

# POLYAMIDE

The term nylon refers to a family of polymers called linear polyamides. There are two common methods of making nylon for fiber applications. In one approach, molecules with an acid (COOH) group on each end are reacted with molecules containing amine (NH<sub>2</sub>) groups on each end. The resulting nylon is named on the basis of the number of carbon atoms separating the two acid groups and the two amines. Thus nylon 6,6 which is widely used for fibers is made from adipic acid and hexamethylene diamine. The two compounds form a salt, known as nylon salt, an exact 1:1 ratio of acid to base. This salt is then dried and heated under vacuum to eliminate water and form the polymer.

In another approach, a compound containing an amine at one end and an acid at the other is polymerized to form a chain with repeating units of (-NH-[CH<sub>2</sub>]<sub>n</sub>-CO-)<sub>x</sub>. If n=5, the nylon is referred to as nylon 6, another common form of this polymer. The commercial production of nylon 6 begins with caprolactam uses a ring-opening polymerization.

## Nylon Characteristics

- Exceptionally strong
- Elastic
- Abrasion resistant
- Lustrous
- Easy to wash
- Resistant to damage from oil and many chemicals
- Can be precolored or dyed in wide range of colors
- Resilient
- Low in moisture absorbency
- Filament yarns provide smooth, soft, long-lasting fabrics
- Spun yarns lend fabrics light weight and warmth.

## Some Major Nylon Fiber Uses

**Apparel:** Blouses, dresses, foundation garments, hosiery, lingerie, underwear, raincoats, ski apparel, windbreakers, swimwear, and cycle wear

**Home Furnishings:** Bedspreads, carpets, curtains, upholstery

**Industrial and Other Uses:** Tire cord, hoses, conveyer and seat belts, parachutes, racket strings, ropes and nets, sleeping bags, tarpaulins, tents, thread, monofilament fishing line, dental floss

## General Nylon Fiber Care Tips

- Most items made from nylon can be machine washed and tumble dried at low temperatures. Use warm water and add a fabric softener to the final rinse cycle.
- Remove articles from dryer as soon as tumbling cycle is completed.
- If ironing is required, use warm iron.

| Description     | Count ( De)         | Cut Length (mm) | Luster | Packing Unit (Kg) | Remarks                                   |
|-----------------|---------------------|-----------------|--------|-------------------|---|
| <b>Spinning</b> | From 1,5D up to 10D | 38-51-65-76-84  | SD-BR  | 300               | Nylon 6, Nylon 66, Nylon66 heat resistant |
| <b>Nonwoven</b> | From 1,5D up to 10D | 38-51-65-76-84  | SD-BR  | 300D              | Nylon 6, Nylon 66, Nylon66 heat resistant |