CARPET

Fiber Construction/Identification

INTRODUCTION

It is important to understand the fiber and construction type you are dealing with in order to prescribe the proper cleaning method and to avoid problems for you and your customer.

FIBER IDENTIFICATION

The most practical way of identifying fibers is to use these burn test procedures…

➤ **STEP 1**
Acquire a fiber sample from an inconspicuous area.

➤ **STEP 2**
Hold the fiber with some tweezers, a paper clip or a Leatherman tool.

➤ **STEP 3**
Using a butane lighter, slowly bring the fiber toward the flame. Do this over an ashtray or the sink.

➤ **STEP 4**
Observe the fiber as it gets close to the flame. Does it melt or burn? When the fiber catches, observe the color of the flame. Blow out the burning fiber. Notice the odor, smoke and the ash left behind.

NATURAL

- **WOOL**– Sputters while burning and may go out, little or no smoke, Smells like burning hair, leaves small crumbly ash.
- **COTTON**– Burns quickly, smells like burning paper, leaves a gray fluffy ash.

SYNTHETIC

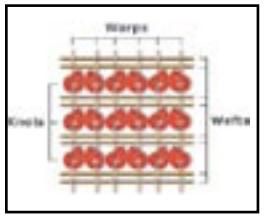
- **POLYESTER** – Melts, smells sweet, leaves a shiny black bead
- **NYLON** – Melts, burns with blue and orange flame, puff of white smoke when extinguished, slight smell of celery, leaves a round hard bead
- **OLEFIN** (polypropylene) – Melts, burns with blue and orange flame, puff of white smoke when extinguished, smells like asphalt, leaves a round hard bead

Hint - the easiest way to distinguish between nylon and olefin is to snip a fiber and put it in a glass of water. If it sinks, it is nylon and if it floats, it is olefin. Be sure to pinch and rub the fiber between your thumb and finger in the water – this will remove air bubbles and break the surface tension in case the nylon has been protected.

Hint - As a general rule, natural fibers will have a soft crumbly ash or no ash at all and synthetic fibers will have a hard bead or crust.

CONSTRUCTION TYPES

WOVEN CARPET- Manufactured on a loom and is made up of the following components.



WARP YARN – Usually made of cotton. Runs the length of the loom.

WEFT YARN - Usually jute or polypropylene. Runs the width of the loom.

FACE YARN – Traditionally wool, but can be made of any fiber. This creates the pile (the part you see).

POSITIVES - Wears well and will not delaminate (separation of primary and secondary backing).

NEGATIVES - Expensive, hard to repair, dries slowly and is more likely to shrink or bleed.

TUFTED CARPET - Fibers are tufted (sewn) into a primary backing material and then secured with latex adhesive to a secondary backing material. Tufted carpet is made up of the following components…

FACE YARN– Mostly nylon, but could be any fiber. This creates the pile (the part you see).

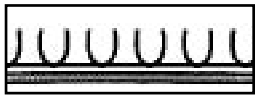
PRIMARY BACKING – Made of polypropylene. Fibers are tufted (sewn) in to this material on the broadloom.

LATEX ADHESIVE –This is applied to the back of the primary backing to hold the tufts in place and to attach the secondary backing.

SECONDARY BACKING – Made of polypropylene or jute. Secondary backing gives the tufted construction stability.

POSITIVES - Inexpensive, easy to install and allows a variety of different appearances (see pile designs).

NEGATIVES – Can delaminate (separation of primary and secondary backing) with wear and/or the over application of solvent based chemicals.



FUSION BONDED CARPET - Better known as "Carpet tiles". Fusion bonded carpet is made up of the following components…

BACKING MATERIAL– Very dense and thick rubber material which gives the carpet its dimensional stability (ability to hold its size and shape).

ADHESIVE – This is a thermoplastic adhesive that is applied to the secondary backing and then the fibers are imbedded in to it before it dries. Once it has dried it cannot be dissolved by water or solvents.

FACE YARN – Creates the pile (the part you see). Usually nylon.

POSITIVE – Very stable construction and shorter pile height allows for easier soil release (cleans up nicely).

NEGATIVES – Can be quite expensive, can buckle in humid conditions and hard to match replacement tiles.

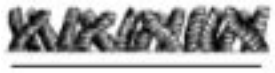
PILE DESIGNS

CUT PILE DESIGN

SAXONY – Tightly twisted yarns that are about 3/4 of an inch tall. Stands up under heavy foot traffic. The tips of indivual tufts are distinct.

PLUSH (VELVET) – Very little twist to face yarns creating a "soft" look and feel. High temperatures and friction can distort fibers. Similar to Saxony, however, the lack of twist allows tufts to spread slightly and blend together into a smooth surface.

FRIEZE – This design is composed of very tightly twisted yarns that give a rough, nubby appearance.

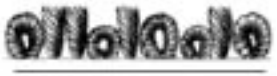


LOOP PILE DESIGN

LEVEL LOOP – All loops are the same height. Carpet with large untwisted loops is referred to as a "Berber".

MULTI-LEVEL– Loops are different heights creating a pattern to the carpet. Also known as "high-low" or "sculptured" carpet.

CUT & LOOP – Utilizes cut pile and loop pile together to create a wide range of patterns.



QuickGuide

PROCEDURE

1. Acquire a sample fiber or tuft from an inconspicuous area.
2. Place the fiber in some tweezers, a paper clip or a Leatherman tool.
3. Using a butane lighter, burn the fiber (do this over an ash tray).
4. See if the fiber burns or melts. Observe the flame, smoke, odor and ash.

PRODUCTS NEEDED

- Ash Tray
- Butane lighter
- Tweezers or clip

Other Resources

Bridgepoint Carpet Cleaning Manual
Fast Carpet Cleaning Track Manual
Interlink Supply Catalog
www.InterlinkSupply.com
Customer Service • 1-800-794-7425
CleanWiki.com