

TABLE I: Class I Flammable Gases and Vapors Having Less Than 100°F Flash Point— Groups A, B, C and D Determined by Actual Tests^o

Normally, Special Electrical Equipment IS Required Where these Flammable Gases or Vapors are Present, as these Chemicals Form Ignitable or Explosive Mixtures with Air at Ambient Temperatures.

Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group A Atmospheres							
Acetylene	Gas		581	305	2.5	100	0.9
Group B Atmospheres							
Acrolein (inhibited)Ⓢ	-15	-26	428*	220*	2.8	31.0	1.9
1,3-Butadiene Ⓢ	Gas		788	420	2.0	12.0	1.9
Ethylene Oxide Ⓢ	-20		804	429	3.0	100	1.5
Hydrogen	Gas		932**	500**	4.0	75.0	0.1
Manufactured Gas (containing more than 30% H ₂ by volume)	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
Propylene Oxide Ⓢ	-35	-37	840	449	2.3	36.0	2.0
Propyl Nitrate	68	20	347	175	2.0	100	NAⓈ
Group C Atmospheres							
Acetaldehyde	-38	-39	347	175	4.0	60.0	1.5
Allyl Alcohol	70	21	713	378	2.5	18.0	2.0
n-Butyraldehyde	-8	-22	425	218	1.9	12.5	2.5
Carbon Monoxide	Gas		1128	609	12.5	74.0	1.0
Crotonaldehyde	55	13	450	232	2.1	15.5	2.4
Diethyl Ether (Ethyl Ether)	-49	-45	320***	160***	1.9	36.0	2.6
Diethylamine	-9	-23	594	312	1.8	10.1	2.5
Epichlorohydrin	81	31	772	411	3.8	21.0	3.2
Ethylene	Gas		842	450	2.7	36.0	1.0
Ethylenimine	12	-11	608	320	3.3	54.8	1.5
Ethyl Mercaptan	<0	<-18	572	300	2.8	18.0	2.1
Hydrogen Cyanide (Hydrocyanic Acid)	0	-18	1000	538	5.6	40.0	0.9
Hydrogen Sulfide	Gas		500	260	4.0	44.0	1.2
Methylacetylene	Gas		NAⓈ	NAⓈ	1.7	NAⓈ	1.4
Methyl Ether	Gas		662	350	3.4	27.0	1.6
Methyl Formal	NAⓈ	NAⓈ	460	238	NAⓈ	NAⓈ	NAⓈ
2-Nitropropane	75	24	802	428	2.6	11.0	3.1
n-Propyl Ether	70	21	370+	188+	1.3	7	3.53
Tetrahydrofuran	6	-14	610	321	2.0	11.8	2.5
Triethylamine	16	-7	480	249	1.2	8.0	3.5
Unsymmetrical Dimethyl Hydrazine (UDMH)	-5	-15	480	249	2.0	95.0	2.0
Group D Atmospheres							
Acetone	-4	-20	869	465	2.5	12.8	2.0
Acrylonitrile	32	0	898	481	3.0	17.0	1.8
Ammonia	Gas		928	498	15.0	28.0	0.6
Benzene (Benzol)	12	-11	928	498	1.2	7.8	2.8
Butane	-76	-60	550	287	1.6	8.5	2.0
1-Butanol (Butyl Alcohol)	98	37	650	343	1.4	11.2	2.6
2-Butanol (Secondary Butyl Alcohol)	75	24	761	405	1.7Ⓢ	9.8Ⓢ	2.6
n-Butyl Acetate	72	22	790	421	1.7	7.6	4.0
iso-Butyl Acetate	64	18	790	421	1.3	10.5	4.0
Cyclopropane	Gas		938	503	2.4	10.4	1.5
Di-isobutylene	23	-5	736	391	0.8	4.8	3.87
Ethane	Gas		882	472	3.0	12.5	1.0
Ethanol (Ethyl Alcohol)	55	13	685	363	3.3	19.0	1.6
Ethyl Acetate	24	-4	800	427	2.0	11.5	3.0
Ethyl Acrylate (inhibited)	50	10	702	372	1.4	14.0	3.5
Ethylamine	<0	<-18	725	385	3.5	14.0	1.6

GROUP D ATMOSPHERES CONTINUED ON FOLLOWING PAGE

Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group D Atmospheres (continued)							
Ethylenediamine (Anhydrous 76%)	150	66	725	385	2.5	12.0	2.1
Ethylene Dichloride	56	13	775	413	6.2	16.0	3.4
Gasoline	-50	-46	536 to 880	280 to 471	1.3	7.1	3-4 [Ⓔ]
Heptane	25	-4	399	204	1.05	6.7	3.5
Hexane	-7	-22	437	225	1.1	7.5	3.0
Isoprene	-65	-54	428 [†]	220 [†]	1.5	8.9	2.4
Isopropyl Ether	-18	-28	830	443	1.4	7.9	3.5
Mesityl Oxide	87	31	652	344	1.4	7.2	3.4
Methane (Natural Gas)	* Gas		999	537	5.0	15.0	0.6
Methanol (Methyl Alcohol)	52	11	725 ^{††}	385 ^{††}	6.0	36.0	1.1
Methyl Ethyl Ketone	16	-9	759	404	1.4 [Ⓔ]	11.4 [Ⓔ]	2.5
Methyl Isobutyl Ketone	64	18	840	449	1.2 [Ⓔ]	8.0 [Ⓔ]	3.5
2-Methyl-1-Propanol (Isobutyl Alcohol)	82	28	780	416	1.7 [Ⓔ]	10.6 [Ⓔ]	2.6
2-Methyl-2-Propanol (Tertiary Butyl Alcohol)	52	11	892	478	2.4	8.0	2.6
Naphtha (Petroleum)	<0	<-18	550	288	1.1	5.9	2.5
Octane	56	13	403	206	1.0	6.5	3.9
Pentane	<-40	<-40	470 ^{†††}	243 ^{†††}	1.5	7.8	2.5
1-Pentanol (Amyl Alcohol)	91	33	572	300	1.2	10.0 [Ⓔ]	3.0
Propane	Gas		842	450	2.1	9.5	1.6
1-Propanol (Propyl Alcohol)	74	23	775	413	2.2	13.7	2.1
2-Propanol (Isopropyl Alcohol)	53	12	750	399	2.0	12.7 [Ⓔ]	2.1
Propylene	Gas		851	455	2.0	11.1	1.5
Pyridine	68	20	900	482	1.8	12.4	2.7
Styrene	88	31	914	490	0.9	6.8	3.6
Toluene	40	4	896	480	1.1	7.1	3.1
Vinyl Acetate	18	-8	756	402	2.6	13.4	3.0
Vinyl Chloride	-108.4	-78	882	472	3.6	33.0	2.2
Xylenes	81 to 90	27 to 32	867 to 984	464 to 529	1.0 to 1.1	6.0 to 7.0	3.7

① All figures are based on experiments conducted at normal atmospheric pressures and at normal temperatures, where temperature is not a variable, unless otherwise indicated.

② Varies according to mixture. Some mixtures may be Group B. ③ Not Available. ④ At 212°F (100°C) ⑤ Varies with different grades of gasoline. ⑥ At 200°F (93°C)

⑦ At 123°F (51°C) ⑧ At 202°F (94°C)

⑨ Electrical equipment for Group C permitted if external seals are installed per NEC® 501-5(a)

⑩ Electrical equipment for Group D permitted if external seals are installed per NEC® 501-5(a)

*455°F (235°C) in NFPA 497M-1991 and 428°F (220°C) in NFPA 325M-1991.
 **968°F (520°C) in NFPA 497M-1991 and 932°F (500°C) in NFPA 325M-1991.
 ***320°F (160°C) in NFPA 497M-1991 and 356°F (180°C) in NFPA 325M-1991.
 †419°F (215°C) in NFPA 497M-1991 and 370°F (188°C) in NFPA 325M-1991.
 ‡428°F (220°C) in NFPA 497M-1991 and 743°F (395°C) in NFPA 325M-1991.
 ††725°F (385°C) in NFPA 497M-1991 and 867°F (464°C) in NFPA 325M-1991.
 †††470°F (243°C) in NFPA 497M-1991 and 500°F (260°C) in NFPA 325M-1991.



TABLE II: Class I Flammable Gases and Vapors Having Less Than 100°F Flash Points—Groups A, B, C and D Determined by Chemical Analysis^o

Normally, Special Electrical Equipment IS Required Where these Flammable Gases or Vapors are Present, as these Chemicals Form Ignitable or Explosive Mixtures with Air at Ambient Temperatures.

Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group B Atmospheres							
Formaldehyde	Gas		795	424	7.0	73.0	1.0
Group C Atmospheres							
Butyl Mercaptan (1-Butanethiol)	35	2	NA ^o	NA ^o	NA ^o	NA ^o	3.1
Dicyclopentadiene	90	32	937	503	NA ^o	NA ^o	4.6
Di-isopropylamine	30	-1	600	316	1.1	7.1	3.5
Dimethylamine	Gas		752	400	2.8	14.4	1.6
1,4-Dioxane	54	12	356	180	2.0	22.0	3.0
Di-n-propylamine	63	17	570	299	NA ^o	NA ^o	3.5
n-Ethyl Morpholine	90	32	NA ^o	NA ^o	NA ^o	NA ^o	4.0
Hydrogen Selenide	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Isobutyraldehyde	-1	-18	385	196	1.6	10.6	2.5
Isopropyl Glycidyl Ether	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Methylacetylene-Propadiene (stabilized)	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Methyl Mercaptan	NA ^o	NA ^o	NA ^o	NA ^o	3.9	21.8	1.7
Monomethyl Hydrazine	17	-8	382	194	2.5	92.0	1.6
Nitroethane	82	28	778	414	3.4	NA ^o	2.6
Nitromethane	95	35	785	418	7.3	NA ^o	2.1
1-Nitropropane	96	36	789	421	2.2	NA ^o	3.1
Propionaldehyde (Propanol)	-22	-30	405	207	2.6	17.0	2.0
Valeraldehyde	54	12	432	222	NA ^o	NA ^o	3.0
Group D Atmospheres							
Acetonitrile	42	6	975	524	3.0	16.0	1.4
Allyl Chloride	-25	-32	905	485	2.9	11.1	2.6
n-Amyl Acetate	60	16	680	360	1.1	7.5	4.5
sec-Amyl Acetate	89	32	NA ^o	NA ^o	NA ^o	NA ^o	4.5
sec-Butyl Acetate	88	31	NA ^o	NA ^o	1.7	9.8	4.0
Butylamine	10	-12	594	312	1.7	9.8	2.5
Butylene (1-Butene)	Gas		725	385	1.6	10.0	1.9
Chlorobenzene	82	28	1099	593	1.3	9.6	3.9
Chloroprene	-4	-20	NA ^o	NA ^o	4.0	20.0	3.0
Cyclohexane	-4	-20	473	245	1.3	8.0	2.9
Cyclohexene	<20	<-7	471	244	NA ^o	NA ^o	2.8
Cumene	96	36	795	424	0.9	6.5	4.1
1,1-Dichloroethane	2	-17	820	438	5.4	11.4	NA ^o
1,2-Dichloroethylene	36	2	860	460	5.6	12.8	3.4
1,3-Dichloropropene	95	35	NA ^o	NA ^o	5.3	14.5	3.8
Ethyl Benzene	70	21	810	432	0.8	6.7	3.7
Ethyl Chloride	-58	-50	966	519	3.8	15.4	2.2
Ethyl Formate	-4	-20	851	455	2.8	16.0	2.6
Heptene (Heptylene)	<32	<0	500	260	NA ^o	NA ^o	3.4
2-Hexanone (Methyl Butyl Ketone)	77	25	795	424	NA ^o	8.0	3.5
Hexenes (2-Hexene)	<20	<-7	473	245	NA ^o	NA ^o	3.0
Isoamyl Acetate	77	25	680	360	1.0 ^o	7.5	4.5
Isobutyl Acrylate	82	28	800	427	NA ^o	NA ^o	4.4

GROUP D ATMOSPHERES CONTINUED ON FOLLOWING PAGE



Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group D Atmospheres (continued)							
Isopropyl Acetate	35	2	860	460	1.8 [ⓐ]	8.0	3.5
Isopropylamine	-35	-37	756	402	NA [ⓑ]	NA [ⓑ]	2.0
Liquefied Petroleum Gas	NA	NA	761 to 842	405 to 450	1.5 [ⓐ]	8.6 [ⓐ]	2.0 [ⓐ]
Methyl Acetate	14	-10	850	454	3.1	16.0	2.8
Methyl Acrylate	27	-3	875	468	2.8	25.0	3.0
Methylamine		Gas	806	430	4.9	20.7	1.0
Methylcyclohexane	25	-4	482	250	1.2	6.7	3.4
Methyl Formate	-2	-19	840	449	4.5	23.0	2.1
Methyl Isocyanate	19	-7	994	534	5.3	26.0	2.0
Methyl Methacrylate	50	10	792	422	1.7	8.2	3.6
Nonane	88	31	401	205	0.8	2.9	4.4
Nonene	78	26	NA [ⓑ]	NA [ⓑ]	NA [ⓑ]	NA [ⓑ]	4.4
Octene (1-Octene)	70	21	446	230	NA [ⓑ]	NA [ⓑ]	3.9
2-Pentanone (Methyl Propyl Ketone)	45	7	846	452	1.5	8.2	3.0
1-Pentene	0	-18	527	275	1.5	8.7	2.4
n-Propyl Acetate	55	13	842	450	1.7 [ⓐ]	8.0	3.5
Propylene Dichloride	60	16	1035	557	3.4	14.5	3.9
Turpentine	95	35	488	253	0.8	NA [ⓑ]	NA [ⓑ]
Vinylidene Chloride	-19	-28	1058	570	6.5	15.5	3.4

[ⓐ] How above vapors were classified as Group B, C or D

These vapors were classified as Group B, C or D by chemical analysis rather than by actual tests by Underwriters Laboratories Inc. More specifically, the classifications were based on "analogy with tested materials and chemical structure." They are therefore only tentative classifications and may actually be incorrect in some instances. Therefore, it may be advisable to submit these untested chemicals to a qualified testing laboratory for verification of the group classifications.

The gases and vapors shown above are, almost without exception, *in addition* to those listed in the 1981 NEC® 500-2 Table.

[ⓑ] Not Available [ⓒ] At 212°F (100°C) [ⓓ] 100°F (38°C) [ⓔ] Commercial Butane



TABLE III: Class I Combustible Vapors Having Flash Points of 100°F or More, But Less Than 140°F—Groups B, C and D Determined by Chemical Analysis^o

Normally, Special Electrical Equipment IS NOT Required Where these Combustible Vapors are Present, as these Chemicals Do Not Form Ignitable Mixtures with Air at Ambient Temperatures Unless Heated Beyond their Flash Points.

Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group B Atmospheres							
Allyl Glycidyl Ether ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
n-Butyl Glycidyl Ether ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Group C Atmospheres							
Ethylene Glycol Monoethyl Ether	102	39	545	285	1.8 ^o	14 ^o	2.6
Ethylene Glycol Monoethyl Ether Acetate	120	49	740	392	1.5 ^o	12.3 ^o	4.1
2-Ethylhexaldehyde	112	44	375	191	0.85 ^o	7.2 ^o	4.4
Hydrazine	100	38	74 to 518	23 to 270	2.9	98.0	1.1
Iso-octyl Aldehyde	NA ^o	NA ^o	387	197	NA ^o	NA ^o	NA ^o
Morpholine ^o	98	37	555	290	1.4	11.2	3.0
Tetramethyl Lead	100	38	NA ^o	NA ^o	NA ^o	NA ^o	6.5
Group D Atmospheres							
Acetic Acid ^o	103	39	867	464	4.0	19.9 ^o	2.1
Acetic Anhydride	120	49	600	316	2.7	10.3	3.5
Acrylic Acid	122	50	820	438	2.4	8.0	2.5
t-Butyl Acetate	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
n-Butyl Acrylate (inhibited)	84	29	559	293	1.7	9.9	4.4
Cyclohexanone	111	44	788	420	1.1 ^o	9.4	3.4
p-Cymene	117	47	817	436	0.7 ^o	5.6	4.6
Decene (1-Decene)	<131	<55	455	235	NA ^o	NA ^o	4.8
Diethyl Benzene	133 to 135	56 to 57	743 to 842	395 to 450	NA ^o	NA ^o	4.6
Di-isobutyl Ketone	120	49	745	396	0.8 ^o	7.1 ^o	4.9
Dimethyl Formamide	136	58	833	445	2.2 ^o	15.2	2.5
Dipentene	113	45	458	237	0.7 ^o	6.1 ^o	4.7
Ethyl sec-Amyl Ketone	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Ethyl Butanol	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Ethyl Butyl Ketone	115	46	NA ^o	NA ^o	NA ^o	NA ^o	4.0
Ethylene Glycol Monomethyl Ether	102	39	455	235	1.8 ^o	14 ^o	2.6
Ethyl Silicate	125	52	NA ^o	NA ^o	NA ^o	NA ^o	7.2
Formic Acid (90%)	122	50	813	434	18.0	57.0	1.6
Fuel Oils	110 to 336	43 to 169	410 to 765	210 to 407	0.7	5.0	NA ^o
sec-Hexyl Acetate	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Isoamyl Alcohol	109	43	662	350	1.2	9.0 ^o	3.0
Kerosene	110 to 162	43 to 72	410	210	0.7	5.0	4.5
Methyl Amyl Alcohol (Methyl Isobutyl Carbinol)	106	41	NA ^o	NA ^o	1.0	5.5	3.5
Methyl n-Amyl Ketone	102	39	740	393	1.1 ^o	7.9 ^o	3.9
o-Methylcyclohexanone	118	48	NA ^o	NA ^o	NA ^o	NA ^o	3.9
alpha-Methyl Styrene	127	53	1000	538	0.8	11.0	4.1
Naphtha (Coal Tar)	<0	<-18	531	277	1.1	5.9	2.5
Propionic Acid	126	52	870	466	2.9	12.1	2.5
Tripropylamine	105	41	NA ^o	NA ^o	NA ^o	NA ^o	4.9

^o All chemicals in the above Table III are Class II Combustible Liquids per NFPA Standard 321. Like the chemicals in Table II, these vapors (except Acetic Acid and Morpholine) were classified as Group B, C or D by chemical analysis. It may, therefore, be necessary to have a testing laboratory verify these Group classifications. With the exception of Ethylene Glycol Monomethyl Ether, Isoamyl Alcohol, Morpholine and Acetic Acid, all chemicals in the above Table III are in addition to the 1981 NEC^o Table 500-2. (Where there was a discrepancy between NFPA 497M-1991 and NFPA 325M-1991 in regard to ignition temperatures, the lower values are shown in Table III above.)

- ^o Not Available ^o At 200°F (93°C) ^o At 212°F (100°C) ^o At 302°F (150°C) ^o At 275°F (135°C)
- ^o 151°F (66°C) ^o At 250°F (121°C) ^o Acetic Acid and Morpholine were classified by actual tests.
- ^o Electrical equipment for Group C permitted if external seals are installed per NEC^o 501-5(a)
- ^o at STP.



Table IV: Class I Combustible Vapors Having Flash Points of 140°F or More But Less Than 200°F—Groups C and D Determined by Chemical Analysis^o

Normally, Special Electrical Equipment IS NOT Required Where these Combustible Vapors are Present, as these Chemicals Do Not Form Ignitable Mixtures with Air at Ambient Temperatures Unless Heated Beyond their Flash Points.

Substance	Flash Point		Ignition Temp.		Flammable (Explosive) Limits Percent by Volume		Vapor Density (Air = 1)
	°F	°C	°F	°C	Lower	Upper	
Group C Atmospheres							
n-Butyl Formal	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Chloroacetaldehyde	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
1-Chloro-1-Nitropropane	144	62	NA ^o	NA ^o	NA ^o	NA ^o	4.3
n-Decaldehyde	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
1,1-Dichloro-1-Nitroethane	168	76	NA ^o	NA ^o	NA ^o	NA ^o	5.0
Diethylaminoethanol (N-N-Diethylethanolamine)	140	60	608	320	NA ^o	NA ^o	4.0
Diethylene Glycol Monobutyl Ether	172	78	400	204	0.85	24.6	5.6
Diethylene Glycol Monomethyl Ether	201	94	400	204	1.2 ^o	23.5 ^o	NA ^o
N-N-Dimethyl Aniline	145	63	700	371	NA ^o	NA ^o	4.2
Dipropylene Glycol Methyl Ether	186	86	NA ^o	NA ^o	1.1 ^o	3.0	5.1
Ethylene Glycol Monobutyl Ether	143	62	460	238	1.1 ^o	12.7 ^o	4.1
Ethylene Glycol Monobutyl Ether Acetate	160	71	645	340	0.88 ^o	8.54 ^o	NA ^o
2-Ethyl-3-Propyl Acrolein	155	68	NA ^o	NA ^o	NA ^o	NA ^o	4.4
Furfural	140	60	600	316	2.1	19.3	3.3
Furfuryl Alcohol	167	75	915	490	1.8	16.3	3.4
Isodecaldehyde	185	85	NA ^o	NA ^o	NA ^o	NA ^o	5.4
Monomethyl Aniline (o-Toluidine)	185	85	900	482	NA ^o	NA ^o	3.7
Group D Atmospheres							
Acetone Cyanohydrin	165	74	1270	688	2.2	12.0	2.9
Adiponitrile	200	93	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Aniline	158	70	1139	615	1.3	11.0	3.2
Benzyl Chloride	153	67	1085	585	1.1	NA ^o	4.4
t-Butyl Toluene	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
n-Butyric Acid	161	72	830	443	2.0	10.0	3.0
Cresol	178 to 187	81 to 86	1038 to 1110	559 to 599	1.1 to 1.4	NA ^o	3.7
Cyclohexanol	154	68	572	300	NA ^o	NA ^o	3.5
n-Decanol	180	82	550	288	NA ^o	NA ^o	5.5
Diacetone Alcohol	148	64	1118	603	1.8	6.9	4.0
o-Dichlorobenzene	151	66	1198	647	2.2	9.2	5.1
Dimethyl Sulfate	182	83	370	188	NA ^o	NA ^o	4.4
Dodecene (Dodecylene)	<212	<100	491	255	NA ^o	NA ^o	5.8
Ethylene Chlorohydrin (2-Chloroethanol)	140	60	797	425	4.9	15.9	2.8
2-Ethyl Hexanol	164	73	448	231	0.88	9.7	4.5
2-Ethyl Hexyl Acrylate	180	82	485	252	NA ^o	NA ^o	NA ^o
Hexanol (Hexyl Alcohol)	145	63	NA ^o	NA ^o	NA ^o	NA ^o	3.5
Iso-octyl Alcohol	180	82	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Isophorone	184	84	860	460	0.8	3.8	NA ^o
Methylcyclohexanol	149	65	565	296	NA ^o	NA ^o	3.9
2-Methyl-5-Ethyl Pyridine	155	68	NA ^o	NA ^o	1.1	6.6	4.2
Monoethanolamine	186	86	770	410	3.0 ^o	23.5 ^o	2.1
Monoisopropanolamine (1-Amino-2-Propanol)	171	77	705	374	NA ^o	NA ^o	2.6
Nitrobenzene	190	88	900	482	1.8 ^o	NA ^o	4.3
Nonyl Alcohol (Diisobutyl Carbinol)	165	74	NA ^o	NA ^o	0.8 ^o	6.1 ^o	5.0
n-Octyl Alcohol	178	81	NA ^o	NA ^o	NA ^o	NA ^o	4.5
Phenylhydrazine	190	88	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Propiolactone	165	74	NA ^o	NA ^o	2.9	NA ^o	2.5
Propionic Anhydride	145	63	545	285	1.3	9.5	4.5
Tetrahydronaphthalene	160	71	725	385	0.8 ^o	5.0 ^o	4.6
Tridecene	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Triethylbenzene	181	83	NA ^o	NA ^o	56 ^o	NA ^o	5.6
Undecene	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o	NA ^o
Vinyl Toluene	127	53	921	494	0.8	11.0	4.1

^o These are Class IIIA Combustible Liquids per NFPA Standard 321. Groups C and D were determined by "analogy with tested materials and chemical structure." It may be necessary to have these chemicals tested by a qualified laboratory to verify above Group classifications. All chemicals listed are in addition to 1981 NEC^o Table 500-2. ^o Not Available ^o At 200°F (93°C) ^o At 275°F (135°C) ^o At 300°F (149°C) ^o At 212°F (100°C) ^o At 302°F (150°C) ^o At 360°F (182°C) ^o At 284°F (140°C) ^o At 239°F (115°C)



Group E Electrically Conductive Combustible Dusts^o

Dust Layer Ignition Temperature is Shown Unless Otherwise Indicated

Type of Dust ^o	Minimum Cloud or Layer Ignition Temp.		Type of Dust ^o	Minimum Cloud or Layer Ignition Temp.	
	°F	°C		°F	°C
Metal, Alloys and Compounds:			Ferrosilicon (88%, 9% Fe)	1472	800
Aluminum, atomized collector fines	1022 ^o	550 ^o	Ferrotitanium (19% Ti, 74.1% Fe, 0.06% C)	698 ^o	370 ^o
Aluminum, A422 flake	608	320	Iron, 98%, H ₂ reduced	554	290
Aluminum—cobalt alloy (60-40)	1058	570	Iron, 99%, Carbonyl	590	310
Aluminum—copper alloy (50-50)	1526	830	Magnesium, Grade B, milled	806	430
Aluminum—lithium alloy (15% Li)	752	400	Manganese	464	240
Aluminum—magnesium alloy (Dowmetal)	806 ^o	430 ^o	Tantalum	572	300
Aluminum—nickel alloy (58-42)	1004	540	Thorium, 1.2% O ₂	518 ^o	270 ^o
Aluminum—silicon alloy (12% Si)	1238 ^o	670 ^o	Tin, 96%, atomized (2% Pb)	806	430
Boron, commercial-amorphous (85% B)	752	400	Titanium, 99%	626 ^o	330 ^o
Calcium Silicide	1004	540	Titanium Hydride, (95% Ti, 3.8% H ₂)	896 ^o	480 ^o
Chromium, (97%) electrolytic, milled	752	400	Vanadium, 86.4%	914	490
Ferromanganese, medium carbon	554	290	Zirconium Hydride, (93.6% Zr, 2.1% H ₂)	518	270

^o Per NEC[®] 500-6(a) FPN, "Only Group E dusts are considered to be electrically conductive for classification purposes."

^o Certain metal dusts may have characteristics that require safeguards beyond those required for atmospheres containing the dusts of aluminum, magnesium, and their commercial alloys. For example, thorium hydride and uranium dusts have extremely low ignition temperatures (as low as 20°C) and minimum ignition energies lower than any material classified in any of the Class I or Class II groups.

^o Dust Cloud is normally higher than Dust Layer ignition temperature. However, for this material, the Dust Cloud ignition temperature is lower. Therefore, the Dust Cloud ignition temperature is shown.

^o Dust Cloud ignition temperature is shown because Dust Layer ignition temperature is not available. Caution should be used, because Dust Layer is usually lower than Dust Cloud ignition temperature.

Group F Combustible Dusts

Dust Layer Ignition Temperature is Shown Unless Otherwise Indicated

Type of Dust	Minimum Cloud or Layer Ignition Temp.		Type of Dust ^o	Minimum Cloud or Layer Ignition Temp.	
	°F	°C		°F	°C
Asphalt, (Blown Petroleum Resin)	950*	510*	Gilsonite	932	500
Charcoal	356	180	Lignite, California	356	180
Coal, Kentucky Bituminous	356	180	Pitch, Coal Tar	1310**	710**
Coal, Pittsburgh Experimental	338	170	Pitch, Petroleum	1166**	630**
Coal, Wyoming	—	—	Shale, Oil	—	—



Know what's below.
Call before you dig.

Group G Combustible Dusts

Dust Layer Ignition Temperature is Shown Unless Otherwise Indicated

Type of Dust	Minimum Cloud or Layer Ignition Temp. °F	Minimum Cloud or Layer Ignition Temp. °C	Type of Dust	Minimum Cloud or Layer Ignition Temp. °F	Minimum Cloud or Layer Ignition Temp. °C
Agricultural Dusts:			Aryl-nitrosomethylamide	914	490
Alfalfa Meal	392	200	Azelaic Acid	1130	610
Almond Shell	392	200	2,2-Azo-bis-butyronitrile	662	350
Apricot Pit	446	230	Benzoic Acid	824	440
Cellulose	500	260	Benzotriazole	824	440
Cherry Pit	428	220	Bisphenol-A	1058	570
Cinnamon	446	230	Chloroacetoacetanilide	1184	640
Citrus Peel	518	270	Diallyl Phthalate	896	480
Cocoa Bean Shell	698	370	Dicumyl Peroxide (suspended on CaCO ₃), 40-60	356	180
Cocoa, natural, 19% fat	464	240	Dicyclopentadiene Dioxide	788	420
Coconut Shell	428	220	Dihydroacetic Acid	806	430
Corn	482	250	Dimethyl Isophthalate	1076	580
Corn cob Grit	464	240	Dimethyl Terephthalate	1058	570
Corn Dextrine	698	370	3,5-Dinitrobenzoic Acid	860	460
Cornstarch, commercial	626	330	Dinitrotoluamide	932	500
Cornstarch, modified	392	200	Diphenyl	1166	630
Cork	410	210	Ditertiary Butyl Paracresol	878	470
Cottonseed Meal	392	200	Ethyl Hydroxyethyl Cellulose	734	390
Cube Root, South Amer.	446	230	Fumaric Acid	968	520
Flax Shive	446	230	Hexamethylene Tetramine	770	410
Garlic, dehydrated	680	360	Hydroxyethyl Cellulose	770	410
Guar Seed	932	500	Isotocic Anhydride	1292	700
Gum, Arabic	500	260	Methionine	680	360
Gum, Karaya	464	240	Nitrosoamine	518	270
Gum, Manila (copal)	680	360	Para-oxy-benzaldehyde	716	380
Gum, Tragacanth	500	260	Paraphenylene Diamine	1148	620
Hemp Hurd	428	220	Paratertiary Butyl Benzoic Acid	1040	560
Lycopodium	590	310	Pentaerythritol	752	400
Malt Barley	482	250	Phenylbetanaphthylamine	1256	680
Milk, Skimmed	392	200	Phthalic Anhydride	1202	650
Pea Flour	500	260	Phthalimide	1166	630
Peach Pit Shell	410	210	Salicylanilide	1130	610
Peanut Hull	410	210	Sorbic Acid	860	460
Peat, Sphagnum	464	240	Stearic Acid, Aluminum Salt	572	300
Pecan Nut Shell	410	210	Stearic Acid, Zinc Salt	950	510
Pectin	392	200	Sulfur	428	220
Potato Starch, Dextrinated	824	440	Terephthalic Acid	1256	680
Pyrethrum	410	210	Drugs:		
Rauwolfia Vomitoria Root	446	230	2-Acetylamino-5-nitrothiazole	842	450
Rice	428	220	2-Amino-5-nitrothiazole	860	460
Rice Bran	914	490	Aspirin	1220	660
Rice Hull	428	220	Gulasonic Acid, Diacetone	788	420
Safflower Meal	410	210	Mannitol	860	460
Soy Flour	374	190	Nitropyridone	806	430
Soy Protein	500	260	I-Sorbose	698	370
Sucrose	662	350	Vitamin B1, mononitrate	680	360
Sugar, Powdered	698	370	Vitamin C (Ascorbic Acid)	536	280
Tung, Kernels, Oil-Free	464	240	Dyes, Pigments, and Intermediates:		
Walnut Shell, Black	428	220	Beta-naphthalene-azo-Dimethylaniline	347	175
Wheat	428	220	Green Base Harmon Dye	347	175
Wheat Flour	680	360	Red Dye Intermediate	347	175
Wheat Gluten, gum	968	520	Violet 200 Dye	347	175
Wheat Starch	716	380	Pesticides:		
Wheat Straw	428	220	Benzethonium Chloride	716	380
Woodbark, Ground	482	250	Bis(2-Hydroxy-5-chlorophenyl) methane	1058	570
Wood Flour	500	260	Crag No. 974	590	310
Yeast, Torula	500	260	Dieldrin (20%)	1022	550
Chemicals:			2, 6-Ditertiary-butyl-paracresol	788	420
Acetoacetanilide	824	440	Dithane	356	180
Acetoacet-p-phenetidine	1040	560	Ferbam	302	150
Adipic Acid	1022	550	Manganese Vancide	248	120
Anthranilic Acid	1076	580			



Know what's below.
Call before you dig.

Type of Dust	Minimum Cloud or Layer Ignition Temp. °F	Minimum Cloud or Layer Ignition Temp. °C	Type of Dust	Minimum Cloud or Layer Ignition Temp. °F	Minimum Cloud or Layer Ignition Temp. °C
Sevin	284	140	Polyvinyl Acetate/Alcohol	824	440
α, α-Trithiobis (N,N-Dimethylthio-formamide)	446	230	Polyvinyl Butyral	734 [ⓐ]	390 [ⓐ]
Thermoplastic Resins and Molding Compounds:			Vinyl Chloride-Acrylonitrile Copolymer	878	470
Acetal, Linear (Polyformaldehyde)	824 [ⓐ]	440 [ⓐ]	Polyvinyl Chloride-Dioctyl Phthalate Mixture	608 [ⓐ]	320 [ⓐ]
Acrylamide Polymer	464	240	Vinyl Toluene-Acrylonitrile Butadiene Copolymer	936 [ⓐ]	530 [ⓐ]
Acrylonitrile Polymer	860	460	Thermosetting Resins and Molding Compounds:		
Acrylonitrile-Vinyl Pyridine Copolymer	464	240	Allyl Alcohol Derivative (CR-39)	932 [ⓐ]	500 [ⓐ]
Acrylonitrile-Vinyl Chloride-Vinylidene Chloride Copolymer (70-20-10)	410	210	Urea Formaldehyde Molding Compound	860 [ⓐ]	460 [ⓐ]
Methyl Methacrylate Polymer	824 [ⓐ]	440 [ⓐ]	Urea Formaldehyde-Phenol Formaldehyde Molding Compound (Wood Flour Filler)	464	240
Methyl Methacrylate-Ethyl Acrylate Copolymer	896 [ⓐ]	480 [ⓐ]	Epoxy	1004 [ⓐ]	540 [ⓐ]
Methyl Methacrylate-Ethyl Acrylate-Styrene Copolymer	824 [ⓐ]	440 [ⓐ]	Epoxy-Bisphenol A	950 [ⓐ]	510 [ⓐ]
Methyl Methacrylate-Styrene-Butadiene-Acrylonitrile Copolymer	896 [ⓐ]	480 [ⓐ]	Phenol Furfural	590	310
Methacrylic Acid Polymer	554	290	Phenol Formaldehyde	1076 [ⓐ]	580 [ⓐ]
Cellulose Acetate	644	340	Phenol Formaldehyde Molding Cmpd (Wood Flour Filler)	932 [ⓐ]	500 [ⓐ]
Cellulose Triacetate	806 [ⓐ]	430 [ⓐ]	Phenol Formaldehyde, Polyalkylene-Polyamine Modified	554	290
Cellulose Acetate Butyrate	698 [ⓐ]	370 [ⓐ]	Polyethylene Terephthalate	932 [ⓐ]	500 [ⓐ]
Cellulose Propionate	860 [ⓐ]	460 [ⓐ]	Styrene Modified Polyester-Glass Fiber Mixture	680	360
Ethyl Cellulose	608 [ⓐ]	320 [ⓐ]	Polyurethane Foam, No Fire Retardant	824	440
Methyl Cellulose	644	340	Polyurethane Foam, Fire Retardant	734	390
Carboxymethyl Cellulose	544	290	Special Resins and Molding Compounds:		
Hydroxyethyl Cellulose	644	340	Alkyl Ketone Dimer Sizing Compound	320	160
Chlorinated Polyether Alcohol	860	460	Cashew Oil, Phenolic, Hard	356	180
Nylon Polymer (Polyhexa-methylene Adipamide)	806	430	Chlorinated Phenol	1058 [ⓐ]	570 [ⓐ]
Polycarbonate	1310 [ⓐ]	710 [ⓐ]	Coumarone-Indene, Hard	968 [ⓐ]	520 [ⓐ]
Polyethylene, High Pressure Process	716	380	Ethylene Oxide Polymer	662 [ⓐ]	350 [ⓐ]
Polyethylene, Low Pressure Process	788 [ⓐ]	420 [ⓐ]	Ethylene-Maleic Anhydride Copolymer	1004 [ⓐ]	540 [ⓐ]
Polyethylene Wax	752 [ⓐ]	400 [ⓐ]	Lignin, Hydrolyzed, Wood-Type, Fines	842 [ⓐ]	450 [ⓐ]
Carboxypolymethylene	968 [ⓐ]	520 [ⓐ]	Petrin Acrylate Monomer	428 [ⓐ]	220 [ⓐ]
Polypropylene (No Antioxidant)	788 [ⓐ]	420 [ⓐ]	Petroleum Resin (Blown Asphalt)	932	500
Rayon (Viscose) Flock	482	250	Rosin, DK	734 [ⓐ]	390 [ⓐ]
Polystyrene Molding Cmpd.	1040 [ⓐ]	560 [ⓐ]	Rubber, Crude, Hard	662 [ⓐ]	350 [ⓐ]
Polystyrene Latex	932	500	Rubber, Synthetic, Hard (33% S)	608 [ⓐ]	320 [ⓐ]
Styrene-Acrylonitrile (70-30)	932 [ⓐ]	500 [ⓐ]	Shellac	752 [ⓐ]	400 [ⓐ]
Styrene-Butadiene Latex (>75% Styrene; Alum Coagulated)	824 [ⓐ]	440 [ⓐ]	Sodium Resinate	428	220
Polyvinyl Acetate	1022 [ⓐ]	550 [ⓐ]	Styrene—Maleic Anhydride Copolymer	878 [ⓐ]	470 [ⓐ]

- ⓐ Dust Cloud is normally higher than Dust Layer ignition temperature. However, for this material, the Dust Cloud ignition temperature is lower. Therefore, the Dust Cloud ignition temperature is shown.
- ⓑ Dust Cloud ignition temperature is shown because Dust Layer ignition temperature is not available. Caution should be used, because Dust Layer is usually lower than Dust Cloud ignition temperature.
- ⓒ Dust Cloud ignition temperature is shown because the material melts before it ignites.
- ⓓ Dust Cloud ignition temperature is shown because the material sublimes before it ignites.

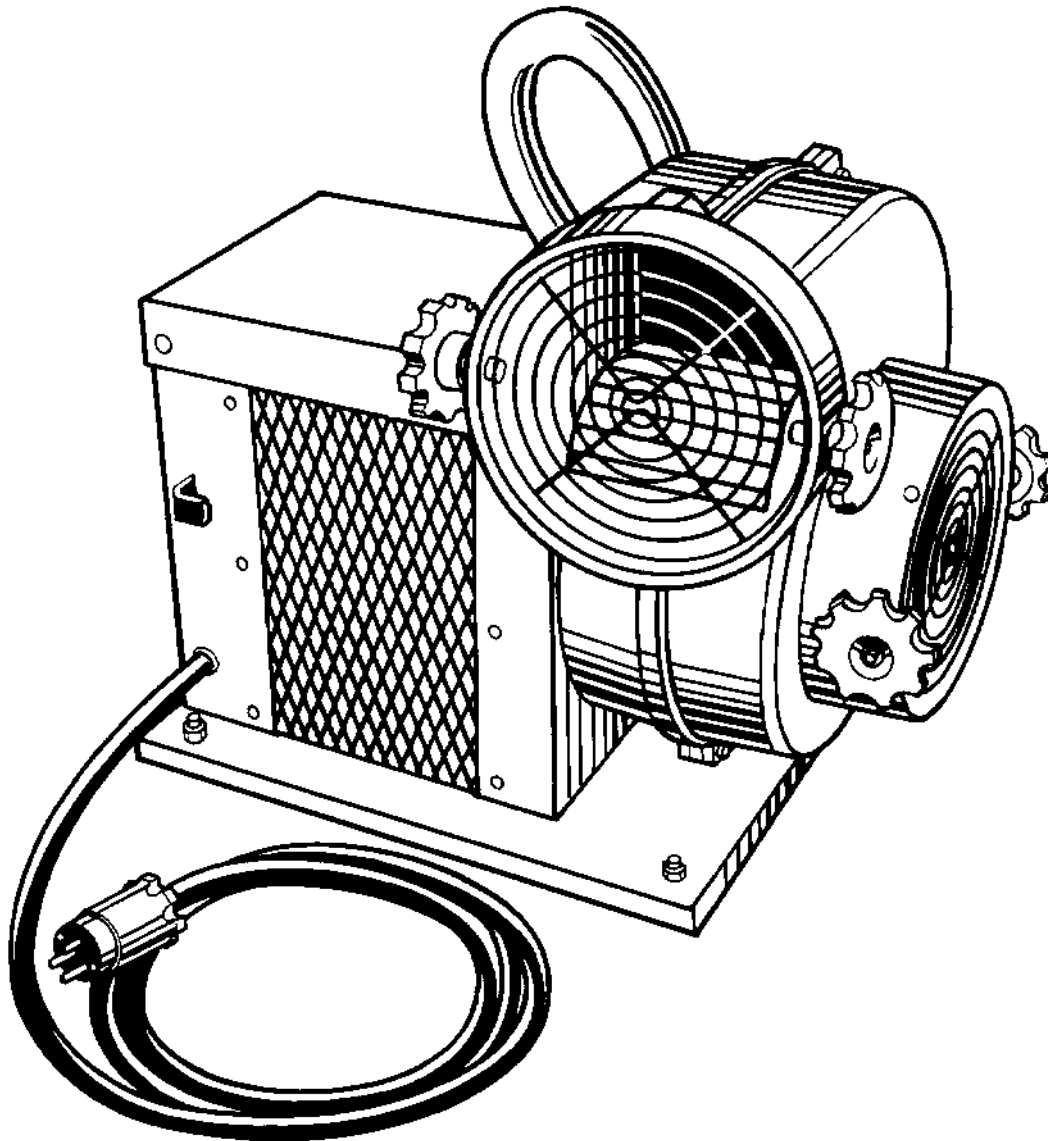
General Note on Groups E, F and G: NFPA 497M-1991 has classified 25 Group E, 10 Group F and 185 Group G combustible dusts. These lists, shown on pages 15, 16 and 17, do not include all dusts that may be encountered in business and industry. Some dusts were not classified because they have explosive characteristics that require safeguards that go beyond those required for combustible dusts classified by NEC®. On the other

hand, other dusts were not classified because they do not present a significant hazard, that is, they are *not* combustible. However, any *combustible* dust not included in these tables (such as thorium hydride and uranium) should be investigated by a qualified testing laboratory (see NFPA "Fire Protection Handbook", for additional dusts not classified by NEC®). Even such pesticide combustible dusts as Ferbam, Manganese Vancide and

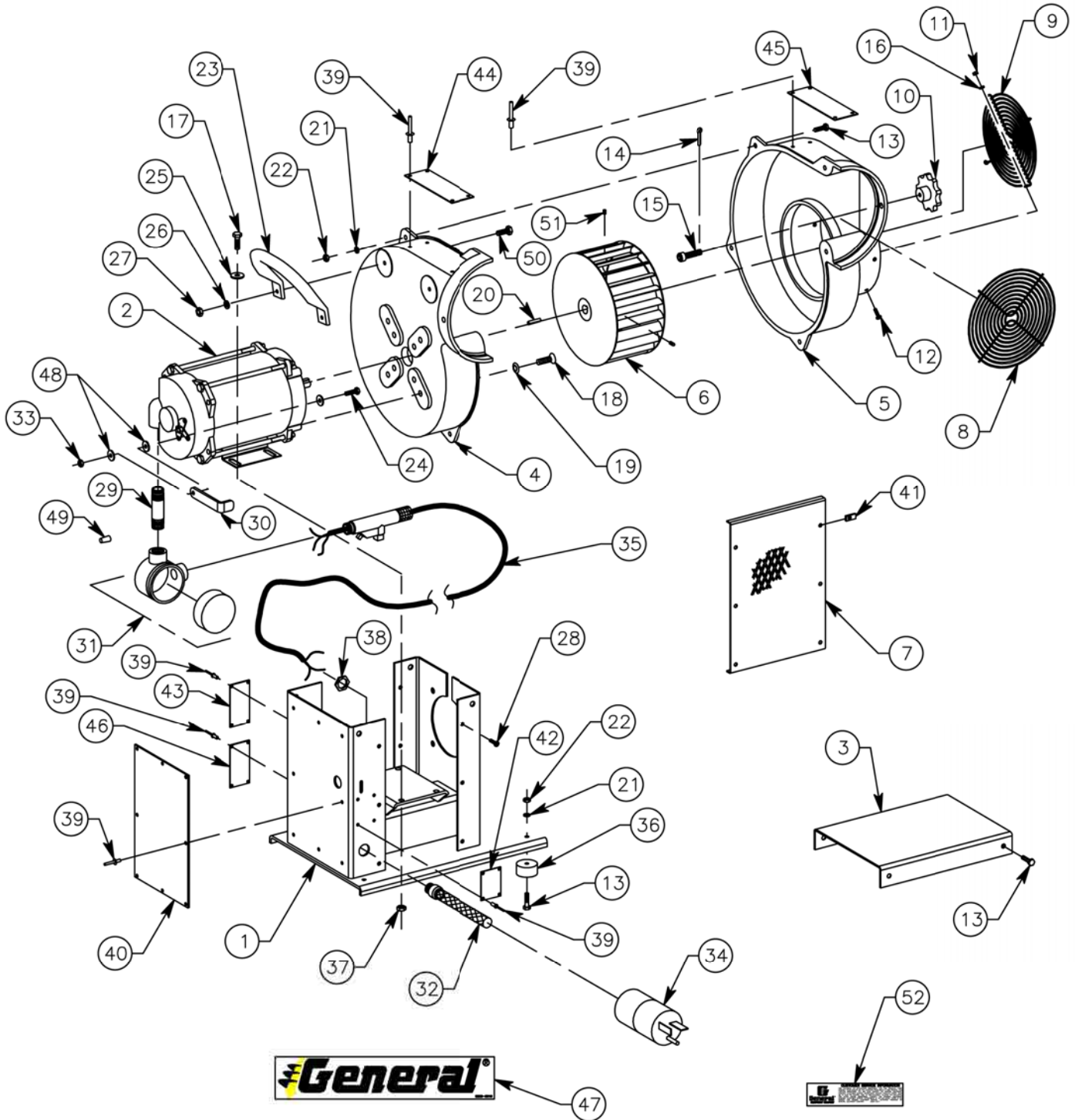
Sevin classified above, which have ignition temperatures below that which would be safe within the operating temperature ranges presented in NEC® 500-3(f) Table, may present serious problems. Also, caution is advised with combustible dusts that melt or sublime below the operating temperature of the electrical equipment (see footnotes 3 and 4).



Service Parts Section EP8HL Hazardous Location Ventilation Blower



EP8HL Series Portable Ventilating Blower



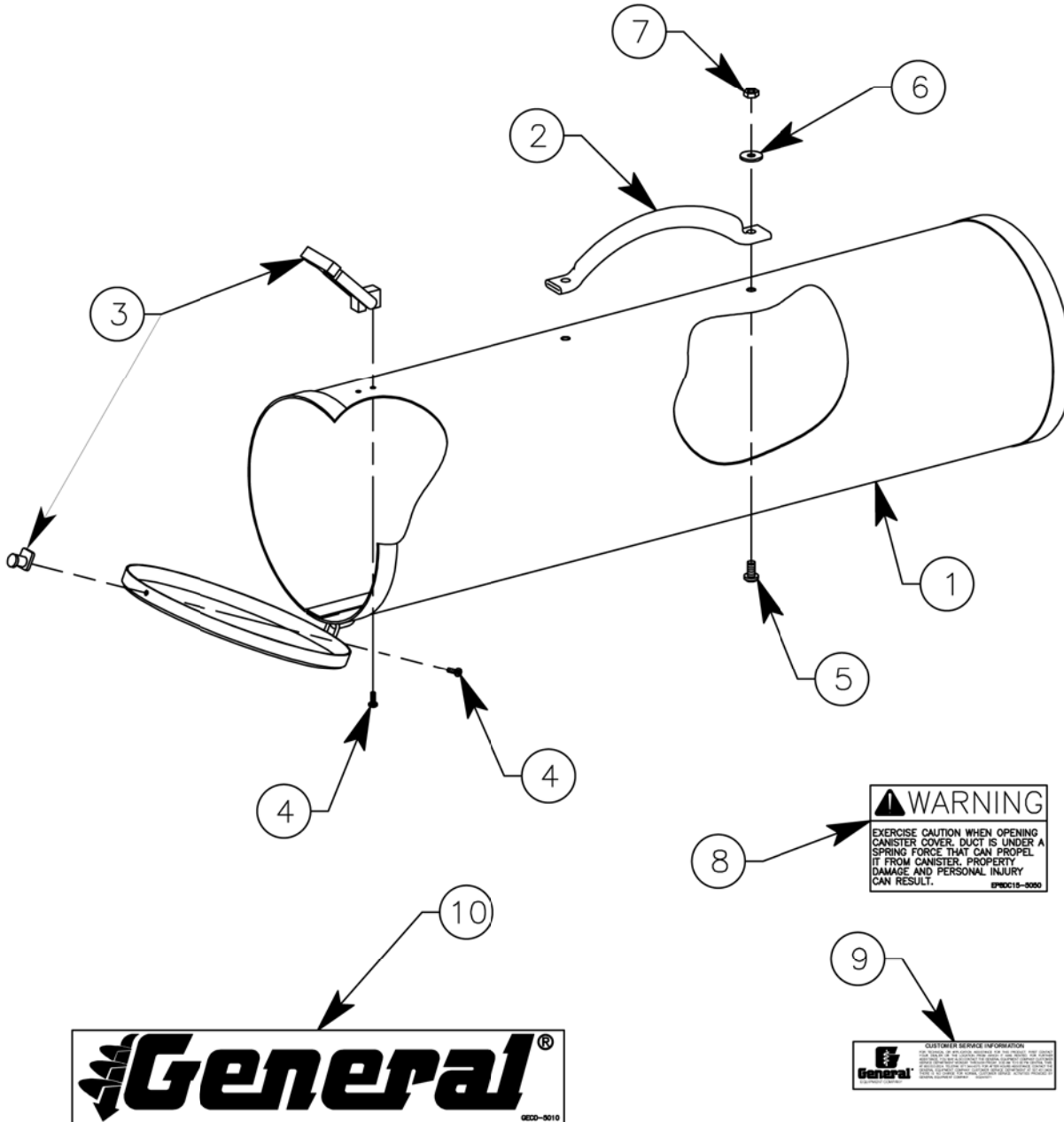
EP8HL Series Portable Ventilating Blower

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	EP8HL-0010	Frame, main	1
2	EP8HL-0140	Motor, Electric, Explosion Proof, 1/3 HP	1
3	EP8HL-0020	Cover, Main Frame	1
4	EP8HL-0080	Housing, Blower, Rear	1
5	EP8HL-0090	Housing, Blower, Front	1
6	EP8-0030	Wheel, Blower, Complete	1
7	EP8HL-0040	Screen, Side Aluminum	2
8	EP8HL-0050	Screen, Outlet, Galvanized	1
9	EP8HL-0060	Screen, Inlet, Galvanized	1
10	EP8HL-0070	Knob, Aluminum	4
11	69030000	Nut, Hexagon, #10-24 UNC, Aluminum	4
12	77030500	Screw, Machine, C/S, #10-24 UNC x 5/8", Aluminum	4
13	70040800	Screw, Cap, 1/4-20 UNC x 1", Aluminum	13
14	76020600	Pin, Cotter, 3/32" x 3/4", Stainless	4
15	EP8HL-0100	Screw, Allen, Special, Stainless	4
16	71030000	Washer, Flat, Number 10, Aluminum	4
17	15050700	Screw, Cap, 5/16-18 UNC x 7/8", Plated, Grade 5	4
18	27061000	Screw, Cap, Socket, C/S, 3/8-16 UNC x 1-1/4"	4
19	28060000	Washer, Lock, Countersunk, 3/8", Plated	4
20	EP8-0100	Key	1
21	58040000	Washer, Lock, External Tooth, 1/4", Plated	10
22	69040000	Nut, Hexagon, 1/4-20 UNC, Aluminum	10
23	EP8HL-0110	Handle, Carry, PVC Dipped	1
24	15040600	Screw, Cap, 1/4-20 UNC x 3/4", Plated, grade 5	1
25	17050000	Washer, Flat, 5/16" Plated	4
26	71050000	Washer, Flat, 5/16", Aluminum	2
27	82050000	Nut, Hexagon, Nylock, 5/16-18 UNC, Stainless	2
28	68030600	Screw, Machine, #10-24 UNC x 3/4", Aluminum	12
29	EP8HL-0120	Nipple, Pipe	1
30	EP8HL-0030	Lever, ON/OFF Switch	1
31	GEML-1	Box, Junction	1
32	073031202	Relief, Strain	1
33	53040000	Nut, Hexagon, Nylock, 1/4-20 UNC, Plated	1
34	EP8HL-1100	Plug, Male	1
35	ZE-156A	Cable, Connecotr Assembly	1
36	EP8-0140	Mount, Rubber	4
37	53050000	Nut, Hexagon, Nylock, 5/16-18 UNC, Plated	4
38	801	Nut, Bulkhead (included with Reference Number 32)	1
39	45020200	Rivet, Pop, 1/8" x 1/4" Grip, Aluminum	28
40	EP8HL-5050	Plate, Information	1

EP8HL Series Portable Ventilating Blower

Reference Number	PART NUMBER	DESCRIPTION	QTY
41	C8119-1024	Nut, Tinnerman, #10-24	12
42	EP8HL-5040	Plate, Switch, ON/OFF	1
43	EP8HL-5130	Plate, Serial Number/Flow Rate	1
44	EP8HL-5021	Plate, Danger, French	1
45	EP8HL-5020	Plate, Danger, English	1
46	EP8HL-5030	Plate, Electrical Information	1
47	GECD-5010	Decal, General	2
48	71040000	Washer, Flat, 1/4", Aluminum	3
49	WIRE NUT Y	Nut, Wire	2
50	81051000	Screw, cap 5/16-18 UNC x 1-1/4", Stainless	2
51	30050400	Screw, Set, 5/16-18 UNC x 3/8", Plain Finish	1
52	SG24-5072	Decal, Assistance	1
53	999-7	Video, Safety and Operational Information, Blower	1

EP8HL Series Portable Ventilating Blowers Hose Storage Cannisters



EP8HL Series

Portable Ventilating Blowers

Hose Storage Cannisters

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	SCHL8150010-010	Cannister, Blower Duct (For Use On SCHL815 Cannister)	1
	SCHL8250010-010	Cannister, Blower Duct (For Use On SCHL825 Cannister)	1
2	SCHL825-0020	Handle, Hose	1
3	SCHL-0015	Latch, Cannister, With Keeper	1
4	55030400	Screw, Cap, Button Socket Head, #10-24 x 1/2", Plated	2
5	70050800	Screw, Cap, Hexagon Head, 5/16-18 UNC x 1", Aluminum	2
6	71050000	Washer, Flat, 5/16", Aluminum	2
7	69050000	Nut, Hexagon, 5-16-18 UNC, Aluminum	2
8	EP8DC15-5050	Decal, Warning	1
9	SG24-5072	Decal, Assistance	1
10	GECD-5010W	Decal, General	1