



**CUT TO SIZE
plastics**

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FAIRFIELD NSW 1860

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HERCULES ENGINEERING

HOW TO IDENTIFY PLASTICS

Materials	No Flame	Burns but Extinguishes on Removal of Flame Source			Continues to Burn After Removal of Flame Source				Remarks
	Odor	Odor	Colour of Flame	Drips	Odor	Colour of Flame	Drips	Speed of Burning	
Thermoplastics									
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	
Acrylics	-	-	-	-	Fruity	Blue, yellow tip	No (cast) Yes (molded)	Slow	Flame may spurt if rubber modified
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	-	-	-	-	-
- Type 6/6	-	Burnt wool or hair	Blue, yellow tip	Yes	-	-	-	-	More rigid than type 6 nylon
Phenoxies	-	Acrid ^d	Yellow ^c	No ^c	Acrid ^d	Yellow ^d	Yes ^d	Slow ^d	Black smoke/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

^a Flame retardant grade ^b Nondescript ^c Inorganic filler ^d Organic filler
Ref: Materials Engineering, Penton/IPC, Cleveland, Ohio



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HOW TO IDENTIFY PLASTICS (continued)

Materials	No Flame	Burns but Extinguishes on Removal of Flame Source			Continues to Burn After Removal of Flame Source				Remarks
	Odor	Odor	Colour of Flame	Drips	Odor	Colour of Flame	Drips	Speed of Burning	
Thermoplastics									
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	^b	-	-	-	-	-	-	-	Chars: mat'l very rigid
Polypropylenes	-	Acrid ^a	Yellow ^a	No ^a	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	-	^b	Orange	Yes	-	-	-	-	Black smoke
Polyurethanes	-	-	-	-	^b	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	-	-	-	-	^b	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	-	-	-	-	
Thermosets									
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
Malamines	Formaldehyde & fish	-	-	-	-	-	-	-	-
Phenolics	Formaldehyde & Phenol ^c	Phenol & wood or paper ^d	Yellow ^d	No	-	-	-	-	May crack
Polyesters	-	Hydrochloric acid ^a	Yellow ^a	No ^a	^b	Yellow, blue edges	No	Slow	Cracks & breaks
Silicones	^b	-	-	-	-	-	-	-	Deforms
Ureas	Formaldehyde	-	-	-	-	-	-	-	-

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