Reference Literature to Properties of Chemical Compounds. Inorganic Liquids and Gases

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Received February 17, 1969

Chemists and chemical engineers frequently require quick access to physical and thermodynamic properties of chemical compounds in research and plant design. This paper surveys and gives reference literature to some inorganic liquids and gases. The selected list of inorganic compounds contains most of the relevant inorganic liquids and gases—at room temperature and atmospheric pressure—in the chemical industry, plus the noble gases, which are getting more and more attention in connection with the development of cryogenic technology in the space age. Several references are cited for a physical or thermodynamic property, giving an opportunity to select the actual property at the requested temperature and pressure; or, if one source of data is not available, then another possibility or possibilities could be helpful.

Physical and thermodynamic properties of chemical compounds are widely published in the technical literature. Usually the periodicals contain the original works; meanwhile handbooks, bulletins, and circulars collect, tabulate, and index the data. This type of work can only be carried out by large organizations—e.g., the Chemical Rubber Co., National Bureau of Standards, American Chemical Society, etc.—because the collection is time consuming, expensive, and requires access to published literature. Besides the collection of data, a more difficult task is the selection of published properties of compounds, a necessity due to discrepancies. Unfortunately, there are few selected values and reliable sources of physical and thermodynamic properties of chemical compounds. The object of this paper is to present several sources of properties and leave the selection to the reader.

Most of the cited sources are sufficiently reliable and adequately accurate for most calculations in chemistry and chemical engineering; however, the nature of the application will determine the requirement of accuracy. The publications of the National Bureau of Standards and the American Chemical Society are more reliable than others; the Chemical Rubber Handbook is revised year by year and is up-to-date. The reader must bear in mind that some of the references were not recently published—e.g., International Critical Tables—and must be used with caution.

The origin of published data can be classified as follows: experimental, predicted, derived, smoothed, selected, monograph, and plotted. Good experimental data is most desirable; however, in some cases, the experimental procedure is not easy; in other cases, the determination is difficult, due to decomposition of compounds, etc. These are some reasons why discrepancies occur and properties are rather predicted or derived using empirical equations. Because of the difficulty, there are no reliable published data for surface tension of hydrogen chloride and thermal conductivity of liquid and solid chlorine, in spite of the fact that they are very common chemicals.

The inorganic compounds were selected (except the noble gases and water) on the basis of frequentation and the output of production in the chemical industry.[100, 101, 102] These compounds are manufactured and sold in bulk quantities. At room temperature and atmospheric pressure they are in the form of liquid or gas, and distribution is carried out in tanks, containers, barrels, cylinders, etc.

Table of References

Inorganic compounds:	T_c	p_c	v_c	T_v	T_{bp}	T_{mp}	p	ΔH_v	ΔH_f	ΔG_f	C_p	γ	ΔH	S^0	ρ	σ	k_T	α	μ	u	η	λ	D	ϵ	k	n
Air	1, 2, 3, 5, 13	1, 2, 3, 5	1, 2, 3, 5, 13		3, 5	3, 5	5	1, 2, 3, 5			1, 2, 3, 5, 11, 13, 17, 31, 44, 69	2, 3, 5, 11, 17, 69	5, 11, 17, 44	5, 11, 17	1, 3, 5, 11, 17, 44	3	3, 5, 11	1, 3, 94	3, 83 91	1, 3, 11	1, 2, 3, 11, 13, 17, 31, 44, 69	2, 3, 11, 13, 17, 31, 44, 45, 69		1, 2, 3	3	1, 3
Ammonia	1, 2, 3, 5, 6, 13, 20, 21, 45, 46, 79	1, 2, 3, 5, 6, 20, 45, 46, 79	1, 2, 3, 5, 6, 13, 45, 46, 79	5, 20	1, 2, 3, 5, 20, 21	1, 2, 3, 5, 21	1, 2, 3, 5, 6, 12, 20, 21, 45, 46, 51	1, 2, 3, 5, 8, 12, 20, 21 45, 46	1, 2, 3, 8, 9, 10, 16, 20, 47	1, 2, 8, 9, 16, 20, 47	1, 2, 3, 4, 5, 8, 9, 10, 13, 14, 15, 16, 20, 21, 31, 45, 46, 47, 69	2, 3, 5, 69	5, 6, 9, 10, 14, 16, 17, 47	5, 6, 8, 9, 10, 14, 15, 17, 16, 20, 47	1, 2, 3, 5, 6, 17, 20, 45, 46, 51	1, 2, 3, 20	2, 3, 5, 50, 93	1, 3, 94	5, 84	1, 3	1, 2, 3, 13, 20, 21, 31, 45, 46, 49, 52, 69	1, 2, 3, 13, 31, 45, 46, 48, 52, 53, 69, 81 98	1, 3 69	1, 2, 3, 20, 21	3, 20, 21	1, 2, 3, 20, 21, 45
Argon	1, 2, 3, 4, 5, 7, 13, 18, 19, 69	1, 2, 3, 4, 5, 7, 18, 19, 69	1, 2, 3, 4, 5, 13, 18, 19, 69	1, 3, 5, 18	1, 2, 3, 4, 5, 7, 18, 19, 69	1, 2, 3, 4, 5, 7, 18, 69	1, 2, 3, 5, 11, 12, 18	1, 2, 3, 5, 7, 8, 12, 15, 18, 19	1, 2, 8, 10, 16	1, 2, 8, 16	1, 2, 3, 4, 5, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 31	2, 3, 5, 11, 17, 18 19	5, 7, 10, 11, 14, 16	4, 5, 7, 8, 10, 11, 14, 15, 16	1, 2, 3, 4, 5, 11, 18, 19	1, 2, 3, 18, 19, 69	3, 5, 11, 18, 93	1, 3, 94	18, 85, 91	3, 4, 5, 11, 18	1, 2, 3, 4, 11, 13, 18, 19, 31, 69	1, 2, 3, 4, 11, 13, 18, 19, 31, 54, 69	18, 69	1, 2, 3, 4, 18, 19	18	1, 3, 18
Bromine	1, 2, 3, 4, 7, 13	2, 3, 4, 7	2, 3, 4, 13		1, 2, 3, 4, 7	1, 2, 3, 4, 7	1, 2, 3, 4, 12	1, 2, 3, 7, 8, 12, 15	1, 2, 3, 7, 8, 9, 16, 28	1, 2, 3, 7, 8, 9, 16, 28	1, 2, 3, 4, 7, 8, 9, 13, 14, 15, 16, 28	2, 3	7, 9, 14, 16, 28	4, 7, 8, 9, 14, 15, 16, 28	1, 2, 3, 4, 13	1, 2, 3, 4	2, 3	1, 2, 3, 91, 94		3	1, 2, 3, 4, 13	13	1, 3, 82	1, 2, 3, 4	3	1, 3
Carbon dioxide	1, 2, 3, 5, 6, 13, 29, 32	1, 2, 3, 5, 6, 29, 32, 79	1, 2, 3, 5, 6, 13, 29, 32	5, 29, 32	1, 2, 3, 5, 29, 32	1, 2, 3, 5, 29, 32	1, 2, 3, 5, 6, 11, 12, 29, 32	1, 2, 3, 5, 29, 32	1, 2, 3, 8, 9, 10, 16, 29	1, 2, 3, 8, 9, 10, 16, 29	1, 2, 3, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 29, 31, 32, 55, 69	2, 3, 5, 11, 17, 29, 69	5, 6, 9, 10, 11, 14, 16, 17, 29, 32, 55	5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 29, 32	1, 2, 3, 5, 6, 11, 17, 29, 32, 55	1, 2, 3, 29, 32	1, 2, 3, 5, 11, 29, 32, 56, 93	1, 3, 29, 32, 94	3, 29, 32, 84, 90, 91	1, 3, 11, 29, 32	1, 2, 3, 11, 13, 17, 29, 31, 32, 55, 69, 80	1, 2, 3, 11, 13, 17, 29, 31, 55, 69, 81	1, 3, 29, 32, 69, 82	1, 2, 3, 29 32	29	1, 3, 29, 32
Carbon disulfide	1, 2, 3, 13, 79	1, 2, 3	2, 13, 79		1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3, 9, 10, 16	1, 2, 9, 16	1, 2, 3, 9, 10, 13, 14, 15, 16	2, 3	9, 10, 14, 16	9, 10, 14, 16	1, 2, 3	1, 2 3	2, 3, 91	1, 2, 91		1, 3	1, 2, 3, 13, 80	2, 3, 13, 81	1, 3	1, 2, 3	3	1, 2, 3
Carbon monoxide	1, 2, 3, 5, 6, 13	1, 2, 3, 5, 6	1, 2, 3, 5, 6, 13	5	1, 2, 3, 5	1, 2, 3, 5	1, 2, 3, 5, 6, 11, 12, 58	1, 2, 3, 5, 8, 12, 15	1, 2, 3, 8, 9, 10, 16	1, 2, 3, 8, 9, 10, 16	1, 2, 3, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 31, 57, 69	2, 3, 5, 11, 17, 69	5, 6, 9, 10, 11, 14, 16, 17, 57, 58	5, 6, 8, 9, 10, 11, 14, 15, 16, 58	1, 2, 3, 5, 6, 11, 57, 58	1, 2, 3	5, 11 93	1, 3, 94	86	1, 3, 11	1, 2, 3, 11, 13, 31, 57, 69	2, 3, 11, 13, 31, 57, 69, 81	3, 69	1, 2, 3		1, 3

Chlorine	1, 2, 3, 4, 7, 13, 36, 41, 43, 79	1, 2, 3, 4, 7, 36, 41, 43, 79	1, 2, 3, 4, 13, 36, 41, 79		1, 2, 3, 4, 7, 36, 41, 43	1, 2, 3, 4, 7, 36, 41, 43	1, 2, 3, 4, 12, 24, 36, 41 43	2, 3, 7, 8, 12, 15, 24, 36, 41, 43	1, 2, 7, 8, 9, 10, 16, 28, 36	1, 2, 3, 7, 8, 9, 16, 28, 36	1, 2, 3, 4, 7, 8, 9, 10, 13, 14, 15, 16, 24, 28, 36, 41, 43, 69	2, 3, 24, 36, 41, 43, 69	7, 8, 10, 14, 16, 28, 36, 59, 60, 61	4, 7, 8, 9, 10, 14, 15, 16, 28, 36, 59, 60, 61	1, 2, 3, 4, 24, 36, 41, 43	1, 2, 3, 36	2, 3, 36, 41, 59	1, 2, 3, 94		1, 3, 4	1, 2, 3, 13, 24, 36, 41, 43, 69	2, 3, 4, 13, 36, 41, 69, 81	1, 3, 82	1, 2, 3	3	1, 3, 36
Deuterium	2, 92	2, 92	2		1, 2	1, 2		8, 15	1, 2, 8, 16	1, 2, 8, 16	8, 14, 15, 16		8, 14, 16,	8, 14, 15, 16	1, 2				87, 88		69	69		2		
Fluorine	1, 4, 7, 13, 25, 27, 30	1, 4, 7, 25, 27, 30	13, 25, 30	7, 30	1, 2, 3, 4, 7, 25, 27, 30	1, 2, 3, 4, 7, 25, 27, 30	1, 4, 25, 30	2, 3, 7, 8, 25, 27, 30	1, 2, 7, 8, 9, 10, 16, 27, 28, 30, 69	1, 2, 7, 8, 9, 16, 28, 30	1, 2, 3, 4, 7, 8, 9, 10, 13, 14, 15, 16, 25, 27, 28, 30	25, 27	7, 9, 10, 14 16, 28, 30	4, 7, 8, 9, 10, 14, 15, 16, 25, 27, 28, 30	1, 2, 3, 4, 25, 27, 30	25, 30		2, 3			4, 13, 25, 27, 30, 69	13, 25, 30, 69	30	2, 27, 30		3, 30
Helium	1, 2, 3, 4, 7, 13, 18, 19	1, 2, 3, 4, 7, 18, 19	1, 2, 3, 4, 13, 18, 19	1, 18	1, 2, 3, 4, 7, 18, 19	1, 2, 3, 4, 7, 18,	1, 2, 3, 18	1, 2, 3, 7, 8, 18, 19	1, 2, 8, 10, 16	1, 2, 8, 16	1, 2, 3, 4, 7, 8, 10, 13, 14, 15, 16, 17, 18, 31	2, 3, 17, 18, 19	7, 10, 14, 16, 69	4, 7, 8, 10, 14, 15, 16, 69	1, 2, 3, 4, 18, 19, 69	1, 2, 3, 18, 19	3, 18, 93	1, 3, 4, 94	3, 18 69, 89, 91	3, 4 18	1, 2, 3, 4, 13, 18, 19, 31, 69	2, 3, 4, 13, 18, 19, 31, 69	3, 18, 69	1, 2, 3, 4, 18, 19	18	1, 3, 18
Hydrazine	1, 2, 3, 13, 79	1, 2, 3	13		1, 2, 3, 20, 40	1, 2, 3, 20, 40	1, 2, 3, 20, 40	8, 20, 40	1, 3, 8, 9, 16, 20, 40	8, 9, 16, 20, 40	2, 3, 8, 9, 13, 16, 20, 40, 62	40	9, 16, 20, 40, 62	8, 9, 16, 20, 40, 62	1, 2, 3, 40	1, 40					1, 40			2, 40	3, 40	2, 3, 40
Hydrogen	1, 2, 3, 4, 6, 7, 13, 63, 69	1, 2, 3, 4, 6, 7, 63, 69	1, 2, 3, 4, 6, 13, 63, 69	1, 3, 63	1, 2, 3, 4, 7, 63, 69	1, 2, 3, 4, 7, 63, 69	1, 2, 3, 6, 11, 12, 63	1, 2, 3, 7, 8, 12, 15, 63	1, 2, 7, 8, 9, 10, 16	1, 2, 7, 8, 9, 16,	1, 2, 3, 4, 7, 9, 10, 11, 13, 14, 15, 16, 17, 31, 64, 69	2, 3, 11, 17, 69	6, 7, 9, 10, 11, 14, 16, 17, 64	4, 6, 7, 8, 9, 10, 11, 14, 15, 16	1, 2, 3, 4, 6, 8, 11, 17, 63, 64	1, 2, 3, 63	3, 11, 65	1, 2, 3, 4, 94	3, 87, 88	1, 3, 4, 11	1, 2, 3, 4, 11, 13, 17, 31, 63, 64 69	2, 3, 4, 11, 13, 17, 31, 63, 64, 69, 81	1, 3, 82	1, 2, 3, 4		1, 3
Hydrogen bromide	1, 2, 3, 13	1, 2, 3			1, 2, 3	1, 2, 3	1, 2, 3, 12	1, 2, 3, 8, 12, 15, 16	1, 2, 8, 9, 16	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 13, 14, 16	2, 3	9, 14, 16	8, 9, 14, 16	1, 2 3	3	93			3	1, 2, 3, 13	13		1, 2, 3	3	2, 3
Hydrogen chloride	1, 2, 3, 13, 69, 79	1, 2, 3, 69, 79	1, 2, 3, 13, 69, 79		1, 2, 3	1, 2, 3	1, 2, 3, 12, 68, 69	1, 2, 3, 8, 12, 15, 68	1, 2, 3, 8, 9, 10, 16	1, 2, 8, 9, 16	1, 2, 3, 8, 9, 10, 13, 14, 15, 16, 68, 69, 89	2, 3, 69	9, 10, 14, 16, 59, 66, 67	8, 9, 10, 14, 15, 16, 59, 66, 67, 68	1, 2, 3, 34, 59, 69, 89	2, 3	93	1, 2, 3, 91, 94		3	1, 2, 3, 13	2, 3, 13, 69, 70, 98, 99	1, 3	1, 2, 3	3	1, 2, 3
Hydrogen cyanide	1, 2, 3, 13	1, 2, 3	1, 2, 3, 13		1, 2, 3	1, 2, 3	1, 2, 3, 12	1, 2, 3, 12, 15	1, 2, 3, 8, 9, 10, 16	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 10, 13, 14, 15, 16	2, 3	9, 10, 14, 16	8, 9, 10, 14, 15, 16	1, 2, 3	1, 2, 3					3, 13	13	95, 96	1, 3		2, 3

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Table of References (*Continued*)

Inorganic compounds:	T_c	p_c	v_c	T_{tr}	$T_{b.p.}$	$T_{m.p.}$	p	ΔH_v	ΔH_f	ΔG_f	C_p	γ	ΔH	S^0	ρ	σ	k_T	α	v	u	η	λ	D	ϵ	k	n
Hydrogen fluoride	1, 2, 39	1			1, 2, 27, 39	1, 2, 3, 39	1, 2, 3, 12, 25, 27, 39	1, 2, 3, 8, 15, 27, 39	1, 2, 3, 8, 9, 10, 16, 28 39, 69	1, 2, 3, 8, 9, 16, 39	3, 8, 9, 10, 13, 14, 15, 16, 27, 39		9, 10, 14, 16	8, 9, 10, 14, 15, 16, 39	1, 2, 3, 25, 27, 39	27, 39					27, 39	27		27	3, 19, 25, 27	
Hydrogen iodide	1, 2, 3, 13, 79	1, 2, 3, 79	13		1, 2, 3	1, 2, 3	1, 2, 3, 12	1, 2, 3, 8, 12, 15	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 13, 14, 15, 16	2, 3	9, 14, 16	8, 9, 14, 15, 16	1, 2, 3					3	1, 2, 3, 13			1, 2, 3	3	2, 3
Hydrogen peroxide				72	1, 2, 3, 72	1, 2, 3, 72	1, 2, 3, 71, 72	2, 3, 8, 15, 71, 72	1, 2, 3, 8, 9, 16, 72	1, 2, 9, 16	2, 3, 8, 9, 14, 15, 16, 72		9, 14, 16, 71, 72	8, 9, 14, 15, 16	1, 2, 3, 72,	1, 2 3, 72	72	72			72	72	72, 96	72	3	2, 3, 72
Hydrogen phosphide	1, 2, 3	1, 2, 3	3		1, 2, 3	1, 2	1, 3	2	1, 2, 3	1, 2, 3	1, 2, 3		9, 14	8, 9	1, 2, 3	3					1, 2				3	2, 3
Hydrogen sulfide	1, 2, 3, 13 79	1, 2, 3, 79	2, 13		1, 2, 3	1, 2, 3	1, 2, 3, 12	1, 2, 3, 8, 12, 15	1, 2, 3, 8, 9, 10, 16	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 10, 13, 14, 15, 16, 69	2, 3, 69	9, 10, 14, 16	8, 9, 10, 14, 15, 16	1, 2, 3		93	3		3	1, 2, 3, 13	2, 3, 13, 69, 81	3	1, 2, 3	3	1, 2, 3
Krypton	1, 2, 3, 4, 7, 13, 18, 19, 69	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 4, 13, 18, 19, 69	3, 18	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 3, 4, 7, 18, 69	1, 2, 3, 12, 18	2, 3, 7, 8, 12, 15, 18, 19	1, 2, 8, 16	1, 2, 8, 16	1, 2, 3, 4, 7, 8, 13, 14, 15, 16, 18	2, 3, 18, 19	7, 14, 16	4, 7, 8, 14, 15, 16	1, 2, 3, 4, 18, 19	18	3, 18	3, 94	18	4, 18	1, 2, 3, 13, 18, 19, 69	4, 13, 18, 19, 69	18	4, 18, 19	18	3, 18
Neon	1, 2, 3, 4, 7, 13, 18, 19, 69	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 3, 4, 13, 18, 19, 69	18,	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 3, 4, 7, 18, 69	1, 2, 3, 12, 18	2, 3, 7, 8, 12, 18, 19	1, 2, 8, 10, 16	1, 2, 8, 16	1, 2, 3, 4, 7, 8, 10, 13, 14, 15, 16, 18	2, 3, 18, 19	7, 10 14, 16	4, 7, 8, 14, 15, 16	1, 2, 3, 4, 18, 19,	1, 2 3, 18, 19	3, 18 93	3, 4, 94	18	4, 18	1, 2, 3, 13, 18, 19, 69	2, 3, 4, 13, 18, 19 69	18, 69	1, 2, 4, 18, 19	18	3, 18
Nitric acid					1, 2, 3	1, 2, 3	1, 3	1, 2, 3, 8, 15	1, 2, 3, 8, 9, 16, 20	1, 2 8, 9, 16, 20	1, 3, 8, 9, 14, 15, 16		9, 14, 16	8, 9, 14, 15, 16, 20	1, 2, 3, 35	1, 2 3	1, 3, 91			3	1, 2, 3	98, 99	1, 3	3	3	1, 2, 3
Nitric oxide	1, 2, 3, 13	1, 2, 3, 79	1, 2, 3, 13		1, 2, 3	1, 2, 3	1, 2, 3, 12	2, 3, 8, 12, 15	1, 2, 3, 8, 9, 10, 16, 20	1, 2, 3, 8, 9, 16, 20	1, 2, 3, 8, 9, 10, 13, 14, 15, 31, 69	2, 3 69	9, 10, 14	8, 9, 10, 14, 15, 16, 20	1, 2, 3		3, 93	3			1, 2, 3, 13, 31, 69	2, 3, 13, 31, 69, 81				1, 3
Nitrogen	1, 2, 3, 4, 5, 6, 7, 13, 20, 33	1, 2, 3, 4, 5, 6, 7, 20, 33	1, 2 3, 4, 5, 6, 13, 20	1, 3, 5, 20	1, 2, 3, 4, 5, 7, 20, 33	1, 2, 3, 4, 5, 7, 33	1, 2, 3, 5, 6, 11, 12, 20, 33	2, 3, 5, 7, 8, 12, 15, 33	1, 2, 7, 8, 9, 10, 16, 20, 33	1, 2, 7, 8, 9, 16, 20, 33	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 31, 33, 69	2, 3, 5, 11, 17, 33, 69	5, 6, 7, 9, 10, 11, 14, 16, 17, 33	4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 20, 33	1, 2, 3, 4, 5, 6, 11, 20, 33	1, 2, 3, 20, 33, 69	3, 11 93	2, 3, 4, 94	3, 84, 91	3, 4, 5, 11	1, 2 3, 4, 11, 13, 20, 31, 33, 69	1, 2, 3, 4, 11, 13, 31, 33, 69	3, 69, 82	1, 2, 3, 4		1, 3, 33

Nitrogen dioxide	1, 2, 3, 13, 42	1, 2, 3, 42	2, 13, 42		1, 2, 3, 42	1, 2, 3, 42	3, 12, 42	3, 8, 12, 15	1, 2 3, 8, 9, 10, 16, 20, 42	1, 2, 3, 8, 9, 16, 20, 42	1, 2, 3, 8, 9, 10, 13, 14, 15, 16	2	9, 10, 14, 16	8, 9, 10, 14, 15, 16, 20	1, 2, 3, 42	3	93				2, 13	2, 3		3, 42	42	2, 3
Nitrogen pentoxide					1, 2	1, 2	1, 2, 3	2, 8 12	1, 2, 3, 8, 9, 16, 20	1, 2, 9, 16, 20	2, 3, 9, 15, 16		9, 16	8, 9, 15, 16, 20	1, 2											
Oxygen	1, 2, 3, 4, 6, 7, 13	1, 2, 3, 4, 6, 7	1, 2, 3, 4, 6, 13	1, 3, 73	1, 2, 3, 4, 6, 7	1, 2, 3, 4, 7	1, 2, 3, 6, 11, 12	1, 2, 3, 7, 8, 12, 15	1, 2, 7, 8, 9, 10, 16	1, 2, 3, 7, 8, 9, 16	1, 2, 3, 4, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 31, 69, 73	2, 3, 11, 17 69	6, 7 9, 10, 11, 14, 16, 17, 73	4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 73	1, 2, 3, 4, 6, 11	1, 2, 3	3, 11	1, 2, 3, 94	3	1, 3, 4, 11	1, 2, 3, 4, 11, 13, 31, 69	1, 2, 3, 4, 11, 13, 31, 69, 81	1, 3, 69, 82, 97	1, 2, 3, 4		1, 3
Ozone	1, 2, 3, 13	1, 2, 3	1, 2, 3, 13		1, 2, 3, 23	1, 2, 3, 23	1, 2, 3, 23	1, 2, 3, 8	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 16	1, 2, 3, 8, 9, 13, 14, 15, 16		9, 14, 16	8, 9, 14, 15, 16	1, 2, 3, 23	1, 2, 23		1, 2, 3			1, 23					3
Phosphoric acid					1, 2, 22	1, 2, 3, 22	3, 22		1, 2, 3, 8, 9, 16	9, 16	9, 14, 15, 16, 22		9, 16	8, 9, 15, 16	1, 2, 3, 22, 35	3					3, 22	74, 98	3		3, 22	22
Sulfur dioxide	1, 2, 3, 6, 13, 34, 79	1, 2, 3, 6, 34, 79	1, 2, 3, 13, 34, 79		1, 2, 3, 34	1, 2, 3, 34	1, 2, 3, 6, 12, 34	1, 2, 3, 8, 12, 15, 34	1, 2, 3, 8, 9, 10, 16	1, 2, 8, 9, 16	1, 2, 3, 8, 9, 10, 13, 14, 15, 16, 17, 34, 69	2, 3, 17, 34, 69	6, 9, 10, 14, 16	6, 8, 9, 10, 14, 15, 16	1, 2, 3, 6	1, 3	34, 93	1, 3 94		3	1, 2, 3, 13, 34, 69, 80	2, 3, 13, 34, 69, 81	97	1, 2 3	3	1, 2, 3
Sulfur trioxide	1, 2, 3, 13	1, 2, 3	1, 2, 3, 13	3	1, 2, 3	1, 2, 3	1, 2, 3, 12	2, 3, 8, 12	1, 2 3, 8, 9, 10, 16	1, 2, 3, 8, 9, 16	8, 9, 10, 13, 14, 15, 16		9, 10, 14, 16	8, 9, 10, 14, 15, 16	1, 2, 3	3								1, 3		3
Sulfuric acid					1, 2, 3, 37, 38	1, 2, 3, 37, 38	1, 3, 38	1, 2, 3	1, 2, 3, 8, 9, 16	1, 8, 9, 16	1, 2, 3, 8, 9, 14, 15, 16, 38		9, 16, 38	8, 9, 15, 16	1, 2, 3, 26, 35, 37 38	1, 3	3	1, 2, 91		3	1, 2, 3, 38	2, 3, 38, 98, 99	1, 3	1, 3	3	1, 2, 3
Water	1, 2, 3, 6, 13, 21, 79	1, 2, 3, 6, 79	1, 2, 3, 6, 13	3	1, 2, 3, 6, 21	1, 2, 3, 21	1, 2, 3, 6, 11, 12, 21	1, 2, 3, 8, 12, 15, 21	1, 2, 3, 8, 9, 10, 16, 75	1, 2, 3, 8, 9, 16	1, 2, 3. 8, 9, 10, 11, 13, 14, 15, 16, 17, 21, 31, 69, 75	2, 3, 69	6, 9, 10, 11, 14, 16, 17, 75, 76, 77	6, 8, 9, 10, 11, 14, 15, 16, 17, 75, 76, 77	1, 2, 3, 6, 11, 17,	1, 2, 3, 77	1, 2, 3, 11, 91	1, 3, 91	3, 75, 84	1, 75,	1, 2, 3, 11, 13. 17, 21, 31. 69, 75, 76, 77, 78	1, 2, 3, 11, 13. 17, 31. 69, 75, 76, 77, 81	1, 3, 69, 75	1, 2, 3, 21, 75	3, 21	1, 2, 3, 21, 75
Xenon	1, 2, 3, 4, 7, 13, 18, 19, 69	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 3, 4, 13, 18, 19, 69	3, 18	1, 2, 3, 4, 7, 18, 19, 69	1, 2, 3, 4, 7, 18, 69	1, 2, 3, 12, 18	2, 7, 8, 12, 15, 18, 19	1, 2, 3, 8, 16	1, 2, 8, 16,	1, 2, 3, 4, 7, 8 13, 14, 15, 16, 18	2, 3, 18, 19	7, 8, 14, 16	4, 7, 8, 14, 15, 16	1, 2, 3, 4, 18, 19		3, 18	94	18	4, 18	1, 2, 3, 13, 18, 19, 69	13, 18, 19, 69	18	4, 18, 19	18	3, 18

NOMENCLATURE*

*Based on the recommendation of "Physico-Chemical Quantities and Units" by M. L. McGlasham, The Royal Institute of Chemistry, *Nomographs for Teachers*, No. 15 (July, 1968).

T_c = critical temperature
p_c = critical pressure
v_c = critical volume (or 1/critical density)
T_{tr} = triple-point temperature
$T_{b.p.}$ = boiling point
$T_{m.p}$ = melting point
p = vapor pressure
ΔH_v = heat of vaporization
ΔH_f = heat of formation
ΔG_f = free energy of formation
C_p = heat capacity
γ = ratio of specific heats, C_p/C_v
ΔH = enthalpy
S^0 = entropy
ρ = density
σ = surface tension
k_T = compressibility
α = coefficient of thermal expansion
μ = Joule-Thomson coefficient
u = velocity of sound
η = viscosity
λ = thermal conductivity
D = diffusivity
ϵ = dielectric constant
k = electrical conductivity
n = refractive index

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ERRATA

In the article "The Double-KWIC Coordinate Index" by Anthony E. Petrarca and W. Michael Lay [J. CHEM. Doc. **9**, 256 (1969)], the complete prototype index referred to may be ordered as NAPS Document NAPS-00682 from ASIS National Auxiliary Publications Service, % Information Sciences, Inc., 22 West 34th St., New York, N. Y. 10001; remit $1.00 for microfiche or $3.00 for photocopies.

The correct Figure 9, an illustration of how the word "REVIEW" maintains its separate identity as an index term when it appears independently of "BOOK__REVIEW," is shown.

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  BOOK_REVIEW: ANNUAL * OF INFORMATION SCIENCE AND TECHNOLOGY =. B3-2
  BOOK_REVIEW: SALICYLATES. A CRITICAL BIBLIOGRAPHIC * = ..... B 59
  CRITICAL BIBLIOGRAPHIC * = .....BOOK_REVIEW: SALICYLATES. A B 59
  INFORMATION SCIENCE AND TECHNOLOGY = .BOOK_REVIEW: ANNUAL * OF B3-2
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  MACROMOLECULAR *, VOL 1 = .....BOOK_REVIEW: B182
  MACROMOLECULAR *, VOL 2 = .....BOOK_REVIEW: B257
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