TABLE 6. APPROXIMATE LIMITS OF FLAMMABILITY OF SINGLE GASES AND VAPORS IN AIR AT ORDINARY TEMPERATURES AND PRESSURES[a]

GAS OR VAPOR	LOWER LIMIT PERCENT BY VOLUME	UPPER LIMIT PERCENT BY VOLUME	*Closed Cup*[b] FLASH POINT FAHRENHEIT	NBFU CLASSIFICATION[c]
Acetyldehyde	4.0	57	−17	I
Acetone	2.5	12.8	0	I
Acetylene	2.5	80	....	
Allyl alcohol	2.5	....	70	II
Ammonia	15.5	26.6	....	
Amyl alcohol	1.2	....	100	III
Amyl chloride	1.6	....	.....	
Amylene	1.6	7.7	....	
Benzene (bensol)	1.3	6.8	12	I
Benzyl chloride	1.1	....	140	III
Butane	1.8	8.4	....	
Butyl acetate	1.4	15.0	84	III
Butyl alcohol	1.7	....	....	
Butylene	2.0	9.7	.....	
Carbon disulfide	1.2	50	−22	I
Carbon monoxide	12.5	74.2	....	
Crotonaldehyde	2.1	15.5	55	II
Cyclohexane	1.3	8.4	1	I
Cyclopropane	2.4	10.5	.....	
Decane	0.67	2.6	115	III
Dichloroethylene (1, 2)	9.7	12.8	57	II
Diethyl selenide	2.5	....	.....	
Dioxane	2.0	22.2	54	II
Ethane	3.1	12.5	.....	
Ether (diethyl)	1.8	36.5	−49	I
Ethyl acetate	2.2	11.5	28	II
Ethyl alcohol	3.3	19.0	54	II
Ethyl bromide	6.7	11.3	.....	
Ethyl cellosolve	2.6	15.7	104	III
Ethyl chloride	4.0	14.8	−58	I
Ethylene	2.7	28.6	.....	
Ethylene dichloride	6.2	15.9	56	II
Ethyl formate	2.7	16.5	−4	I
Ethyl nitrite	3.0	50	−31	I
Ethylene oxide	3.0	80	....	
Furfural (125 C)	2.1	....	140	III
Gasoline (variable)	1.4–1.5	7.4–7.6	−50	I
Heptane	1.0	6.0	25	II
Hexane	1.2	6.9	−15	I
Hydrogen cyanide	5.6	40.0	.....	
Hydrogen	4.0	74.2	....	
Hydrogen sulfide	4.3	45.5	....	
Illuminating gas (coal gas)	5.3	33.0	.....	
Isobutyl alcohol	1.7	....	82	III
Isopentane	1.3	....	....	
Isopropyl acetate	1.8	7.8	43	II
Isopropyl alcohol	2.0	....	53	II
Methane	5.0	15.0	.....	
Methyl acetate	3.1	15.5	14	I
Methyl alcohol	6.7	36.5	52	II
Methyl bromide	13.5	14.5	....	
Methyl butyl ketone	1.2	8.0	....	
Methyl chloride	8.2	18.7	.....	
Methyl cyclohexane	1.1	....	25	II
Methyl ethyl ether	2.0	10.1	−35	I
Methyl ethyl ketone	1.8	9.5	30	II
Methyl formate	5.0	22.7	−2	I
Methyl propyl ketone	1.5	8.2	....	
Natural gas (variable)	4.3	13.5	.....	
Naphtha (benzene)	1.1	6.0	20–110	III
Naphthalene	0.9	....	176	III
Nonane	0.83	2.9	88	III
Octane	0.95	3.2	56	II
Paraldehyde	1.3	....	....	
Pentane	1.4	7.8	....	

TABLE 6. APPROXIMATE LIMITS OF FLAMMABILITY OF SINGLE GASES AND VAPORS IN AIR AT ORDINARY TEMPERATURES AND PRESSURES[a] (Concluded)

GAS OR VAPOR	LOWER LIMIT PERCENT BY VOLUME	UPPER LIMIT PERCENT BY VOLUME	*Closed Cup*[b] FLASH POINT FAHRENHEIT	NBFU CLASSIFICATION[c]
Propane	2.1	10.1	.....	
Propyl acetate	1.8	8.0	58	II
Propyl alcohol	2.1	13.5	59	II
Propylene	2.0	11.1	.....	
Propylene dichloride	3.4	14.5	60	II
Propylene oxide	2.0	22.0	.....	
Pyridine	1.8	12.4	74	III
Toluene (toluol)	1.3	7.0	40	II
Turpentine	0.8	....	95	III
Vinyl ether	1.7	27.0	....	
Vinyl chloride	4.0	21.7	....	
Water gas (variable)	6.0	70	....	
Xylene (xylol)	1.0	6.0	63	II

[a] Adapted from: Fire and Explosion Hazards of Combustible Gases and Vapors, by G. W. Jones; Chapter 13, Industrial Hygiene and Toxicology, edited by F. A. Patty (Interscience Publishers, 1948); Properties of Flammable Liquids, Gases and Solids (Associated) Factory Mutual Fire Ins. Cos., January (1940); and National Fire Codes for Flammable Liquids, Gases, Chemicals and Explosives—1945 (*National Fire Protection Association*).

[b] *Closed cup* refers to the equipment used in flash point determinations.

[c] From Standards for Storage, Handling and Use of Flammable Liquids (*National Board of Fire Underwriters*, No. 30, July 1954).

in the botanical literature.[22, 23, 24] Geographical distribution of plants known to produce hay fever is also recorded.[25, 26]

The quantity of pollen grains in the air is generally estimated by exposing an adhesive-coated glass plate outdoors for 24 hr, and then counting calibrated areas under the microscope. Methods are available for determining the number of grains in a measured volume of air,[25, 27, 28] but their greater accuracy has not caused them to replace the more simple *gravity slide method* used for most pollen counts. Counting technics vary somewhat, but the daily pollen counts reported in local newspapers during the hay fever season usually represent the number of grains found on 1.8 sq cm of a 24-hr *gravity slide*.

Hay fever sufferers may notice the first symptoms when the pollen count is 10 to 25, and in some localities the maximum figures for the seasonal peak may approach 1000 for a 24-hr period, depending upon the sampling and reporting methods of the laboratory. Translation of gravity counts by special formulas to a volumetric basis, or the number of grains per cubic yard or per cubic foot of air, is unreliable because of the complexity of the modifying factors. When such information is important, it is best obtained directly by a volumetric instrument. The number of pollen grains per cubic yard of air evidently varies from 2 to 20 times the number found on 1 sq cm of a 24-hr gravity slide, depending on grain diameter, shape, specific gravity, wind velocity, humidity and physical placement of the collecting plate.[29, 30, 31]

AIRBORNE BACTERIA

Study of the occurrence and significance of micro-organisms in the atmospheres of the indoor world is absorbing the energies of a substantial number of physicians, bacteriologists, aerobiologists, physicists, public health workers, engineers and hospital personnel. Some data are available on the types and quantities of bacteria found in a variety of spaces, but it is not possible at present to use this information as a conclusive index of the potential health hazard of a given environment. The reported number of airborne organisms may vary from 1 to 1000 per cubic foot of air, influ-