



## Spinning King (India) Limited

### 100% Linen, Hemp & Remei Fibre

Linen fibre is plant fibre collected from the phloem (the "inner bark" or the skin) or bast surrounding the stem of certain, mainly dicotyledonic, plants. They support the conductive cells of the phloem and provide strength to the stem. Most of the technically important bast fibres are obtained from herbs cultivated in agriculture, as for instance flax, hemp, or ramie, but also bast fibres from wild plants, as stinging nettle, and trees such as the Tilia, have been used to some extent. Since the valuable fibres are located in the phloem, they must often be separated from the xylem material ("woody core"), and sometimes also from epidermis. The process for this is called retting, and can be performed by micro-organisms either on land (nowadays the most important) or in water, or by chemicals (for instance high pH and chelating agents) or by pectinolytic enzymes. In the phloem bast fibres occur in bundles that are glued together by pectin and calcium ions. More intense retting separates the fibre bundles into elementary fibres, that can be several centimetres long. Often bast fibres have higher tensile strength than other kinds, and are used in high-quality textiles (sometimes in blends with cotton or synthetic fibres), ropes, yarn, paper, composite materials and burlap. A special property of bast fibres is that they contain a special structure, the fibre node, that represents a weak point. Seed hairs, such as cotton, do not have nodes.

Hemp is biodegradable and eco-friendly fiber with highest tenacity in natural fiber.

Hemp fiber contains phenolic substance, so it has anti-mouldy and bacteriostatic property, bacteriostatic effect is quite obvious for *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Candida albicans*.

Hemp fiber center has slender cavity which connect with many cracks and small holes distributed over fiber surface, hemp fiber has excellent moisture absorption and breathability.

The molecular structure of hemp fiber is stable, degree of molecular arrangement orientation is good, and it has very low capacity to generate static electricity. Dry hemp fiber is a poor conductor of electricity and good insulating material, Electrical breakdown resistance capacity is higher of 30% than cotton.

Cross-section of hemp fiber showed an irregular triangle, polygon etc, loose molecular structure with polygon prism has spiral-lines, so products made of hemp fiber are able to dissipate sound wave and optical wave.

Hemp textiles have good anti-ultraviolet function, can reduce the harm of UV radiation on the human body.

Ramie is one of the strongest natural fibers. It exhibits even greater strength when wet. Ramie fiber is known especially for its ability to hold shape, reduce wrinkling, and introduce a silky luster to the fabric appearance. It is not as durable as other fibers, and so is usually used as a blend with other fibers such as cotton or wool. It is similar to flax in absorbency, density and microscopic appearance. However it will not dye as well as cotton. Because of its high molecular crystallinity, ramie is stiff and brittle and will break if folded repeatedly in the same place; it lacks resiliency and is low in elasticity and elongation potential.