



Public Comment No. 1-NFPA 497-2019 [Section No. 4.4.2 [Excluding any Sub-Sections]

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An alphabetical listing of selected combustible materials, with their group classification and relevant physical properties, is provided in Table 4.4.2.

Table 4.4.2 Selected Chemicals

Chemical	CAS No.	Class I Division Group	Type ^a	Flash Point (°C)	AIT (°C)	%LFL	%UFL	Vapor Density (Air = 1)	Vapor Pressure ^b (mm Hg)	Class Zor Grou
Acetaldehyde	75-07-0	C ^d	I	-38	175	4.0	60.0	1.5	874.9	IIA
Acetic Acid	64-19-7	D ^d	II	39	426		19.9	2.1	15.6	IIA
Acetic Acid- tert-Butyl Ester	540-88-5	D	II			1.7	9.8	4.0	40.6	
Acetic Anhydride	108-24-7	D	II	49	316	2.7	10.3	3.5	4.9	IIA
Acetone	67-64-1	D ^d	I	-20	465	2.5	12.8	2.0	230.7	IIA
Acetone Cyanohydrin	75-86-5	D	IIIA	74	688	2.2	12.0	2.9	0.3	
Acetonitrile	75-05-8	D	I	6	524	3.0	16.0	1.4	91.1	IIA
Acetylene	74-86-2	A ^d	GAS		305	2.5	100	0.9	36600	IIC
Acrolein (Inhibited)	107-02-8	B(C) ^d	I		235	2.8	31.0	1.9	274.1	IIE
Acrylic Acid	79-10-7	D	II	54	438	2.4	8.0	2.5	4.3	IIE
Acrylonitrile	107-13-1	D ^d	I	0	481	3	17	1.8	108.5	IIE
Adiponitrile	111-69-3	D	IIIA	93	550			1.0	0.002	
Allyl Alcohol	107-18-6	C ^d	I	22	378	2.5	18.0	2.0	25.4	IIE
Allyl Chloride	107-05-1	D	I	-32	485	2.9	11.1	2.6	366	IIA
Allyl Glycidyl Ether	106-92-3	B(C) ^e	II		57			3.9		
Alpha-Methyl Styrene	98-83-9	D	II		574	0.8	11.0	4.1	2.7	
n-Amyl Acetate	628-63-7	D	I	25	360	1.1	7.5	4.5	4.2	IIA
sec-Amyl Acetate	626-38-0	D	I	23		1.1	7.5	4.5		IIA
Ammonia	7664-41-7	D ^{d,f}	GAS		651	15	28	0.6	7498.0	IIA
Aniline	62-53-3	D	IIIA	70	615	1.2	8.3	3.2	0.7	IIA
Benzene	71-43-2	D ^d	I	-11	498	1.2	7.8	2.8	94.8	IIA
Benzyl Chloride	98-87-3	D	IIIA		585	1.1		4.4	0.5	
Bromopropyne	106-96-7	D	I	10	324	3.0				
n-Butane	106-97-8	D ^{d,g}	GAS		288	1.9	8.5	2.0		IIA
1,3-Butadiene	106-99-0	B(D) ^{d,e}	GAS		420	2.0	11.5	1.9		IIE
1-Butanol	71-36-3	D ^d	I	36	343	1.4	11.2	2.6	7.0	IIA
Butyl alcohol(s) (butanol-2)	78-92-2	D ^d	I	23.8	405	1.7	9.8	2.6		IIA
Butylamine	109-73-9	D	GAS	-12	312	1.7	9.8	2.5	92.9	IIA
Butylene	25167-67-3	D	I		385	1.6	10.0	1.9	2214.6	IIA
n-Butyraldehyde	123-72-8	C ^d	I	-12	218	1.9	12.5	2.5	112.2	IIA
n-Butyl Acetate	123-86-4	D ^d	I	22	421	1.7	7.6	4.0	11.5	IIA
sec-Butyl Acetate	105-46-4	D	II	-8		1.7	9.8	4.0	22.2	
tert-Butyl Acetate	540-88-5	D	II			1.7	9.8	4.0	40.6	
n-Butyl Acrylate (Inhibited)	141-32-2	D	II	49	293	1.7	9.9	4.4	5.5	IIE
n-Butyl Glycidyl Ether	2426-08-6	B(C) ^e	II							
n-Butyl Formal	110-62-3	C	IIIA						34.3	
Butyl Mercaptan	109-79-5	C	I	2				3.1	46.4	

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Butyl-2-Propenoate	141-32-2	D	II	49		1.7	9.9	4.4	5.5	
para tert-Butyl Toluene	98-51-1	D	IIIA							
n-Butyric Acid	107-92-6	D ^d	IIIA	72	443	2.0	10.0	3.0	0.8	
Carbon Disulfide	75-15-0	d,h	I	-30	90	1.3	50.0	2.6	358.8	IIC
Carbon Monoxide	630-08-0	C ^d	GAS		609	12.5	74	0.97		IIB
Chloroacetaldehyde	107-20-0	C	IIIA	88					63.1	
Chlorobenzene	108-90-7	D	I	29	593	1.3	9.6	3.9	11.9	
1-Chloro-1-Nitropropane	2425-66-3	C	IIIA							
Chloroprene	126-99-8	D	GAS	-20		4.0	20.0	3.0		
Cresol	1319-77-3	D	IIIA	81	559	1.1		3.7		
Crotonaldehyde	4170-30-3	C ^d	I	13	232	2.1	15.5	2.4	33.1	IIB
Cumene	98-82-8	D	I	36	424	0.9	6.5	4.1	4.6	IIA
Cyclohexane	110-82-7	D	I	-17	245	1.3	8.0	2.9	98.8	IIA
Cyclohexanol	108-93-0	D	IIIA	68	300			3.5	0.7	IIA
Cyclohexanone	108-94-1	D	II	44	420	1.1	9.4	3.4	4.3	IIA
Cyclohexene	110-83-8	D	I	-6	244	1.2		2.8	89.4	IIA
Cyclopropane	75-19-4	D ^d	I		503	2.4	10.4	1.5	5430	IIA
p-Cymene	99-87-6	D	II	47	436	0.7	5.6	4.6	1.5	IIA
Decene	872-05-9	D	II		235			4.8	1.7	
n-Decaldehyde	112-31-2	C	IIIA						0.09	
n-Decanol	112-30-1	D	IIIA	82	288			5.3	0.008	
Decyl Alcohol	112-30-1	D	IIIA	82	288			5.3	0.008	
Diacetone Alcohol	123-42-2	D	IIIA	64	603	1.8	6.9	4.0	1.4	
Di-Isobutylene	25167-70-8	D ^d	I	2	391	0.8	4.8	3.8		
Di-Isobutyl Ketone	108-83-8	D	II	60	396	0.8	7.1	4.9	1.7	
o-Dichlorobenzene	955-50-1	D	IIIA	66	647	2.2	9.2	5.1		IIA
1,4-Dichloro-2,3-Epoxybutane	3583-47-9	D ^d	I			1.9	8.5	2.0		IIA
1,1-Dichloroethane	1300-21-6	D	I		438	6.2	16.0	3.4	227	IIA
1,2-Dichloroethylene	156-59-2	D	I	97	460	5.6	12.8	3.4	204	IIA
1,1-Dichloro-1-Nitroethane	594-72-9	C	IIIA	76				5.0		
1,3-Dichloropropene	10061-02-6	D	I	35		5.3	14.5	3.8		
Dicyclopentadiene	77-73-6	C	I	32	503				2.8	IIA
Diethylamine	109-87-9	C ^d	I	-28	312	1.8	10.1	2.5		IIA
Diethylaminoethanol	100-37-8	C	IIIA	60	320			4.0	1.6	IIA
Diethyl Benzene	25340-17-4	D	II	57	395			4.6		
Diethyl Ether (Ethyl Ether)	60-29-7	C ^d	I	-45	160	1.9	36	2.6	538	IIB
Diethylene Glycol Monobutyl Ether	112-34-5	C	IIIA	78	228	0.9	24.6	5.6	0.02	
Diethylene Glycol Monomethyl Ether	111-77-3	C	IIIA	93	241				0.2	
n-n-Dimethyl Aniline	121-69-7	C	IIIA	63	371	1.0		4.2	0.7	
Dimethyl Formamide	68-12-2	D	II	58	455	2.2	15.2	2.5	4.1	IIA

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Dimethyl Sulfate	77-78-1	D	IIIA	83	188			4.4	0.7	
Dimethylamine	124-40-3	C	GAS		400	2.8	14.4	1.6		IIA
2,2-Dimethylbutane	75-83-2	D ₉	I	-48	405				319.3	
2,3-Dimethylbutane	78-29-8	D ₉	I		396					
3,3-Dimethylheptane	1071-26-7	D ₉	I		325				10.8	
2,3-Dimethylhexane	31394-54-4	D ₉	I		438					
2,3-Dimethylpentane	107-83-5	D ₉	I		335				211.7	
Di-N-Propylamine	142-84-7	C	I	17	299				27.1	IIA
1,4-Dioxane	123-91-1	C ^d	I	12	180	2.0	22.0	3.0	38.2	IIE
Dipentene	138-86-3	D	II	45	237	0.7	6.1	4.7		IIA
Dipropylene Glycol Methyl Ether	34590-94-8	C	IIIA	85		1.1	3.0	5.1	0.5	
Diisopropylamine	108-18-9	C	GAS	-6	316	1.1	7.1	3.5		IIA
Dodecene	6842-15-5	D	IIIA	100	255					
Epichlorohydrin	3132-64-7	C ^d	I	33	411	3.8	21.0	3.2	13.0	
Ethane	74-84-0	D ^d	GAS	-135	472	3.0	12.5	1.0		IIA
Ethanol	64-17-5	D ^d	I	13	363	3.3	19.0	1.6	59.5	IIA
Ethylamine	75-04-7	D ^d	I	-18	385	3.5	14.0	1.6	1048	
Ethylene	74-85-1	C ^d	GAS		490	2.7	36.0	1.0		IIE
Ethylenediamine	107-15-3	D ^d	I	33	385	2.5	12.0	2.1	12.5	
Ethylenimine	151-56-4	C ^d	I	-11	320	3.3	54.8	1.5	211	
Ethylene Chlorohydrin	107-07-3	D	IIIA	59	425	4.9	15.9	2.8	7.2	
Ethylene Dichloride	107-06-2	D ^d	I	13	413	6.2	16.0	3.4	79.7	
Ethylene Glycol Monoethyl Ether Acetate	111-15-9	C	II	47	379	1.7		4.7	2.3	IIA
Ethylene Glycol Monobutyl Ether Acetate	112-07-2	C	IIIA		340	0.9	8.5		0.9	
Ethylene Glycol Monobutyl Ether	111-76-2	C	IIIA		238	1.1	12.7	4.1	1.0	
Ethylene Glycol Monoethyl Ether	110-80-5	C	II		235	1.7	15.6	3.0	5.4	
Ethylene Glycol Monomethyl Ether	109-86-4	D	II		285	1.8	14.0	2.6	9.2	
Ethylene Oxide	75-21-8	B(C) ^{d,e}	I	-20	429	3	100	1.5	1314	IIE
2-Ethylhexaldehyde	123-05-7	C	II	52	191	0.8	7.2	4.4	1.9	
2-Ethylhexanol	104-76-7	D	IIIA	81		0.9	9.7	4.5	0.2	
2-Ethylhexyl Acrylate	103-09-3	D	IIIA	88	252				0.3	
Ethyl Acetate	141-78-6	D ^d	I	-4	427	2.0	11.5	3.0	93.2	IIA
Ethyl Acrylate (Inhibited)	140-88-5	D ^d	I	9	372	1.4	14.0	3.5	37.5	IIA
Ethyl Alcohol	64-17-5	D ^d	I	13	363	3.3	19.0	1.6	59.5	IIA
Ethyl Sec-Amyl Ketone	541-85-5	D	II	59						

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Ethyl Benzene	100-41-4	D	I	15	432	0.8	6.7	3.7	9.6	
Ethyl Butanol	97-95-0	D	II	57		1.2	7.7	3.5	1.5	
Ethyl Butyl Ketone	106-35-4	D	II	46				4.0	3.6	
Ethyl Chloride	75-00-3	D	GAS	-50	519	3.8	15.4	2.2		
Ethyl Formate	109-94-4	D	GAS	-20	455	2.8	16.0	2.6		IIA
Ethyl Mercaptan	75-08-1	C ^d	I	-18	300	2.8	18.0	2.1	527.4	IIIB
n-Ethyl Morpholine	100-74-3	C	I	32				4.0		
2-Ethyl-3-Propyl Acrolein	645-62-5	C	IIIA	68				4.4		
Ethyl Silicate	78-10-4	D	II					7.2		
Formaldehyde (Gas)	50-00-0	B	GAS		430	7	73	1.0		IIIB
Formic Acid	64-18-6	D	II	50	434	18.0	57.0	1.6	42.7	IIA
Fuel Oil 1	8008-20-6	D	II or IIIA ^k	38-72 ^k	210	0.7	5.0			
Fuel Oil 2			II or IIIA ^k	52-96 ^k	257					
Fuel Oil 6			IIIA or IIIB ^k	66-132 ^k						
Furfural	98-01-1	C	IIIA	60	316	2.1	19.3	3.3	2.3	
Furfuryl Alcohol	98-00-0	C	IIIA	75	490	1.8	16.3	3.4	0.6	
Gasoline	8006-61-9	D ^d	I	-46	280	1.4	7.6	3.0		
n-Heptane	142-82-5	D ^d	I	-4	204	1.0	6.7	3.5	45.5	IIA
n-Heptene	81624-04-6	D ^g	I	-1	204			3.4		
n-Hexane	110-54-3	D ^{d,g}	I	-23	225	1.1	7.5	3.0	152	IIA
Hexanol	111-27-3	D	IIIA	63				3.5	0.8	IIA
2-Hexanone	591-78-6	D	I	35	424	1.2	8.0	3.5	10.6	
Hexene	592-41-6	D	I	-26	245	1.2	6.9		186	
sec-Hexyl Acetate	108-84-9	D	II	45				5.0		
Hydrazine	302-01-2	C	II	38	23		98.0	1.1	14.4	
Hydrogen	1333-74-0	B ^d	GAS		500	4	75	0.1		IIIC
Hydrogen Cyanide	74-90-8	C ^d	GAS	-18	538	5.6	40.0	0.9		IIIB
Hydrogen Selenide	7783-07-5	C	I						7793	
Hydrogen Sulfide	7783-06-4	C ^d	GAS		260	4.0	44.0	1.2		IIIB
Isoamyl Acetate	123-92-2	D	I	25	360	1.0	7.5	4.5	6.1	
Isoamyl Alcohol	123-51-3	D	II	43	350	1.2	9.0	3.0	3.2	IIA
Isobutane	75-28-5	D ^g	GAS		460	1.8	8.4	2.0		IIA
Isobutyl Acetate	110-19-0	D ^d	I	18	421	2.4	10.5	4.0	17.8	
Isobutyl Acrylate	106-63-8	D	I		427			4.4	7.1	
Isobutyl Alcohol	78-83-1	D ^d	I	-40	416	1.2	10.9	2.5	10.5	IIA
Isobutyraldehyde	78-84-2	C	GAS	-40	196	1.6	10.6	2.5		IIA
Isodecaldehyde	112-31-2	C	IIIA					5.4	0.09	
Isohexane	107-83-5	D ^g			264				211.7	IIA
Isopentane	78-78-4	D ^g			420				688.6	

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Isooctyl Aldehyde	123-05-7	C	II		197				1.9	
Isophorone	78-59-1	D		84	460	0.8	3.8	4.8	0.4	
Isoprene	78-79-5	D ^d	I	-54	220	1.5	8.9	2.4	550.6	
Isopropyl Acetate	108-21-4	D	I		460	1.8	8.0	3.5	60.4	
Isopropyl Ether	108-20-3	D ^d	I	-28	443	1.4	7.9	3.5	148.7	IIA
Isopropyl Glycidyl Ether	4016-14-2	C	I							
Isopropylamine	75-31-0	D	GAS	-26	402	2.3	10.4	2.0		
Kerosene	8008-20-6	D	II	72	210	0.7	5.0			IIA
Liquefied Petroleum Gas	68476-8-7	D	I		405					
Mesityl Oxide	141-97-9	D ^d	I	31	344	1.4	7.2	3.4	47.6	
Methane	74-82-8	D ^d	GAS		600	5	15	0.6		IIA
Methanol	67-56-1	D ^d	I	12	385	6.0	36.0	1.1	126.3	IIA
Methyl Acetate	79-20-9	D	GAS	-10	454	3.1	16.0	2.6		IIA
Methyl Acrylate	96-33-3	D	GAS	-3	468	2.8	25.0	3.0		IIB
Methyl Alcohol	67-56-1	D ^d	I		385	6.0	36	1.1	126.3	IIA
Methyl Amyl Alcohol	108-11-2	D	II	41		1.0	5.5	3.5	5.3	IIA
Methyl Chloride	74-87-3	D	GAS	-46	632	8.1	17.4	1.7		IIA
Methyl Ether	115-10-6	C ^d	GAS	-41	350	3.4	27.0	1.6		IIB
Methyl Ethyl Ketone	78-93-3	D ^d	I	-6	404	1.4	11.4	2.5	92.4	IIB
Methyl Formal	534-15-6	C ^d	I	1	238			3.1		
Methyl Formate	107-31-3	D	GAS	-19	449	4.5	23.0	2.1		IIA
2-Methylhexane	31394-54-4	D ^g	I		280					
Methyl Isobutyl Ketone	108-10-1	D ^d	I	13	440	1.2	8.0	3.5	11	
Methyl Isocyanate	624-83-9	D	GAS	-15	534	5.3	26.0	2.0		IIA
Methyl Mercaptan	74-93-1	C	GAS	-18		3.9	21.8	1.7		
Methyl Methacrylate	80-62-6	D	I	10	422	1.7	8.2	3.6	37.2	IIA
Methyl N-Amyl Ketone	110-43-0	D	II	49	393	1.1	7.9	3.9	3.8	
Methyl Tertiary Butyl Ether	1634-04-4	D	I	-80	435	1.6	8.4	0.2	250.1	
2-Methyloctane	3221-61-2				220				6.3	
2-Methylpropane	75-28-5	D ^g	I		460				2639	
Methyl-1-Propanol	78-83-1	D ^d	I	-40	416	1.2	10.9	2.5	10.1	IIA
Methyl-2-Propanol	75-65-0	D ^d	I	10	360	2.4	8.0	2.6	42.2	
2-Methyl-5-Ethyl Pyridine	104-90-5	D		74		1.1	6.6	4.2		
Methylacetylene	74-99-7	C ^d	I			1.7		1.4	4306	
Methylacetylene- Propadiene	27846-30-6	C	I							IIB
Methylal	109-87-5	C	I	-18	237	1.6	17.6	2.6	398	
Methylamine	74-89-5	D	GAS		430	4.9	20.7	1.0		IIA
2-Methylbutane	78-78-4	D ^g		-56	420	1.4	8.3	2.6	688.6	
Methylcyclohexane	208-87-2	D	I	-4	250	1.2	6.7	3.4		

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Methylcyclohexanol	25630-42-3	D		68	296			3.9		
2-Methylcyclohexanone	583-60-8	D	II					3.9		
2-Methylheptane		D ^g			420					
3-Methylhexane	589-34-4	D ^g			280				61.5	
3-Methylpentane	94-14-0	D ^g			278					
2-Methylpropane	75-28-5	D ^g	I		460				2639	
2-Methyl-1-Propanol	78-83-1	D ^d	I	-40	223	1.2	10.9	2.5	10.5	
2-Methyl-2-Propanol	75-65-0	D ^d	I		478	2.4	8.0	2.6	42.2	
2-Methyloctane	2216-32-2	D ^g			220					
3-Methyloctane	2216-33-3	D ^g			220				6.3	
4-Methyloctane	2216-34-4	D ^g			225				6.8	
Monoethanolamine	141-43-5	D		85	410			2.1	0.4	IIA
Monoisopropanolamine	78-96-6	D		77	374			2.6	1.1	
Monomethyl Aniline	100-61-8	C			482				0.5	
Monomethyl Hydrazine	60-34-4	C	I	23	194	2.5	92.0	1.6		
Morpholine	110-91-8	C ^d	II	35	310	1.4	11.2	3.0	10.1	IIA
Naphtha (Coal Tar)	8030-30-6	D	II	42	277					IIA
Naphtha (Petroleum)	8030-30-6	D ^{d,i}	I	42	288	1.1	5.9	2.5		IIA
Neopentane	463-82-1	D ^g		-65	450	1.4	8.3	2.6	1286	
Nitrobenzene	98-95-3	D		88	482	1.8		4.3	0.3	IIA
Nitroethane	79-24-3	C	I	28	414	3.4		2.6	20.7	IIE
Nitromethane	75-52-5	C	I	35	418	7.3		2.1	36.1	IIA
1-Nitropropane	108-03-2	C	I	34	421	2.2		3.1	10.1	IIE
2-Nitropropane	79-46-9	C ^d	I	28	428	2.6	11.0	3.1	17.1	
n-Nonane	111-84-2	D ^g	I	31	205	0.8	2.9	4.4	4.4	IIA
Nonene	27214-95-8	D	I			0.8		4.4		
Nonyl Alcohol	143-08-8	D				0.8	6.1	5.0	0.02	IIA
n-Octane	111-65-9	D ^{d,g}	I	13	206	1.0	6.5	3.9	14.0	IIA
Octene	25377-83-7	D	I	8	230	0.9		3.9		
n-Octyl Alcohol	111-87-5	D						4.5	0.08	IIA
n-Pentane	109-66-0	D ^{d,g}	I	-40	243	1.5	7.8	2.5	513	IIA
1-Pentanol	71-41-0	D ^d	I	33	300	1.2	10.0	3.0	2.5	IIA
2-Pentanone	107-87-9	D	I	7	452	1.5	8.2	3.0	35.6	IIA
1-Pentene	109-67-1	D	I	-18	275	1.5	8.7	2.4	639.7	
2-Pentene	109-68-2	D	I	-18				2.4		
2-Pentyl Acetate	626-38-0	D	I	23		1.1	7.5	4.5		
Phenylhydrazine	100-63-0	D		89				3.7	0.03	
Process Gas > 30% H ₂		B ^j	GAS		520	4.0	75.0	0.1		
Propane	74-98-6	D ^d	GAS		450	2.1	9.5	1.6		IIA
1-Propanol	71-23-8	D ^d	I	15	413	2.2	13.7	2.1	20.7	IIA
2-Propanol	67-63-0	D ^d	I	12	399	2.0	12.7	2.1	45.4	IIA

Chemical	CAS No.	Class I Division Group	Type ^a	Flash Point (°C)	AIT (°C)	%LFL	%UFL	Vapor Density (Air = 1)	Vapor Pressure ^b (mm Hg)	Class Zone Group
Propiolactone	57-57-8	D				2.9		2.5	2.2	
Propionaldehyde	123-38-6	C	I	-9	207	2.6	17.0	2.0	318.5	IIB
Propionic Acid	79-09-4	D	II	54	466	2.9	12.1	2.5	3.7	IIA
Propionic Anhydride	123-62-6	D		74	285	1.3	9.5	4.5	1.4	
n-Propyl Acetate	109-60-4	D	I	14	450	1.7	8.0	3.5	33.4	IIA
n-Propyl Ether	111-43-3	C ^d	I	21	215	1.3	7.0	3.5	62.3	
Propyl Nitrate	627-13-4	B ^d	I	20	175	2.0	100.0			
Propylene	115-07-1	D ^d	GAS		460	2.4	10.3	1.5		IIA
Propylene Dichloride	78-87-5	D	I	16	557	3.4	14.5	3.9	51.7	IIA
Propylene Oxide	75-56-9	B(C) ^{d,e}	I	-37	449	2.3	36.0	2.0	534.4	IIB
Pyridine	110-86-1	D ^d	I	20	482	1.8	12.4	2.7	20.8	IIA
Styrene	100-42-5	D ^d	I	31	490	0.9	6.8	3.6	6.1	IIA
Tetrahydrofuran	109-99-9	C ^d	I	-14	321	2.0	11.8	2.5	161.6	IIB
Tetrahydronaphthalene	119-64-2	D	IIIA		385	0.8	5.0	4.6	0.4	
Tetramethyl Lead	75-74-1	C	II	38				9.2		
Toluene	108-88-3	D ^d	I	4	480	1.1	7.1	3.1	28.53	IIA
n-Tridecene	2437-56-1	D	IIIA			0.6		6.4	593.4	
Triethylamine	121-44-8	C ^d	I	-9	249	1.2	8.0	3.5	68.5	IIA
Triethylbenzene	25340-18-5	D		83			56.0	5.6		
2,2,3-Trimethylbutane		D ^g			442					
2,2,4-Trimethylbutane		D ^g			407					
2,2,3-Trimethylpentane		D ^g			396					
2,2,4-Trimethylpentane		D ^g			415					IIA
2,3,3-Trimethylpentane		D ^g			425					
Tripropylamine	102-69-2	D	II	41				4.9	1.5	IIA
Turpentine	8006-64-2	D	I	35	253	0.8			4.8	
n-Undecene	28761-27-5	D	IIIA			0.7		5.5		
Unsymmetrical Dimethyl Hydrazine	57-14-7	C ^d	I	-15	249	2.0	95.0	1.9		IIB
Valeraldehyde	110-62-3	C	I	280	222			3.0	34.3	
Vinyl Acetate	108-05-4	D ^d	I	-6	402	2.6	13.4	3.0	113.4	IIA
Vinyl Chloride	75-01-4	D ^d	GAS	-78	472	3.6	33.0	2.2		IIA
Vinyl Toluene	25013-15-4	D		52	494	0.8	11.0	4.1		
Vinylidene Chloride	75-35-4	D	I		570	6.5	15.5	3.4	599.4	IIA
Xylene	1330-20-7	D ^d	I	25	464	0.9	7.0	3.7		IIA
Xylidine	121-69-7	C	IIIA	63	371	1.0		4.2	0.7	

^aType is used to designate if the material is a gas, flammable liquid, or combustible liquid. (See 4.2.6 and 4.2.7.)

^bVapor pressure reflected in units of mm Hg at 77°F (25°C) unless stated otherwise.

^cClass I, Zone Groups are based on IEC 80079-20-1, 2017, *Explosive atmospheres — Part 20-1: Material characteristics for gas and vapor classification — Test methods and data*, which contains additional data on MESH and group classifications.

^dMaterial has been classified by test.

^eWhere all conduit runs into explosionproof equipment, the conduit is provided with explosionproof seals installed within 18 in. (450 mm) of the enclosure, equipment for the group classification shown in parentheses is permitted.

^fFor classification of areas involving ammonia, see ANSI/IIAR 2 *Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems*, and CGA G2.1, *Safety Requirements for the Storage and Handling of Anhydrous Ammonia*.

^gCommercial grades of aliphatic hydrocarbon solvents are mixtures of several isomers of the same chemical formula (or molecular weight). The autoignition temperatures (AIT) of the individual isomers are significantly different. The electrical equipment should be suitable for the AIT of the solvent mixture. (See A.4.4.2.)

^hCertain chemicals have characteristics that need safeguards beyond those necessary for any of the above groups. Carbon disulfide is one of these chemicals because of its low autoignition temperature and the small joint clearance necessary to arrest its flame propagation.

ⁱPetroleum naphtha is a saturated hydrocarbon mixture whose boiling range is 68°F to 275°F (20°C to 135°C). It is also known as benzine, ligroin, petroleum ether, and naphtha.

^jFuel and process gas mixtures found by test not to present hazards similar to those of hydrogen can be grouped based on the test results.

^k Liquid type and flash point vary due to regional blending differences.

Additional Proposed Changes

File Name	Description Approved
NFPA_497_Memo_for_Table_4_2_2.docx	
Isodecaldehyde_USCG_1999.pdf	

Statement of Problem and Substantiation for Public Comment

A number of materials were incorrectly labeled as to Type, that is Gas, or liquid Class, based on the tabulated normal boiling points and flash points. Additionally multiple materials listed as having the same CAS number either do not include the same information or should not be listed as the same CAS number. Recommended changes are substantiated by screenshots from the DIPPR database, which is a recognized source of critically evaluated thermo-physical property data. A US Coast Guard document downloaded from the Cameo website supports the recommended data for mixed isodecaldehydes.

Related Item

- FR-3

Submitter Information Verification

Submitter Full Name: Samuel Rodgers
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Street Address:
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Submission Date: Fri Apr 26 14:35:48 EDT 2019
Committee: EEC-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-4-NFPA 497-2019](#)

Statement: A number of materials were incorrectly labeled as to Type, that is Gas, or liquid Class, based on the tabulated normal boiling points and flash points. Additionally multiple materials listed as having the same CAS number either did not include the same information or should not have been listed as the same CAS number. These changes are from the DIPPR database, which is a recognized source of critically evaluated thermo-physical property data. A US Coast Guard document downloaded from the Cameo website supports the recommended data for mixed isodecaldehydes. Additional MESH and MIC ratio data were extracted from ISO/IEC 80079-20-1. The MESH for Methyl Ethyl Ketone was updated based on independent test data.

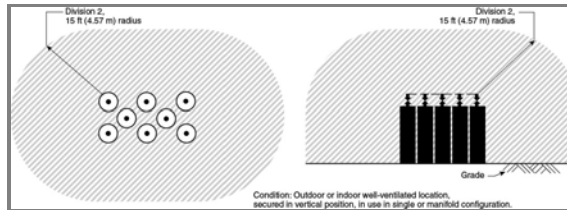


Public Comment No. 3-NFPA 497-2019 [Section No. 5.10.15]

5.10.15 Compressed Gas Cylinders (Lighter than or Equal to Air, including hydrogen).

(See Figure 5.10.15.)

Figure 5.10.15 Compressed Gas Cylinders (lighter than or equal to air, including hydrogen).



Additional Proposed Changes

File Name	Description	Approved
cylinder_hac.bmp	Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}	

Statement of Problem and Substantiation for Public Comment

Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}

Related Item

- fr#5

Submitter Information Verification

Submitter Full Name: David Wechsler
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Street Address:
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Submission Date: Thu May 09 15:47:35 EDT 2019
Committee: EEC-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-8-NFPA 497-2019](#)
Statement: The figures have been changed to consistently show the density of materials to which the figures apply.

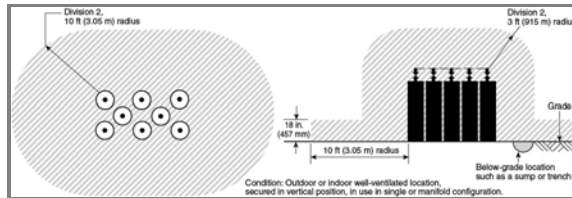


Public Comment No. 4-NFPA 497-2019 [Section No. 5.10.16]

5.10.16 Compressed Gas Cylinders (Heavier Than Air).

(See Figure 5.10.16.)

Figure 5.10.16 Compressed Gas Cylinders (heavier than air).



Additional Proposed Changes

File Name	Description	Approved
cylinder_hac.bmp	Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}	

Statement of Problem and Substantiation for Public Comment

Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}

Related Item

- fr#5

Submitter Information Verification

Submitter Full Name: David Wechsler
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Submission Date: Thu May 09 15:50:43 EDT 2019
Committee: EEC-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-8-NFPA 497-2019](#)
Statement: The figures have been changed to consistently show the density of materials to which the figures apply.

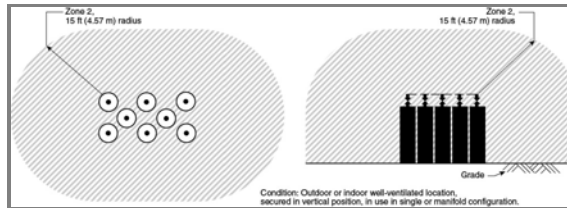


Public Comment No. 5-NFPA 497-2019 [Section No. 5.11.15]

5.11.15 Compressed Gas Cylinders (Lighter Than or Equal to Air, Including Hydrogen).

(See Figure 5.11.15.)

Figure 5.11.15 Compressed Gas Cylinders (lighter than or equal to air, including hydrogen).



Additional Proposed Changes

File Name	Description	Approved
cylinder_hac.bmp	Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}	

Statement of Problem and Substantiation for Public Comment

Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}

Related Item

- FR#5

Submitter Information Verification

Submitter Full Name: David Wechsler
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Submission Date: Thu May 09 15:51:26 EDT 2019
Committee: EEC-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-9-NFPA 497-2019](#)
Statement: The figures have been changed to consistently show the density of materials to which the figures apply.

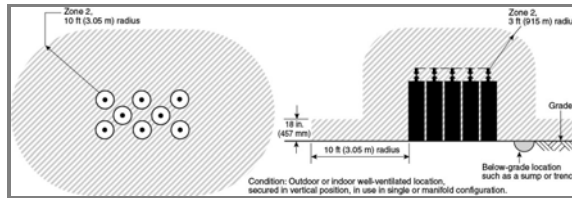


Public Comment No. 6-NFPA 497-2019 [Section No. 5.11.16]

5.11.16 Compressed Gas Cylinders (Heavier than Air).

(See Figure 5.11.16.)

Figure 5.11.16 Compressed Gas Cylinders (heavier than air).



Additional Proposed Changes

File Name	Description	Approved
cylinder_hac.bmp	Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}	

Statement of Problem and Substantiation for Public Comment

Please add to the figure the statement of condition for this figure - and add this directly to the figure: For Heavier than air gas, or For Lighter than air gas { as applicable- used this comment for these sets of figures}

Related Item

- FR#5

Submitter Information Verification

Submitter Full Name: David Wechsler
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Submission Date: Thu May 09 15:51:47 EDT 2019
Committee: EEC-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-9-NFPA 497-2019](#)
Statement: The figures have been changed to consistently show the density of materials to which the figures apply.



Public Comment No. 2-NFPA 497-2019 [Section No. C.2.1]

C.2.1 – ASHRAE Publications.

ASHRAE, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305.

ASHRAE Standard 34, *Designation and Classification of Refrigerants*, 2016.

Statement of Problem and Substantiation for Public Comment

In FR-1, the committee noted that ASHRAE 34 is not referenced in NFPA 497 and deleted the reference to that standard in Section 2.3.2. The update made by FR-17 therefore appears to be in error. The reference should have been deleted, rather than updated.

Related Item

- FR-1 • FR-17

Submitter Information Verification

Submitter Full Name: Jeffrey Shapiro

Organization: International Code Consultants

Affiliation: International Institute of Ammonia Refrigeration

Street Address:

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Submission Date: Wed May 08 18:22:32 EDT 2019

Committee: EEC-AAA

Committee Statement

Committee Action: Accepted

Resolution: [SR-6-NFPA 497-2019](#)

Statement: The reference does not appear in the document and does not exist.