

# Material Identification Chart

The information below is from IAPD's Introduction to Mechanical Plastic Training Manual  
Contact IAPD for further Sale Tools Ph. 913-345-1009 Fax: 913-345-1006 Email:iapd.org

Materials	No Flame	Burns, but Extinguishes on Removal of Flame Source			Continues to Burn After Removal of Flame Source				Remarks
	Odor	Odor	Color of Flame	Drips	Odor	Color of Flame	Drips	Speed of Burning	
<b>THERMOPLASTICS</b>									
ABS	—	Acrid	Yellow, blue edges	No	Acrid	Yellow, blue edges	Yes	Slow	Black smoke with soot in air
Acetals	—	—	—	—	Formaldehyde	Blue, no smoke	Yes	Slow	Flame may spurt if rubber modified
Acrylics	—	—	—	—	Fruity	Blue, yellow tip	No (cast) Yes (molded)	Slow	
Cellulosics									
Acetate	—	Vinegar	Yellow with sparks	No	Vinegar	Yellow	Yes	Slow	Flame may spark
Acetate Butyrate	—	—	—	—	Rancid butter	Blue, yellow tip	Yes	Slow	Flame may spark
Ethyl Cellulose	—	—	—	—	Burnt sugar	Yellow, blue edges	Yes	Rapid	—
Nitrate	—	—	—	—	Camphor	White	No	Rapid	—
Propionate	—	—	—	—	Burnt sugar	Blue, yellow tip	Yes	Rapid	—
Chlorinated Polyether	—	—	Green, yellow tip	No	—	—	—	—	Black smoke with soot in air
Fluorocarbons									
FEP	Faint odor of burnt hair	—	—	—	—	—	—	—	Deforms; no combustion, but drips
PTFE	Faint odor of burnt hair	—	—	—	—	—	—	—	Deforms; does not drip
CTFE	Faint odor of acetic acid	—	—	—	—	—	—	—	Deforms; no combustion, but drips
PVF	Acidic	—	—	—	—	—	—	—	Deforms
Nylons									
Type 6	—	—	—	—	Burnt wool	Blue, yellow tip	Yes	Slow	—
Type 6/6	—	Burnt wool or hair	Blue, yellow tip	Yes	—	—	—	Slow	More rigid than type 6 nylon
Phenoxies	—	Acrid <sup>d</sup>	Yellow <sup>c</sup>	No <sup>c</sup>	Acrid <sup>d</sup>	Yellow <sup>d</sup>	Yes <sup>d</sup>	Slow <sup>d</sup>	Black smoke with soot in air
Polycarbonates	—	Faint, sweet aromatic ester	Orange	Yes	—	—	—	—	Black smoke with soot in air
Polyethylenes	—	—	—	—	Paraffin	Blue, yellow tip	Yes	Slow	Floats in water
Polyphenylene Oxides (PPO)	—	Phenol	Yellow-orange	No	—	—	—	—	Flame spurts; very difficult to ignite
Modified Grade	—	Phenol	Yellow-orange	No	—	—	—	—	Flame spurts; difficult to ignite; soot in air
Polyimides	<sup>b</sup>	—	—	—	—	—	—	—	Chars; material very rigid
Polypropylenes	—	Acrid <sup>a</sup>	Yellow <sup>a</sup>	No <sup>a</sup>	Sweet	Blue, yellow tip	Yes	Slow	Floats in water; more difficult to scratch than polyethylene
Polystyrenes	—	—	—	—	Illuminating gas	Yellow	Yes	Rapid	Dense black smoke with soot in air
Polysulfones	—	<sup>b</sup>	Orange	Yes	—	—	—	—	Black smoke
Polyurethanes	—	—	—	—	<sup>b</sup>	Yellow	No	Slow	Black smoke
Vinyls									
Flexible	—	Hydrochloric acid	Yellow with green spurts	No	—	—	—	—	Chars, melts
Rigid	—	Hydrochloric acid	Yellow with green spurts	No	—	—	—	—	Chars, melts
Polyblends									
ABS/Polycarbonate	—	—	—	—	<sup>b</sup>	Yellow, blue edges	No	—	Black smoke with soot in air
ABS/PVC	—	Acrid	Yellow, blue edges	No	—	—	—	—	Black smoke with soot in air
PVC/Acrylic	—	Fruity	Blue, yellow tip	No	—	—	—	—	—
<b>THERMOSETS</b>									
Alkyds	—	—	—	—	—	—	—	—	—
Diallyl Phthalates	—	—	—	—	Phenolic	Yellow	No	Slow	Black smoke, cracks
Diglycol Carbonate	—	—	—	—	Acrid	Yellow	No	Slow	Black smoke with soot
Epoxies	—	—	—	—	Phenol	Black smoke	No	Slow	Black smoke with soot in air
Melamines	Formaldehyde and fish	—	—	—	—	—	—	—	—
Phenolics	Formaldehyde and phenol <sup>c</sup>	Phenol and wood or paper <sup>d</sup>	Yellow <sup>d</sup>	No	—	—	—	—	May crack
Polyesters	—	Hydrochloric acid <sup>a</sup>	Yellow <sup>a</sup>	No <sup>a</sup>	<sup>b</sup>	Yellow, blue edges	No	Slow	Cracks and breaks
Silicones	<sup>b</sup>	—	—	—	—	—	—	—	Deforms
Ureas	Formaldehyde	—	—	—	—	—	—	—	—

<sup>a</sup> Flame retardant <sup>b</sup> Nondescript <sup>c</sup> Inorganic filler <sup>d</sup> Organic filler

Ref: Materials Engineering, Penton/IPC, Cleveland, Ohio