FIBER IDENTIFICATION BY BURNING

All fabric sold for the RETAIL market in the US must carry a fiber content tag. However, we often purchase fabric or garments that are vintage, are no longer housed on original rolls, or from a jobber that purchased the fabric on wholesale put-ups.

With the advanced chemical make up of many textiles today, exact fiber ID must use a microscope. Those working in the textile industry and museums do perform such tests. Costume designers, however, rarely need an exact laboratory break down of fiber content. In general, we want to understand the fiber content so we can modify the garment by dying or painting.

We often do not have to exactly identify the chemical make up of fibers. NOTE: finishing chemicals may change burn results.

<table>
<thead>
<tr>
<th>CELLULOSE FIBERS</th>
<th>PROTEIN FIBERS</th>
<th>MANUF FIBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Silk</td>
<td>Acetate**</td>
</tr>
<tr>
<td>Flax/ Linen</td>
<td>Wool</td>
<td>Acrylic</td>
</tr>
<tr>
<td>Ramie</td>
<td>Specialty wools</td>
<td></td>
</tr>
<tr>
<td>Lyocell/ Tencel</td>
<td>Animal hair</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(eco friendly)</td>
<td>**final test for Acetate is to melt it with Acetone</td>
</tr>
<tr>
<td>Viscose Rayon</td>
<td></td>
<td></td>
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<tr>
<td>Bamboo</td>
<td></td>
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<tr>
<td>PLA/Ingeo (corn)</td>
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</tbody>
</table>

- **Approach Flame**
  - Rapid ignite, does not fuse or melt when held next to flame
  - May curl slightly
  - No melt
- **In Flame**
  - Fast burn, yellow flame
  - Burns slowly
  - Fast burning, with melting –May drip
- **Removed from Flame**
  - Continues to burn
  - Afterglow red/yellow
  - Slow burn
  - Sometimes self extinguishing
- **Ash Appearance**
  - Soft, feathery grey ash
  - Ash brushes away completely
  - Stiff, crisp black ash that can be crushed between fingers
- **Odor**
  - Burning paper or leaves
  - Burning hair or feathers
  - Acrid, Vinegar smell

**Nylon**
- Polyester

**Poly-**
- Black bead
- Can be cracked off

**Nylon=**
- Grey bead

**Poly-**
- Black bead

Burn chart & instructions on Ditzypints.com
FIBER BURN CHART

Burns
Not Self-Extinguishing

Burns & Chars
- Odor of Burning Grass
  - Soft Gray Ash
    - Linen, Jute, Hemp
- Odor of Burning Paper
  - Soft Gray Ash
  - Cotton, Ramie, Rayon
- Odor of Vinegar
  - Soft Black Ash
    - Mercerized Cotton or Linen
  - Hard Black Irregular Ash
  - Hard Black Irregular Bead
- Odor of Baking Meat
  - Acetate or Triacetate
  - Acrylic (Orlon, Acrylic)
- Odor of Turmeric
  - Acrylic (Zefran, Zefkrome)

Burns & Melts

Burns Self-Extinguishing

Burns Briefly & Chars
- Odor of Burning Hair or Feathers
  - Black Soft Bead
    - Silk
- Irregular Dark Ash
- Open Lace-Like Ash
- Hard Gray Bead

Burns Briefly & Melts
- Odor of Asphyxiation
  - Hard Tan Bead
  - Hard Black Irregular Bead
- Odor of Sharp Acid Chemicals
  - Hard Black Round Bead
- Odor of Sweet Chemicals
  - Hard Black Bead
  - Hard Black Irregular Bead

Does Not Burn
- Glass (Fiberglass)
- Asbestos, Metal