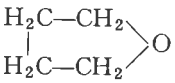
テトラヒドロフラン(Tetrahydrofuran)の物性

物理的性質[1~3)]

分子式	C_4H_8O
構造式	
分子量	72.10
沸点 (760 mmHg, °C)	65.6°
凍結点 (°C)	−108.5°
屈折率 (n_D^{20})	1.4072
比重 (d_4^{20})	0.8875 Fig. 1
粘度 (20°C, cp)	0.48 Fig. 2
蒸気圧 (20°C mmHg)	135 Fig. 3
(40°C mmHg)	300
蒸気密度 (空気1)	2.48
表面張力 (25°C dyne/cm)	26.4*
誘電率 (20°C)	7.75 7.58*
(30°C)	7.25*
双極子能率	1.81D
引火点 (°C)	−24.5°, −14.5°*, −17.2°**
着火点 (°C)	205°, 321°*
爆発限界*(空気中 25°C vol %)	下限 1.84 上限 11.8
蒸発速度比 (n-ブチルアセテート1.0)	6.3 Fig. 4
オクタン価	72.9

熱的性質

臨界温度 T_K (°c)	265.7° 268°*
臨界圧力 P_K (atm)	59 51.2*
比熱 (20°c, cal/g. °c)	0.42
蒸発潜熱 (沸点, cal/g.)	101.5
燃焼熱 (定容 kcal/mole)	593.5, 597*
熱伝導度 (20°C kcal/m·hr·°c)	0.122
(50°C kcal/m·hr·°c)	0.134
生成熱 (kcal/mole)	52.7*

無印；文献1) *；文献2) **；文献3)

その他の物性

気液平衡関係

THF—Water (1 atm, 7.8 atm.)	Fig. 5
THF—Water—Ethylene Glycol (30%)	Fig. 5

液液平衡関係

THF—Toluene—Water	Fig. 6
THF—Pentane—Water	Fig. 6
THF—MEK—Water	Fig. 6
THF—Water—NaOH (当社測定値)	Fig. 7
NaOH aq. 溶液によるTHFの脱水時平衡組成 (22°c) (当社測定値)	Fig. 8

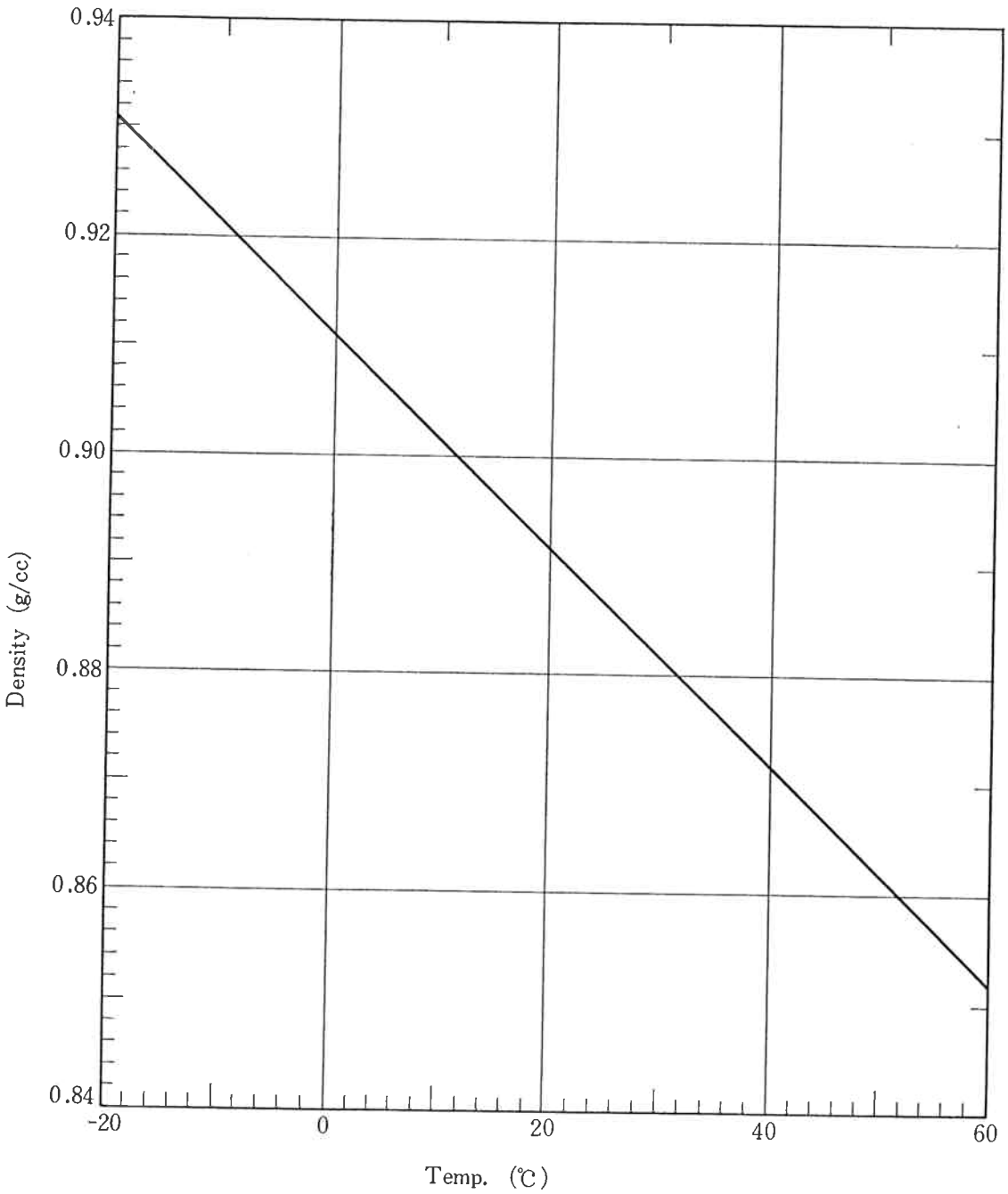


Fig. 1 Density of THF[2]

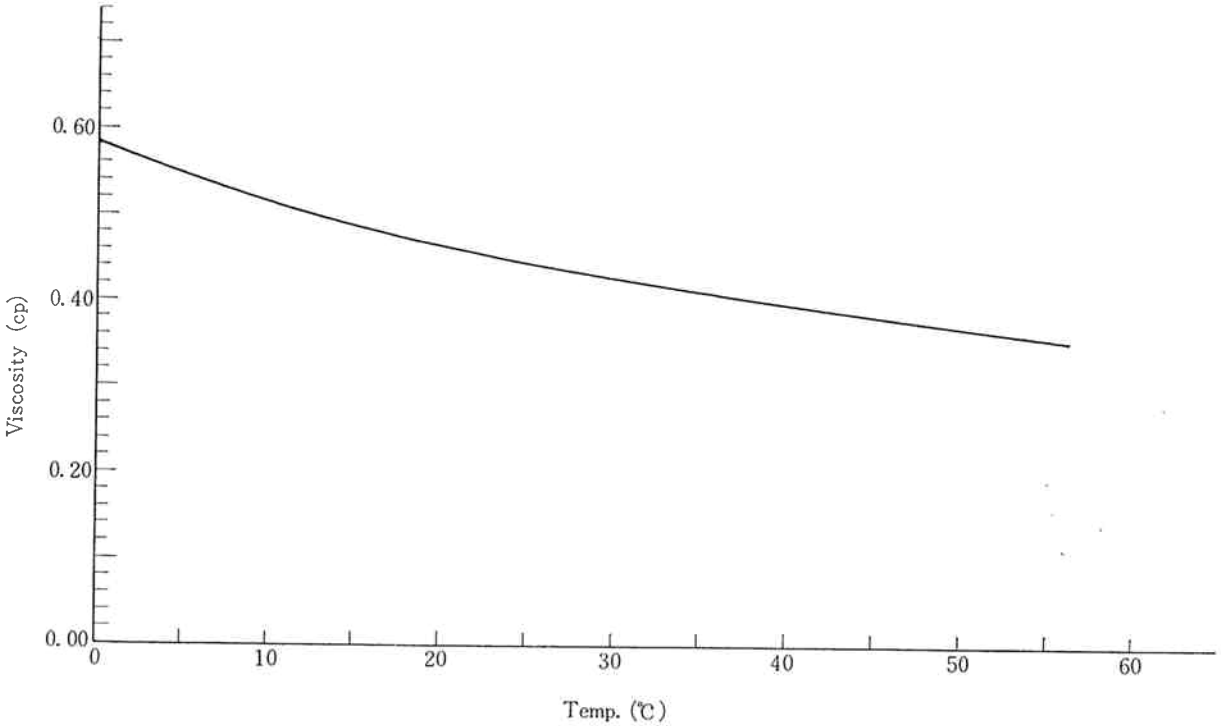


Fig. 2 Viscostty of THF[1)]

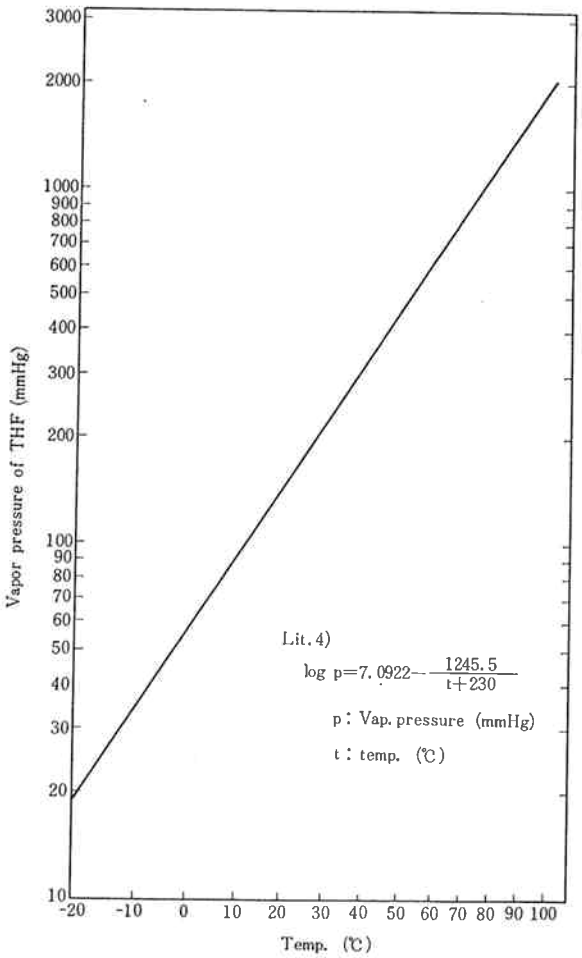


Fig. 3 Vapor pressure of THF[2)]

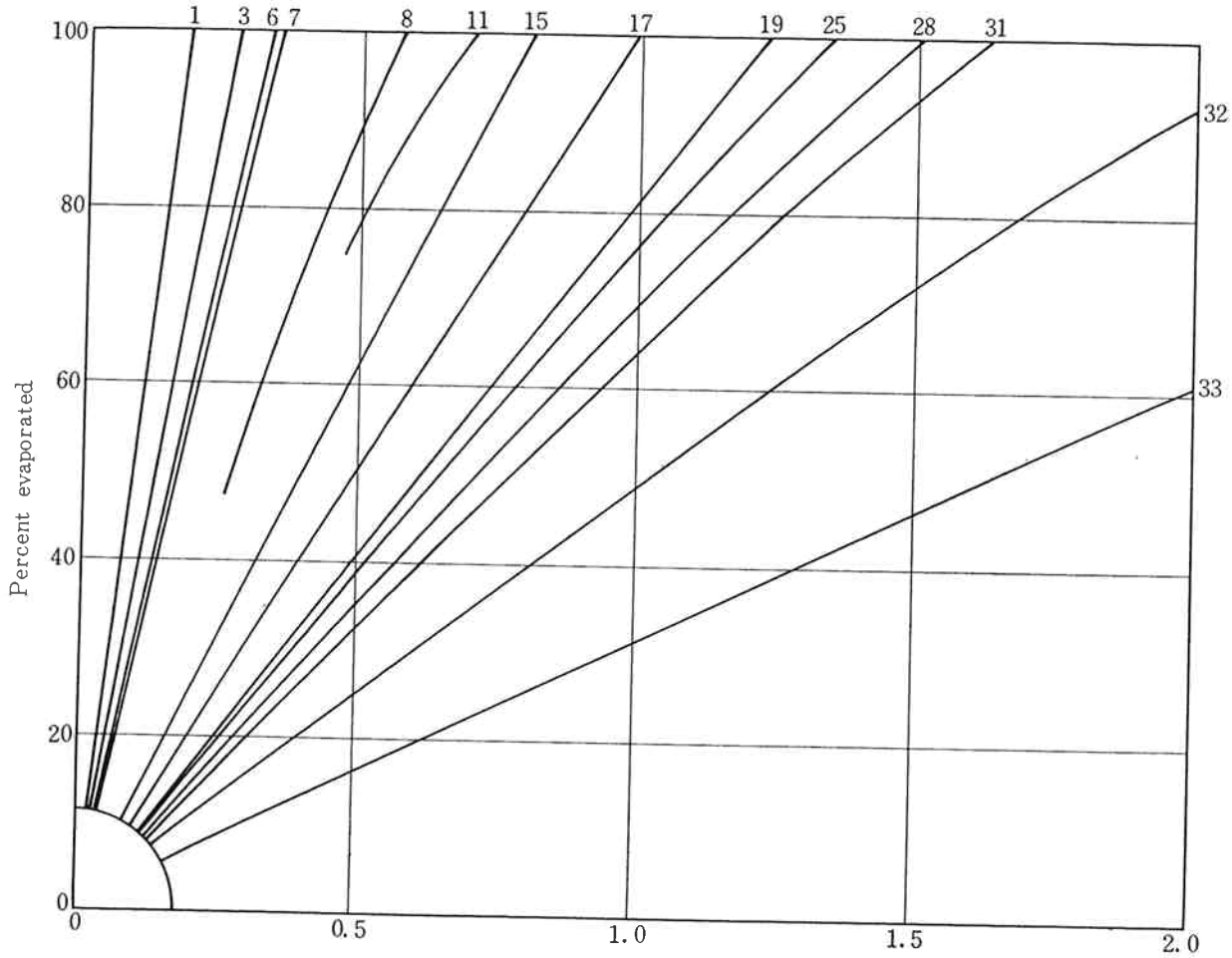


Fig. 4 Relative evaporation rates of fast-evaporated liquids[6]

1 Freon 113
3 n-Pentane
6 Methylal
7 Carbon disulfide
8 Ethyl formate
11 Acetone
15 n-Hexane
17 Tetrahydrofuran
19 Benzene
25 Methyl alchol
28 Propylene chloride
31 Tetrahydropyran
32 Ethyl alcohol (pure)
33 Toluene

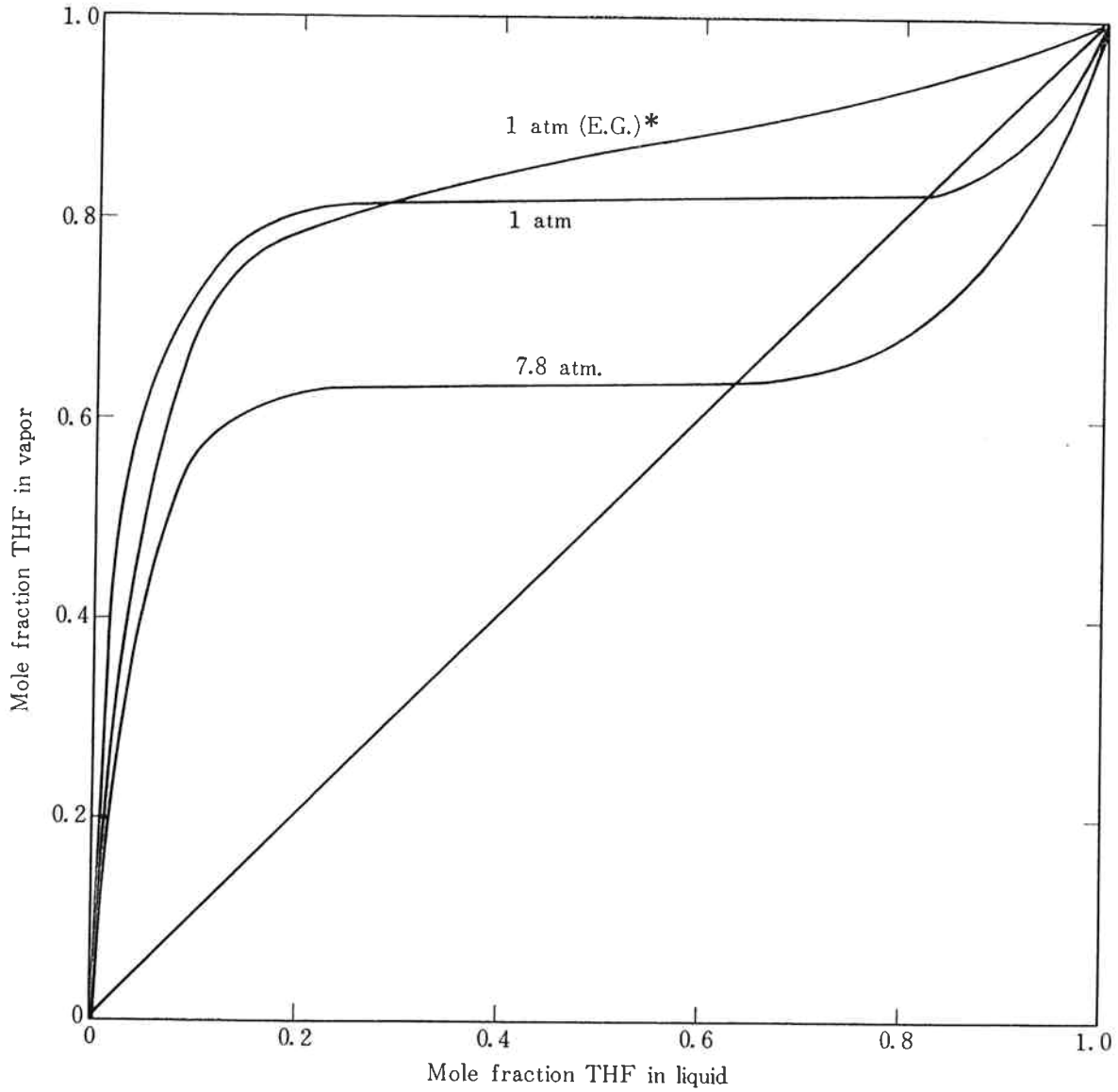
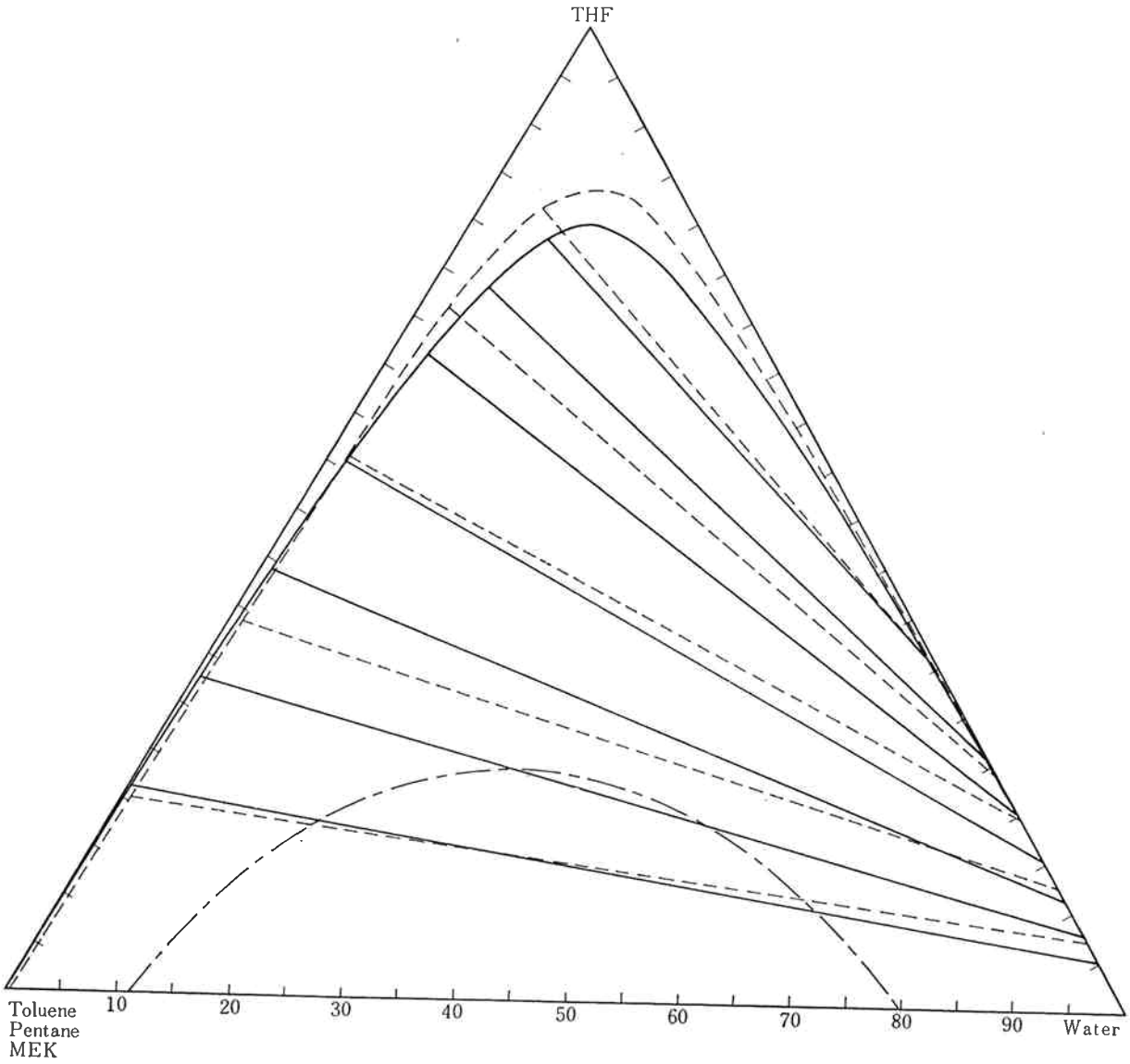


Fig. 5 THF—Water vapor liquid equilibria[2] at 1 atm. and 7.8 atm.
*Lit 4). System in presence of 30% Ethylene Glycol at 1 atm.



THF—Toluen—Water (——)
THF—Pentane—Water (- - -)
THF—MEK—Water (— · —)

Fig. 6 Ternary miscibility at 25°c (Weight %)[7]
THF—Toluen—Water
THF—Pentane—Water
THF—MEK—Water

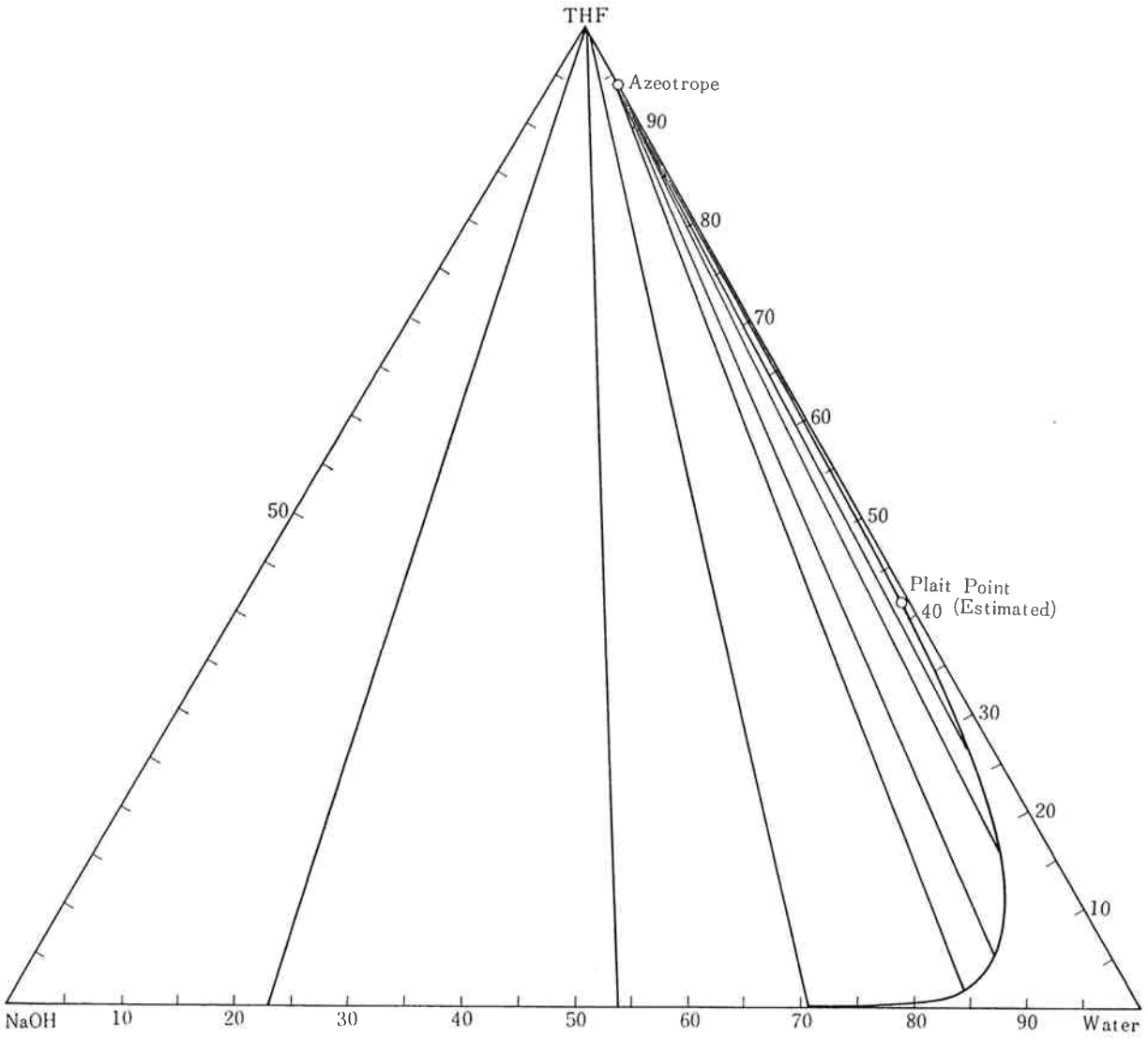


Fig. 7 Ternary miscibility at 22°C (Weight %)[8]

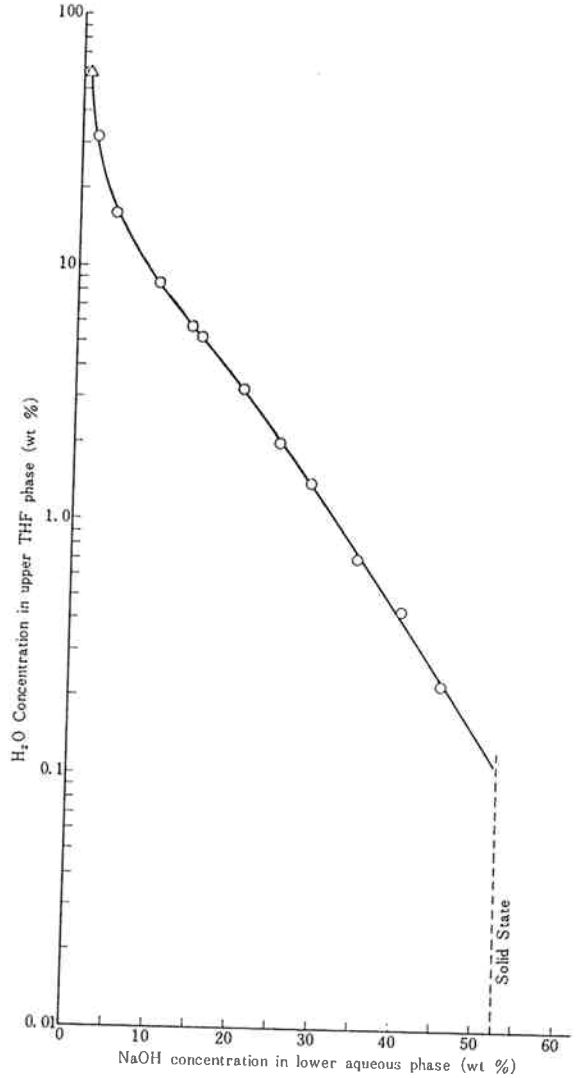


Fig. 8 Equillbirium composition in the dehydration of THF with NaOH aqueous solution. at 22°C[8)]

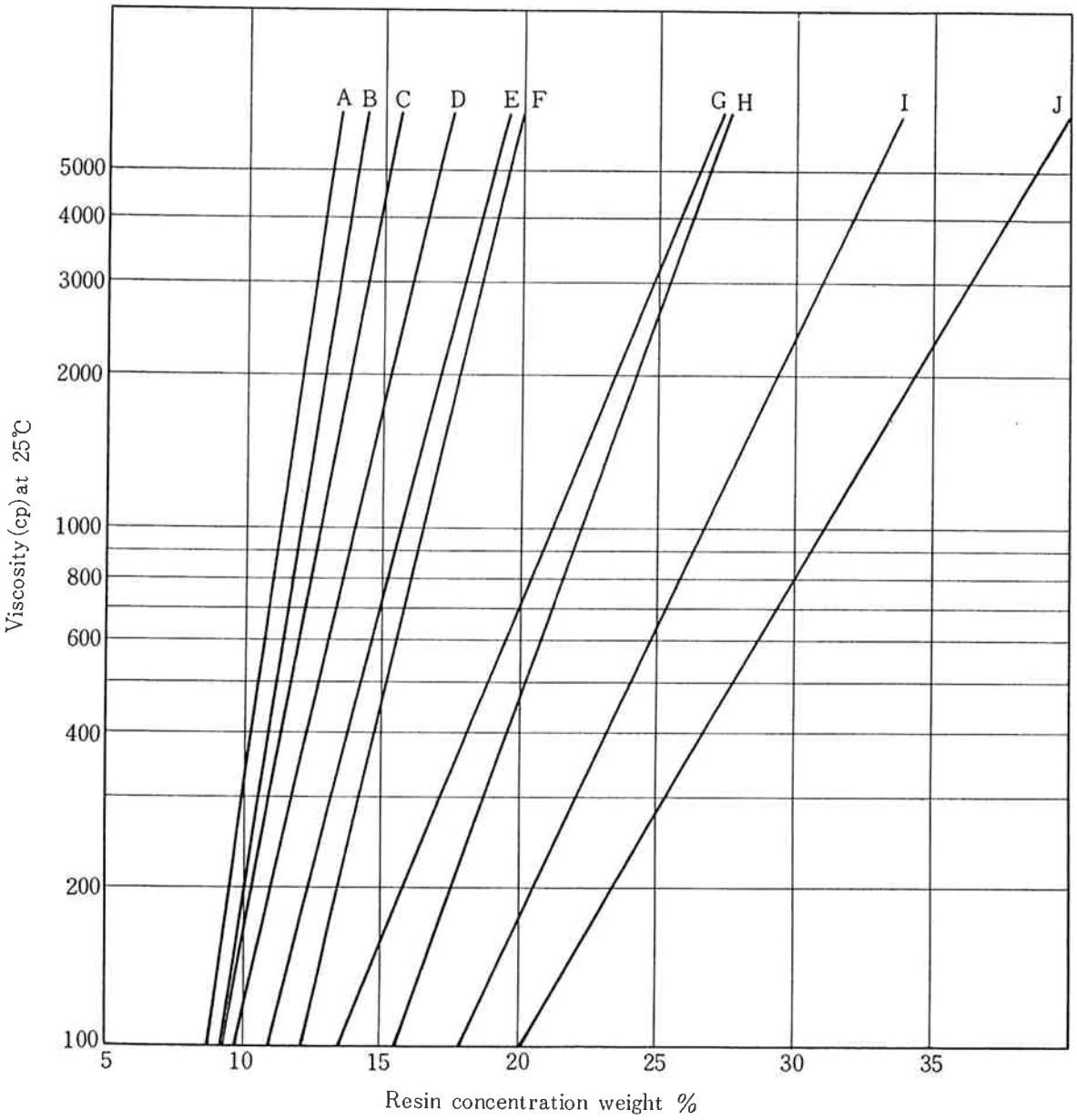


Fig. 9 Viscosities of PVC resin solution in THF[1]
A ; Bakelite QYNV
B ; Geon 121
C ; Marvinol VR-10
D ; Geon 101
E ; Geon 103-EP
F ; Bakelite QYSM
G ; Marvinol VR-24
H ; Bakelite VYNS
I ; Exon 965
J ; Bakelite VYHH

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