



THE HISTORY OF ROPE



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ROPE is widely used as a connecting component for lanyards, horizontal and vertical lifelines, positioning lanyards, pulley systems and some special-order, self-retracting lifelines. Rope's main advantage is that it has a better "hand" than cable or webbing. It is also less expensive than other materials.

Some of the first ropes used for fall protection were made from natural fibers. Hemp, sisal and manila were commonly used materials. Natural fiber rope was relatively weak and susceptible to dry rot. To achieve adequate strength, natural fiber ropes needed to be quite thick. This made some ropes unmanageable and incompatible with many pieces of equipment. Natural fiber ropes were also inconsistent in quality along their length. Beginning in the 1940s, synthetic materials such as DuPont's nylon were introduced and quickly became the preferred material for rope manufacture. Nylon rope offered several advantages over natural fiber rope. It was stronger for a given diameter, more elastic, more consistent in quality and immune to dry rot. Because of their many disadvantages, natural fiber ropes should not be used in fall protection or rescue applications.

Since the introduction of nylon, many other synthetic materials and mixtures have been developed for use as rope material. Nylon, polyester, polypropylene and blended ropes are available for fall protection and rescue applications. Environmental conditions such as dampness, high heat, chemicals and abrasive

actions typically determine which synthetic material works best.

Nylon: Nylon is very strong, stretches well, has a high shock-absorption capacity and remains fairly inert. Although nylon tends to lose some of its strength when it is wet, it remains shock absorbent. Nylon is weakened by exposure to acid and extreme sunlight.

Polyester: Polyester remains strong when wet, is more abrasion-resistant than nylon and is immune to most acids and alkalis. It does not absorb energy well nor will it manipulate as easily as nylon.

Polypropylene: Polypropylene is often referred to as the "plastic" rope. Normally bright yellow with black tracers, use of this rope in fall protection systems is very controversial because it stretches a considerable distance under load and may exceed acceptable clearances. To make matters worse, its breaking strength is considerably less than nylon or polyester, and it has a low melting point. Polypropylene rope's only advantages are that it is relatively cheap and it floats in water. Polypropylene rope should not be used as a component of a fall protection system.