

Fiber Burn Tests

Fiber	Appearance	Odor	Residue
Natural fibers			
Cotton	Burns very fast with a bright yellow flame, similar to paper	burnt paper	burnt ends look bushy
Linen	Burns very fast with a bright yellow flame, similar to paper	burnt paper	burnt ends appear melted together
Silk	Burns and bubbles faster than wool with a yellow flame	burnt hair (mild)	black, brittle, spherical beads
Weighted silk	Does not burn; the fabric will char	burnt hair (faint)	fabric retains shape
Wool	Burns slowly; bubbles while burning; easy to put out flame	burnt hair (strong)	black, brittle, irregular beads
Synthetic fibers			
Acrylic	Burns readily with smoky flame	acidic	hard ash
Aramid	Does not burn		
Cellulose acetate	Burns fast with a yellow flame; may melt and sputter	burnt paper	hard, black beads; similar to silk
Modacrylic	Self-extinguishing		
Nylon	Melts first, then ignites and burns rapidly.	burnt plastic	
Polyester	Difficult to ignite, self-extinguishing. Burns with shiny, yellow-orange, sooty flame.	sweet	hard ash
Polyethylene	Burns with a heavy, sooty, waxy smoke. Softens at 120 C.		
Polypropylene	Burns with a heavy, sooty, waxy smoke.		
Polyurethane	Burns with bright flame and minimal smoke		
Polyvinyl chloride	Burns with green smoky flame, self-extinguishing.	acidic; releases hydrochloric acid	
Rayon (regenerated cellulose)	Burns very fast with a bright yellow flame, similar to paper	burnt paper	light, white ash
Vinal	Does not burn		