Rope Materials

Rope may be made either from natural fibers, which have been processed to allow them to be easily formed into yarn, or from synthetic materials, which have been spun into fibers or extruded into long filaments.

Natural fibers include hemp, manila, sisal, cotton, and jute. Manila is actually the fibers from a banana plant. Sisal was used extensively to make twine, but synthetic materials are replacing it. Manila and sisal rope is still used by traditionalists, but it can rot from the inside, thus losing its strength without giving any outward indication.

Synthetic fibers include nylon, polyester, polypropylene and aramid. Polypropylene costs the least, floats on water, and does not stretch appreciably. For these reasons it makes a good water ski tow rope. Nylon is moderately expensive, fairly strong, and has quite a bit of stretch. It makes a good mooring and docking line for boats because of its ability to give slightly, yet hold. Aramid is the strongest, but is also very expensive. Nylon and polyester may be spun into fibers about 4-10 inches (10-25 cm) long. Ropes made from spun synthetic fibers feel fuzzy and are not as strong as ropes made from long, continuous filaments. Some ropes use two different synthetic materials to achieve a combination of high strength and low cost or high strength and smooth surface finish.

Wire rope may be made from iron or steel wires. This is commonly referred to as cable and is used in bridges, elevators**,** and cranes. It is made by a different process than fiber or filament ropes.