

TECHNICAL TEXTILES – PART XVII

REF: TT/ MAR 2022/ WK 2

**SportTech or Sports Textile**

**Areas of application (Continued)**

**Parachute fabrics** - A parachute consists of four main components - parachute canopy, rip-cords, suspension lines and the harness.

**Parachute canopy** is the fabric used in parachute. These are made of high tensile nylon multi-filament fibers, mainly rip stop woven fabric. Air-permeability is one of the most important characteristics of the parachute fabric; the rate of descent depends on this characteristic. The fabric should be of minimal thickness to enable folding of the parachute into a bag.

**RIP STOP FABRIC**

Rip stop fabrics are woven fabrics, very resistant to tearing and ripping.

During weaving, reinforcement threads are interwoven at regular intervals in a crosshatch pattern in the fabric.

These fabrics have high strength to weight ratio.

The smaller tears and rips cannot easily spread in the fabric.

**Rip-cord** – A rip-cord is used to open the duck pack and allow the parachute to position at the desired place.

**Suspension lines** – Suspension lines connect the parachute canopy to a ring on the harness. The line is continuous from the ring, through a seam over the top of the parachute and back down to the ring again.

**Harness** – The parachute pack is fastened to the person’s back or front with a harness. The harness is specially constructed so that the parachutist is not injured as the forces of deceleration, gravity and wind are transmitted to the wearer’s body as the parachute opens. Harness, webbing, tapes etc. are made-up of high tensile nylon yarn as nylon has the highest strength to weight ratio.



**Ballooning fabrics** - Two basic fabrics from which balloon envelopes are manufactured are nylon and polyester. The nylon balloon envelope is made of nylon multifilament which are generally rip stop woven.

**Sleeping bags** - A sleeping bag is a protective bag for a person to sleep in and uses while camping, hiking, climbing during adventure sports and high altitude sports, mountaineering etc. Its main aim is to provide warmth and thermal insulation at high altitudes in extremely cold weather. It also protects against wind chill, precipitation, etc. A typical sleeping bag consists of fabric and filling material based on the field conditions. Several insulating materials are used for making sleeping bags.

**Artificial turf** - Artificial turf is a man-made surface manufactured from synthetic materials with appearance similar to natural grass. It is used for making world-class surfaces for playing sports which are normally played on grass.

**The system consists of various layers** – the pile fibers and backing cloth, shock absorbing layer and the supporting base.

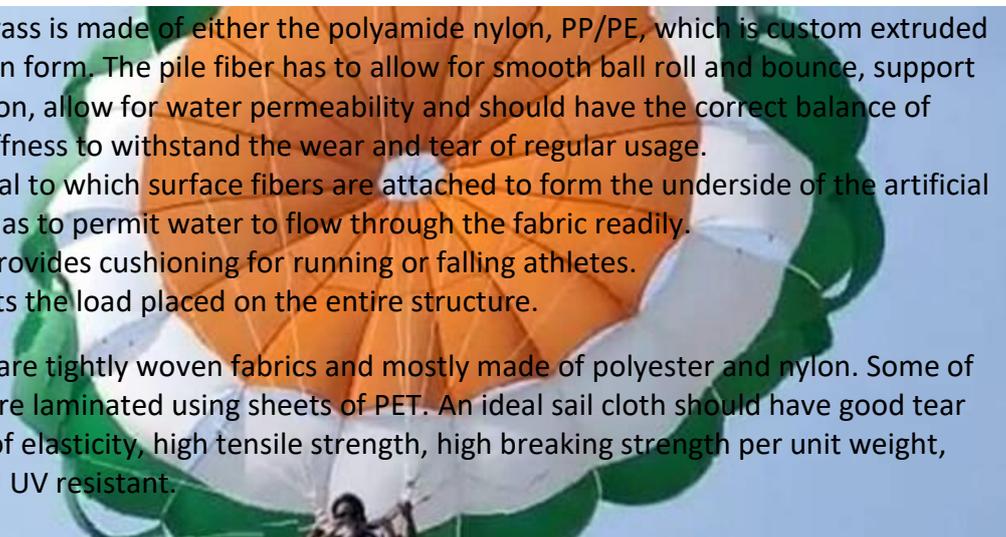
**Pile Fiber** – The synthetic grass is made of either the polyamide nylon, PP/PE, which is custom extruded into a monofilament ribbon form. The pile fiber has to allow for smooth ball roll and bounce, support non-directional foot traction, allow for water permeability and should have the correct balance of strength, elasticity and stiffness to withstand the wear and tear of regular usage.

**Backing Fabric** – The material to which surface fibers are attached to form the underside of the artificial turf surface. The backing has to permit water to flow through the fabric readily.

**Shock-Absorbing Foam** – It provides cushioning for running or falling athletes.

**Supporting Base** – It supports the load placed on the entire structure.

**Sail Cloth** - The sail cloths are tightly woven fabrics and mostly made of polyester and nylon. Some of the high value sail cloths are laminated using sheets of PET. An ideal sail cloth should have good tear resistance, high modulus of elasticity, high tensile strength, high breaking strength per unit weight, good creep properties and UV resistant.



References:

1. <https://www.technicaltextile.net/>
2. <http://www.technotex.gov.in/>
3. <https://www.compositesworld.com/>
4. <https://textilevaluechain.in>

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

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Last week`s Answers: 1) INFLATABLE 2) FOOTWEAR 3) PERFORMANCE 4) REQUIREMENTS

Wishing you a great week ahead!

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