

Safety nets for construction sites can be manufactured using different synthetic fibres, two of the most used are polyamide and polypropylene. Here are the characteristics of each of them:

### Polypropilene as a fibre for safety nets

Polypropylene is a synthetic fibre (thermoplastic polymer), with a textile touch and partially crystalline, which is obtained through the chemical polymerization process of propylene. It is a fibre widely used in different sectors due to its resistance and elasticity, among others, in the following sectors: food packaging, fabrics, laboratory equipment, automotive components and, of course, for safety nets on site.

Physical and chemical properties of Polypropylene:

- Standard commercial polypropylene has a degree of crystallinity intermediate between high and low density polyethylene; its elastic modulus is also intermediate, it is less hard than HDPE and less brittle.
- Polypropylene is a fibre that has very good fatigue strength, which is why it is usually used, for example, in all components that incorporate hinges.
- It is a material that withstands the effects of chemical agents very well. There's also UV resistant and / or flame retardant polypropylene.

## Polypropylene Characteristics



Working temperature range from 0° to 100° C



Resistant to boiling water



Great resistance to industrial detergents at 80° C



High elastic recovery capacity



Resists load deformations up to 70°C without deformation



High resistance to the penetration of microorganisms

### Polyamide as a fibre for safety nets

A polyamide is a type of polymer that contains amide-type bonds. Polyamides can be found in nature, like wool or silk, and can also be synthetic, like nylon or Kevlar.

Polyamides such as nylon began to be used as synthetic fibres, although they have ended up being used in the manufacture of any plastic material.

These types of polymers can also be treated by incorporating fibreglass, molybdenum, graphite, Teflon ... in order to increase resistance, for example to friction, heat, impacts or to achieve greater dimensional stability ... Of course, it is also possible to find flame retardant polyamides.

They are very versatile materials that have many applications in the following

sectors: automotive, industrial equipment, machinery, gears, supports, and, in general, for all kinds of parts with mechanical suffering. Of course, they are also widely used in construction safety net systems.

## Polyamide characteristics



Working temperature range from -40°C to 90°C



High damping power



Good sliding and wear resistant properties



Good resistance to fatigue



High mechanical resistance



Self-extinguishing

What material to choose?

At Visor Fall Arrest Nets one question is daily asked: what type of material to choose, to which we answer that it is indistinct from the certification, since both materials are certified under the Aidico certified product seal, but both have some differences:

- **Resistance:** Polyamide fibre is more resistant than polypropylene fibre, but for the safety net to achieve the same energy absorption capacity, toughness and other aspects that are determined in the EN 1263.1 standard, it is necessary that the net polypropylene has a greater number of fibres; Therefore, the mesh cord of the polyamide net is 4.5 mm; while the polypropylene net is 5 mm.
- **Weight:** The weight of polyamide is higher than polypropylene, but as the polypropylene net has more fibres, the final weight of the net is practically the same. However, polypropylene hardly absorbs water, unlike polyamide, so when the net receives water from rain, the weight

of the polyamide net is notably greater than the polypropylene net.

- **Resistance to UV radiation and inclement weather:** Both have a similar resistance to ageing, since this depends, to a large extent, on the anti-UV additives that are added to the fibre.
- **Abrasion resistance:** At this point, it can be said that polyamide behaves better at this point, but we must not ignore the treatment by the user of their safety nets, it is essential to achieve greater durability of the network.
- **Colors:** The most common colour for polyamide nets is white (neutral) and the polypropylene nets are made in different colours. It's not that you can't make polyamide nets in any color: the price of colored polyamide is much more expensive than colored polypropylene.

For any additional information, please [contact](#) our technicians.