## Carpet Fibers – Olefin

Olefin continues to be very popular fiber for low cost commercial applications. However it is losing market share to polyester and triexta for the residential market. In years past, carpet cleaners love and hate olefin for several reasons mentioned later in this article.

Olefin, also known as polypropylene, is also used extensively in machine-made area rugs and in both the primary and secondary backing of all types of carpet. Olefin also sees much use in upholstery including automobile interiors due in part to its colorfastness even to UV / sunlight. Considering just carpet face yarns, olefin representing about 11% of the market for 2015 (the latest year statistics have been complied) down from about 40% at the turn of the century.

*Sultanabad pattern rug machine woven from polypropylene / olefin fiber*

Advantages of olefin face fibers include:

- Low cost
- Resistance to staining from water-based spills
- Variety of bright saturated colors available
- Can be cleaned with strong chemistry without damaging the solution dyed colors
- Resistance to fading from sun or chemicals
- Crimped olefin fibers provide good bulk
- Low levels of static electricity

Olefin is the lightest carpet fiber, the only one that Floats in water. It is also the least absorbent of synthetic carpet yarns. This helps with resistance to mold.

### OLEFIN HISTORY

Olefin was developed in Italy in 1957, later than many of the popular carpet fibers. US production started in 1960 but it was not used in carpet until late in the 1970s when it quickly became very popular. Olefin became well known in low pile level loop commercial fibers. Later olefin carpet invaded the residential market as Berber carpet with large loops.

*Olefin backing - Flat thin sheets of olefin are cut into narrow strips and twisted together to produce this backing.*

*Olefin level loop commercial carpet most often installed by* direct glue down method

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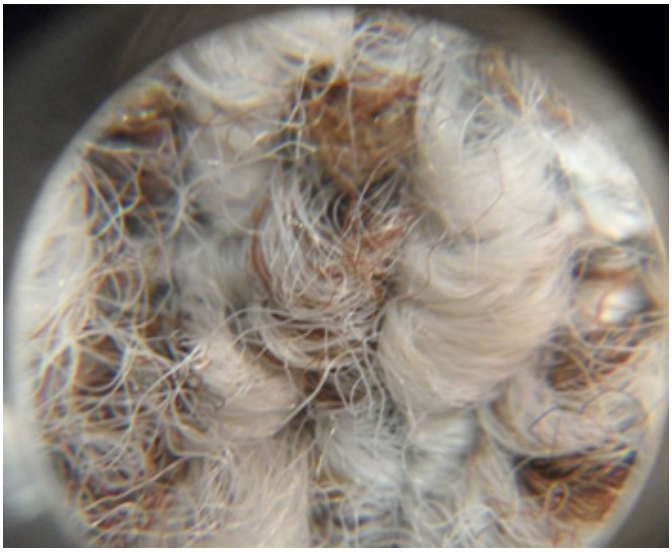
*Berber style with olefin face yarns, magnified Courtesy Steve Andrews*



Olefin fibers after bonnet cleaning with insufficient lubrication Courtesy Steve Andrews

## OLEFIN PRODUCTION

Olefin carpet fibers are manufactured by the melt spinning method. Beads of polyester/olefin along with colored pigments are melted and then extruded through a spinneret (like a showerhead) and cooled back to temperatures where the fiber becomes a solid. The color is mixed throughout the fiber which accounts for olefins colorfastness. The process of mixing pigments into the fiber while it is still a liquid is known as solution dyeing.

## POTENTIAL ISSUES WITH OLEFIN

While manufacturers, retailers and consumers may appreciate olefin's relatively low cost, carpet cleaners tend to notice that olefin has poor resilience. It tends to mat and crushed down in traffic areas. Sufficient entry way matting along with proper vacuuming and use of a grooming tool can delay this appearance if the carpet owner is consistent in doing this. Olefin is also less abrasion resistant than nylon. So, it displays "traffic lane gray" more quickly.

Olefin does resist water and water based stains but it has an affinity for oil. Not surprising since petroleum is a major component in the production of olefin. Tracked in oils from asphalt driveways or sidewalks, oils dripped in parking lots, cooking oils that fall from the air onto olefin fibers, food cooked in oil and dropped on olefin carpet are just some of the sources of oil and grease that end up on olefin fibers. This oil can become permanently bound to the fiber if not cleaned at regular intervals. The oils oxidize resulting in a yellow or brown discoloration. You may have noticed a yellow path leading in from the front door of a commercial establishment showing of the major traffic Flow pathways and giving an indication that the carpet face yarns are olefin.

Olefin also has a low melting temperature. Although it is unlikely that melting temperature would ever be reached during the cleaning process, hot hoses and especially quick connects can get olefin hot enough to soften and leave an impression. The heat of friction when sliding heavy furniture can produce enough heat to melt or discolor the tips of fibers.

## CLEANING OLEFIN

In commercial settings, consider encapsulation cleaning with **Brush Pro** counter-rotating brush machine (CRB) or an oscillating pad machine (OP) for interim cleaning and maintaining a high appearance. HWE should be done at 6 to 12 month intervals depending upon the nature of the soil and the level of soiling. Water based soil will release rather easily. Greases and oils will be problematic, especially if cleaning is not done frequently enough.

Particulate soils can also be an issue when cleaning dense loop pile in high traffic areas. The tracked in soil can get heavily impacted or "buried" under the fibers where it is hard to remove by vacuuming or extraction. The proper prespray and plenty of Flushing / extraction are helpful. I suggest **Flex Powder with Citrus Solv** when oils are the main problem and **Traffic Slam** when high levels of particle soil are the greater concern. Rinse with new **Flex Ice.** It will do wonders for olefin, especially commercial jobs.

Wicking is another issue more common with olefin face yarns. Consider following HWE with quick encapsulation cleaning in areas with heavy traffic or lots of spills or simply a spray application of **Encapuguard Green** to significantly limit wicking.