

- ◆ Fibres are the raw materials that all textile materials are made from.
- ◆ Fibres are fine hair-like structures that are twisted together to make yarn.
- ◆ Yarns are used to make textile materials.
- ◆ Some materials are made directly from fibres.
- ◆ All fibres have a set of properties which affect what they can be used for.

Fibres sources:

- ◇ Natural – plants, animals, insects
- ◇ Manufactured – synthetic, derived from coal, oil and petrochemicals
- ◇ Regenerated – part-natural, part-chemical

Natural fibres are:

- ◆ Sustainable – renewable, will grow back
- ◆ Biodegradable – will decompose (rot)

Manufactured (synthetic) fibres are:

- ◇ Unsustainable - sources will run out, finite
- ◇ Non-biodegradable – do not break down

Microfibres

- ◆ Can be natural and manufactured
- ◆ 100 times finer than a human hair
- ◆ Microfibres are engineered to include specific properties such as strength and crease resistance
- ◆ Sportswear, underwear and high-performance clothing are often made from microfibres

Natural Plant (cellulosic)

- ◇ *Cotton*: absorbent, cool to wear, strong, flammable, creases easily, shrinks, easy to care for
- ◇ *Linen*: absorbent, cool to wear, creases easily, flammable, hard wearing, strong, handles well
- ◇ *Hemp*: absorbent, anti-bacterial, anti-static, strong, lustrous
- ◇ *Jute*: highly absorbent, non-static, high tensile strength
- ◇ *Bamboo*: absorbent, soft, fine, lustrous, anti-static, antimicrobial, non-irritant, crease resistant, high tensile strength
- ◇ *Soya*: absorbent, soft, smooth, lustrous, crease and shrink resistant, lightweight, UV resistant, anti-bacterial

Natural Animal (protein)

- ◆ *Wool/fleece*: absorbent, warm, good elasticity, crease resistant, low flammability
- ◆ *Animal fibres include*: mohair, cashmere, angora, alpaca, camel (hair), llama

Natural Insect (protein)

- ◇ *Silk*: absorbent, lustrous with natural sheen, comfortable to wear, cool or warm to wear, creases, strong when dry

Manufactured

- ◆ *Polyester*: strong, flame resistant, thermoplastic, tough and hardwearing
- ◆ *Nylon (polyamide)*: strong, hardwearing, thermoplastic, good elasticity
- ◆ *Acrylic*: strong when dry, thermoplastic, resistant to mildew and acids
- ◆ *Polypropylene*: strong, crease resistant, thermoplastic, low melting point, hardwearing, resistant to chemicals
- ◆ *Elastane/Lycra*: strong, high elasticity and stretch, lightweight, hardwearing
- ◆ *Aramid*: engineered for high-strength and heat resistance, no melting point, 5 times stronger than nylon, resistant to abrasion

Regenerated

- ◇ *Viscose/rayon*: highly absorbent, breathable, lightweight, comfortable, quite strong, soft on the skin
- ◇ *Acetate*: creases easily, prone to static, drapes well
- ◇ *Lyocell*: strong, soft, absorbent, crease resistant