while STOEL'S numbers for the density of methyl chloride were made use of:

Temp.	*Uncorr.* $\mu \times 10^6$.	*Corr.* $\times 10^7$.	*Corr.* $\mu \times 10^6$.
10°	2032	86	2023
20°	1833	93	1834
30°	1671	100	1661
40°	1532	107	1521
50°	1411	113	1400
60°	1301	120	1289
70°	1196	126	1183
80°	1097	133	1084
90°	1001	140	987.4
100°	911.1	148	896.3
110°	822.8	156	807.2
120°	736.4	163	720.1
130°	651.6	172	634.4
136°.8	590.6	168	573.8

The formula $\mu = C e^{-\frac{T}{B}}$ (in which T represents the absolute temperature, and C and B are constants) given by Dr. STOEL as an approximate formula, not differing too much from his uncorrected observations 1), represents with the same differences the corrected values I found; only beyond 120° greater deviations are found.

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1) Communications etc. No. 2 p. 7.

Dr. H. KAMERLINGH ONNES. *The coëfficient of viscosity for fluids in corresponding states.*

The foregoing communication gives the coëfficient of viscosity of methyl chloride in absolute value. These results enable us to test near the critical temperature the relation between the coëfficiënts of viscosity of two fluids at corresponding temperatures, which I have deduced 1) from the theorem, that corresponding states are to be considered as mechanically similar forms of motion. 2)

This relation is:

$$\mu_1 : \mu_2 = \frac{\sqrt{M_1}}{\sqrt[3]{m_1^2}}\sqrt{T_{k_1}} \; : \; \frac{\sqrt{M_2}}{\sqrt[3]{m_2^2}}\sqrt{T_{k_2}},$$

where μ represents the coëfficient of viscosity, M the molecular weight, m the volume of the molecules and T_k the critical temperature, while the indices 1

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1) Theorie der vloeistoffen, Verh. der Kon. Acad. v. Wetensch. Amsterdam, 1881, tweede stuk, pag. 8. Beibl. 5, p. 718, 1881.

2) Compare for further applications of this theorem: VAN DER WAALS, Thermodynamische Theorie der Kapillarität unter Voraussetzung stetiger Dichteänderung. Ztschr. f. phys. Chemie XIII. 4. Zusatz 2, 3, 4.

and 2 refer to the different fluids. As in this case we may put:

$$m = \text{const.} \times \frac{T_k}{p_k},$$

(p_k representing the critical pressure), we have:

$$\mu_1 : \mu_2 = \frac{\sqrt{M_1}}{\sqrt[6]{\dfrac{T_{k_1}}{p^4_{k_1}}}} : \frac{\sqrt{M_2}}{\sqrt[6]{\dfrac{T_{k_2}}{p^4_{k_2}}}}.$$

The latter formula is more fit for calculation, because the values given for critical pressures are generally better to be relied upon then those for critical volumes.

It follows from the consideration on which this relation is founded, that it will probably be best realised near the critical state.

Beside methyl chloride there is but one liquid of which the coëfficiënt of viscosity near the critical state is known, viz. carbonic acid, by the investigations made by WARBURG and VON BABO [1]). If we call μ_c and μ_m the coefficient of viscosity for carbonic acid and methyl chloride, we ought to have according to the above mentioned relation:

$$\mu_c : \mu_m = 44.63 : 42.01$$

or:

$$\frac{\mu_c}{44,63} = \frac{\mu_m}{42,01} = \text{const.}$$

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[1]) Wied. Ann. 17, p. 390, 1882.

According to the experiments and calculations of Dr. M. DE HAAS we find: [1])

Corresp. Temp.		μ'_c	μ'_m	$\frac{\mu'_c}{44.63}$	$\frac{\mu'_m}{42,01}$
Carbon. ac.	Methyl chl.				
5°	107°0	5,099	4,589	0,114	0,109
10°	113°8	4,697	4,267	0,105	0,102
15°	120°6	4,222	3,887	0,097	0,093
20°	127°5	3,925	3,628	0,088	0,086
25°	134•3	3,444	3,302	0,077	0,079

It results from this, that near the critical temperature the agreement is sufficient, and that the differences are not greater than with other applications of the law of the corresponding states.

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[1]) In this table μ'_c and μ'_m denote the „specific" coëfficient of viscosity, i. e. they are expressed in the $\frac{1}{100}$ th. part of the coëff. of visc. of water at 0°, taken as unit.