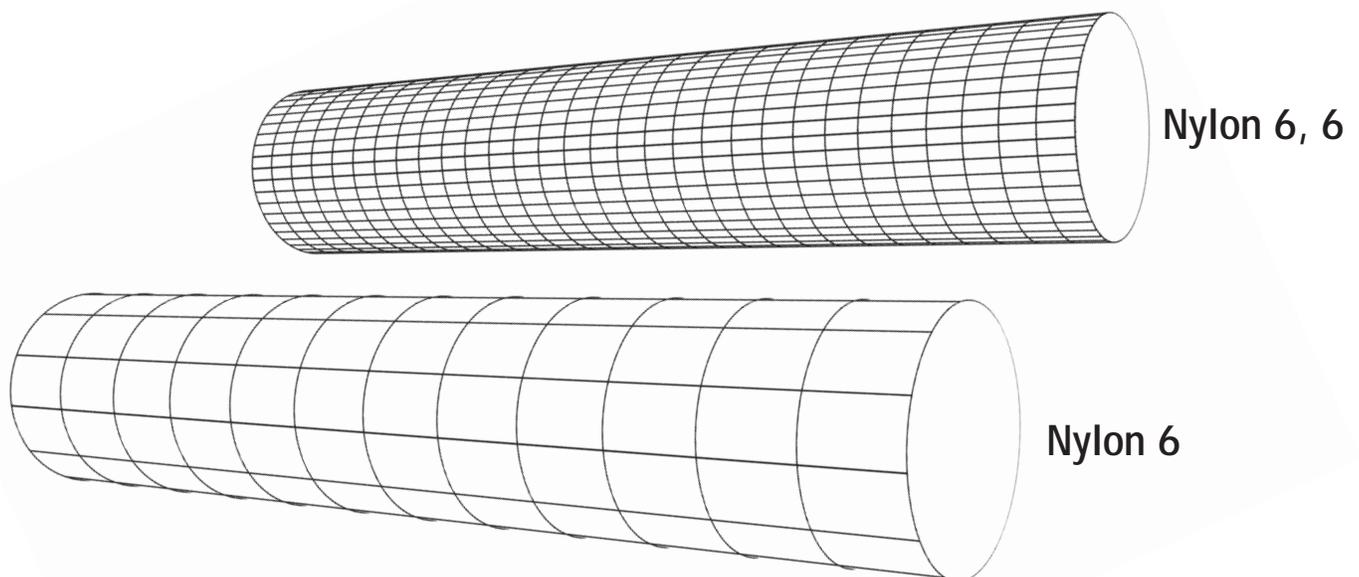


## Ultron Nylon 6,6

Today's state-of-the-art nylon carpet fiber is the result of more than 70 years of continuous research and development. In the late 1920's scientists began to experiment with giant molecules or "polymers" that resembled natural fibers such as cotton and wool. They discovered that these polymers are actually comprised of many small molecules linked together in a long chain. Each chain was given its own name according to the number of carbon atoms in its molecular structure. The first nylon developed was nylon 6,6 and although there have been numerous types of nylon developed for a variety of uses since, there are two basic types of nylon used in manufacturing carpet – nylon 6,6 and nylon 6. **Ultron® nylon is type 6,6.**

Two molecules are combined to make nylon 6,6 – adipic acid and hexamethylene diamine. Each of the two molecules contains 6 carbon atoms. These two molecules are combined to create a repeat unit of 6+6 carbon atoms, thus the name nylon 6,6. **These repeat units provide a molecular symmetry that allows for a tighter, more compact structure.**

The repeat unit for type 6 nylon is made from caprolactam and has one molecule with 6 carbon atoms, hence the name nylon 6. These repeat units create a polymer with a more open structure. The illustration below shows the relative difference in molecular structure between the two types of nylon.



## Ultron Nylon 6,6

### What does it all mean?

Nylon 6,6 has a tighter, molecular structure with a higher degree of internal hydrogen bonding, maximum alignment of molecular chains, 20% higher resilience and 12% harder fiber surface than nylon 6.

These significant differences result in carpets that provide –

- ▲ Superior appearance retention
- ▲ Superior resistance to crushing, matting and abrasive wear
- ▲ Better pile height retention
- ▲ Better inherent ozone fastness
- ▲ Better inherent stain resistance



### Why Ultron® nylon 6,6?

Ultron® premium branded nylon 6,6 fiber is chemically engineered for superior performance and outstanding dyeability. Ultron® nylon 6,6 features a unique blend of delta and trilobal shapes in varying sizes to inhibit dirt from sticking and reduce carpet soiling. Ultron® nylon 6,6 offers clearer, cleaner, crisper color choices and a wide variety of options in dye depth, denier, and luster. When you specify carpet made with premium branded Ultron® nylon 6,6, you get outstanding performance, assurance, and unlimited color choices.

Property	Nylon 6,6	Nylon 6
Composition	Hexamethylene Diamine & Adipic Acid	Caprolactam
Melt Point	254° C	224° C
Fiber Recovery* (%)	100%	82%
Hardness (IZOD)	2.6	2.3
Chain Mobility (Å)	4.0	8.5

\*24 hours after Busee Compression at 100 psi