newest technologies in filtration media is nanofiber nonwovens. Fine fibers in the nano size range are added to the surface of heavy wetlaid and spunbonded nonwovens. This technology has been mainly used in air filtration in dust collection cartridges or engine air-intake filters for use in automobiles and trucks.

References:

1. <https://www.technicaltextile.net/>
2. <https://scialert.net/>
3. <http://ittaindia.org/>
4. <https://textilevaluechain.in>
5. <https://www.textileworld.com/>

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

UNSCRAMBLE THE JUMBLE WORDS
STBSAOS
TELAIDW
LELOCTICON
INGENE

Last week's Answers: 1) STRUCTURE 2) POCKETS 3) COORDINATE 4) CONSTRUCTION

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