

FLAMMABILITY TESTS

SPONSORING ORGANIZATION	NAME OF TEST	IDENT. NO. PROCEDURE	MATERIAL	SPEC. SIZE (in.)	NO. OF SPEC.	ANGLE OF SPEC.	IGNITION SOURCE	CONDITIONING	PROPERTIES MEASURED	DIV. HANDLING TEST
1 American Soc. of Testing & Materials Methods	Surface Flammability of Materials Using a Radiant Heat Energy Source	ASTM E-162	Sheet laminates, Tiles, Fabrics, Liquids, Films	6 x 18 x thickness	4 (min.)	60°	Gas Air Mixture Radiant Panel	Predrying at 140°F for 24 hrs., then cond. at 73°F-50% RH	Flame spread index, weight smoke deposit and vis. characteristics	Engineering
2 ASTM	Oxygen Index Flammability Test	ASTM D-2863	Plastics, Textiles Papers, Other Materials	1/4 x 1/4 x 5	10	Vertical	Oxygen & Nitrogen	As received	Oxygen index value	Engineering
3 Bureau of Ships	Flammability and Toxicity	U.S.T. Co. Report No. 84874	Generally melamine plastic; can be any material	1/2 x 1/2 x 5	12	Vertical	Nichrome Wire	None	Flash ignition, self-ignition, toxicity of gases evolved	Chemistry
4 Federal Test Method Std.	Mackey	Method 5920 of FTM S-191	Cloth or related materials	2 x 12	2 (min.)	Does not apply	Does not apply	4 hrs. at 60°C	Tendency of material to undergo self-heating at moderate temp.	Chemistry
5 ASTM	Noncombustibility of Elementary Material	ASTM E-136	Building Materials	1.5 (W) x 2 (L) x 1.5 (thick)	4 (min.)	Perpendicular to air flow	Hot Air Ignition Furnace	Predrying at 140°F bet. 24 to 48 hrs.	Combustibility or Noncombustibility of materials	Engineering
6 Federal Test Method Std.	Flame Resistance of Acoustical Material	Fed. Spec. SSA-1188	Acoustical Units	36 x 36 x thickness	3	Horizontal	Gas Burner	73°F at 50% RH	Nonburning, degree of burning	Engineering
7 Developed by National Bureau of Standards	AMINCO Smoke Density Chamber		All types of Material	3 x 3	6	Vertical	Flame—Electric Furnace	70°F-50% RH	Specific optical density	Textile
8 ASTM	Smoke Density From the Burning of Plastics	ASTM D-2843	Plastic Material	1 x 1 x 1/4	3	Horizontal	Propane Burner	73°F-50% RH	Percent of light absorption	Engineering
9 ASTM	Flammability of Rigid Plastics Over 0.050" Thickness	ASTM D-635	Rigid Plastics	0.5 x 5 x thickness	10	45°	Bunsen Burner	As received condition	Burning rate, visual characteristics	Engineering
10 ASTM	Flammability of Plastics Self-Extinguishing Type	ASTM D-757	Rigid Plastics	0.5 (W) x 4.75 (L) x 0.25 (thick)	3	90° to source	Silicone Carbide Incandescent Rod	As received	Burning rate, visual characteristics	Engineering
11 ASTM	Flammability of Plastic Foams and Sheeting	ASTM D-1692	Plastic Foams and Sheeting	2 x 6 x thick (max. 0.5)	10	90° to source	Bunsen Burner	88 hrs. at 73°F-50% RH	Burning rate, visual characteristics	Engineering
12 ASTM	Ignition Properties of Plastics	ASTM D-1929 Proc. B	Plastic Sheets & Films, Thermo Plastic Pellets	3.0 gm. wt. sheet size 1/4 x 1/4 x thickness	14	Horizontal	Hot Air Ignition Furnace	As received	Flash-ignition temp., self-ignition temp., visual characteristics	Engineering
13 Federal Test Method Std.	Flame Resistance of Plastics	Method 2023 Fed. Std. 406	Plastics difficult to ignite	5 x 1/2 x 1/2	5	Vertical	Electric Coil & Spark Plugs	As received	Ignition time, burning time, flame travel	Engineering
14 ASTM	Flammability of Plastic 0.050" and under	ASTM D-568	Plastic Sheets & Films	1 x 18	3	Vertical	Bunsen Burner	73°F at 50% RH	Non-burning, self-extinguishing burning rate, visual characteristics	Textile
15 Department of Commerce	Flammability of Plastic Film	CS 192-53	Plastic Films Coated Fabric	3 x 9	5WSF	45°	Burner, Butane	48 hrs.-125°F	Ignition time, rate of burning	Textile
16 FHSA	Flash Point (Tag Open Cup)	ASTM-API FHSA	Aerosols	Any size can	2 (min.)	Does not apply	Open Flame	None	Flash point of aerosol	Chemistry
17 FHSA	Flame Projection	C.S.M.A. FHSM	Aerosols	Any size can	1 ea.	Vertical Horizontal & Inverted	Candle	None	Flame projection of aerosol	Chemistry
18 C.S.M.A.	Drum Test	C.S.M.A. Aerosol Guide	Aerosols	Any size can	2 ea.	Vertical	Candle	None	Flame projection of aerosol	Chemistry
19 ASTM	Fire Retardancy of Paint (Cabinet Method)	ASTM D-1360	Paint	1/4 x 6 x 12 5 panels 6 x 12	45°	45°	Alcohol Flame	2 wks. at 50% RH and 73°F	Fire retardancy of coating or coating system on wood	Chemistry
20 ASTM	Fire Retardancy of Paint (Stick and Wick Method)	ASTM D-1361	Paint	1 x 1 x 16	Open at 10	Vertical	Alcohol Flame	3 stages: 24 hrs. ambient, 14 days ambient, 72 hrs. 140°F	Fire retardancy of paints	Chemistry
21 ASTM	Flash Point	ASTM D-56, D-92, D-93, D-1310	Liquids	1 quart	—	—	Flame	None	Flash point of flammable liquids	Chemistry
22a NFPA	Fire Tests for Flame Resistant Textiles and Films	NFPA 701 Large Scale	Fabrics & Films	5 x 84 25 x 84	5WSF, 2WSF	Vertical	Burner	Oven-dry	After flame, After glow Char length	Engineering
22b NFPA	Fire Tests for Flame Resistant Textiles and Films	NFPA 701 Small Scale	Fabrics & Films	2 1/4 x 10	5WSF	Vertical	Burner	Oven-dry	After flame, After glow Char length	Textile
23a Federal Spec.	Surface Flammability of Carpets & Rugs	Spec. DDD-C-95	Carpets & Rugs	9 x 9	8	Horizontal	Methenamine Burning Tablet	Oven-dry	Area of flame spread (greatest diameter)	Textile

23b	Department of Commerce	Surface Flammability of Carpets & Rugs	DOC FF 1-70	Carpets & Rugs	9 x 9	8	Horizontal	Methenamine Burning Tablet	Oven-dry	Area of flame spread (greatest diameter)	Textile
23c	Department of Commerce	Surface Flammability of Carpets & Rugs	DOC FF 2-70	Carpets & Rugs	9 x 9	8	Horizontal	Methenamine Burning Tablet	Oven-dry	Area of flame spread (greatest diameter)	Textile
23d	ASTM	Surface Flammability of Carpets & Rugs	ASTM D-2859	Carpets & Rugs	9 x 9	8	Horizontal	Methenamine Burning Tablet	Oven-dry	Area of flame spread (greatest diameter)	Textile
24a	Commercial Standard	Flammability of Clothing Textiles	CS-191-53	Fabrics	2 x 6	5 orig. 50C&W	45°	Burner, Butane	Oven-dry	Time of flame spread, ease of ignition, flame intensity	Textile
24b	AATCC	Flammability of Clothing Textiles	AATCC-33-1962	Fabrics	2 x 6	5 orig. 50C&W	45°	Burner, Butane	Oven-dry	Time of flame spread, ease of ignition, flame intensity	Textile
24c	ASTM	Flammability of Clothing Textiles	ASTM D-1230-61	Fabrics	2 x 6	5 orig. 50C&W	45°	Burner, Butane	Oven-dry	Time of flame spread, ease of ignition, flame intensity	Textile
24d	NFPA	Flammability of Clothing Textiles	NFPA-702	Fabrics	2 x 6	5 orig. 50C&W	45°	Burner, Butane	Oven-dry	Time of flame spread, ease of ignition, flame intensity	Textile
25	Federal Test Method Std.	Burning Rate of Cloth; 45° Angle	Method 5908 FTMS-191	Fabrics	2 x 6	5	45°	Burner, Butane	4 hrs. 140°	Ease of ignition, Rate of burning	Textile
26	Federal Test Method Std.	Flame Resistance of Cloth, Vertical	Method 5903 FTMS-191	Fabrics	2 1/4 x 12	5WSF	Vertical	Burner (mfg gas 8)	70°F 65% RH	After flame, After glow Char length	Textile
27	City of Boston	Fire Code 1959	Section 11.07	Fabrics	1 1/2 x 10	6	Vertical	Burner	Ambient	After flame, After glow	Textile
28	City of New York	Fire Code 1940	Par. 5.0	Fabrics	2 x 12.5	3	Vertical	Burner	Ambient	After flame, After glow	Textile
29a	State of California	Fire Code Title 19	Par. 1273.3	Film, Syn. & Coated Fabrics	12 x 30	3	Vertical	Burner	Ambient	After flame, After glow	Textile
29b	State of California	Fire Code Title 19	Par. 1237.1 Small Scale	Fabrics	2 1/4 x 12 1/2	3WSF	Vertical	Burner	Oven-dry	After flame, Char Length	Textile
29c	State of California	Fire Code Title 19	Par. 1237.3 Large Scale	Fabrics	5 x 84	3WSF	Vertical	Burner	Oven-dry	After flame, Char Length	Engineering
30a	Federal Aviation Authority	F.A.A. Regulations for Compartment Interiors	Par. 25.853	Compartment Materials	4 1/2 x 12	3 (min.)	Horizontal	Burner	70°F-50% RH	Time of flame spread	Textile
30b	Federal Aviation Authority	F.A.A. Regulations for Compartment Interiors	Par. 25.853	Compartment Materials	2 1/4 x 12 1/2	3 (min.)	Vertical	Burner	70°F-50% RH	After flame, Burn Length	Textile
31	Federal Test Method Std.	Burning Rate of Cloth; Horizontal	Method 5906 Fed. Std. 191	Fabrics	4 1/2 x 12 1/2	5	Horizontal	Burner	Oven-dry	Time of flame spread	Textile
32	Department of Transportation	Flammability of Interior Materials—Cars, Trucks, Multipurpose Passenger Vehicle, Buses	Motor Vehicle Safety Std. 302	Interior Material	4 x 14	8L 8W	Horizontal	Burner	70°F-50% RH	Time of flame spread	Textile
33	Federal Test Method Std.	Flame Resistance of Cloth; Horizontal	Method 5900 Fed. Std. 191	Fabrics	7 x 10	1W1F	Horizontal	0.3 ml. EtOH	Oven-dry	Area of flame spread (greatest diameter)	Textile
34	Federal Test Method Std.	Burning Rate of Cloth; 30°	Method 5910 Fed. Std. 191	Fabrics	1 x 6	3WSF	30°	Match	4 hrs. 140°F	Rate of burning	Textile
35	Food and Drug Administration	Hazardous Substances Labeling Act (Toys)	Par. 191.14A02	Rigid and Pliable Solids	Not Stated	Not Stated	Horizontal	Candle	Ambient	Rate of burning	Textile
36	Department of Commerce	Children's Sleepwear	DOC FF 3-71	Sleepwear Sizes 0-6X	3 1/2 x 10	5-Fabric 1S-Seams	Vertical	Burner Methane	Oven-Dry	Residual Flame Time, Char Length	Textile
37	Department of Commerce	Mattresses	DOC FF 4-72	Mattresses & Mattress Pads	Complete Item	Finished	Horizontal	Cigarette	65-80°F 50% RH Max.	Char Length	Textile
38	ASTM	Surface Burning of Bldg. Mat'ls.	ASTM E-84	Bldg. Mat'ls.	20" x 25'	1	Horizontal	Gas Air Mixture	70° ± 5°F 35 to 40% RH	Flame Spread Index Fuel Contribution Smoke Density	Engineering