

square method. The values of B and C , so obtained, are given in Table 2 with the standard deviation, σ , and the probable error, P. E., calculated by the equation

$$\text{P. E.} = 0.6745\sigma. \quad (5)$$

In Fig. 3, the excess viscosity of Freon-12 and Freon-22 vapours is plotted *versus* density.

Zero-density viscosity of Freon-12 and Freon-22 vapours

It is important to realize that the determination of viscosity at any temperature and density requires information regarding the temperature dependence of zero-density viscosity. The temperature dependence of zero-density viscosity may be represented by an equation of the form

$$\mu_0 = B_0/\sqrt{T} - C_0, \quad (6)$$

where the constants, B_0 and C_0 , depend on the nature of the vapour.

The constants, B_0 and C_0 , for Freon-12 and Freon-22 vapours are evaluated by matching equation (6) to the zero-density viscosity-temperature data presented in Table 1 using the method of least squares. The values of B_0 and C_0 , so obtained, are given in Table 3. The standard deviation is calculated by equation (4) and the probable error by equation (5).

Table 3. Constants, B_0 , C_0 and reliability information for Freon-12 and Freon-22 vapours based on zero-density viscosity data given in Table 1

Refrigerant	Constant $B_0 \times 10^6$ Poise/ $^\circ\text{K}^{\frac{1}{2}}$	Constant $C_0 \times 10^6$ Poise	Standard deviation $\sigma \times 10^6$ Poise	Probable error P. E. $\times 10^6$ Poise
Freon-12	10.57	59.77	1.6643	1.1226
Freon-22	13.25	102.65	0.5334	0.3598

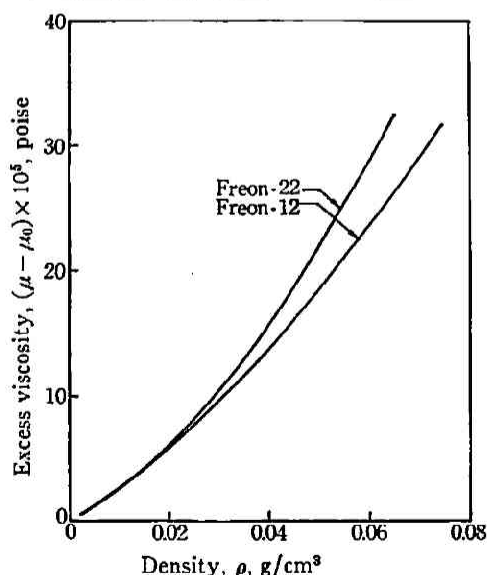


Fig. 3 Variation of excess viscosity of Freon-12 and Freon-22 vapours with density

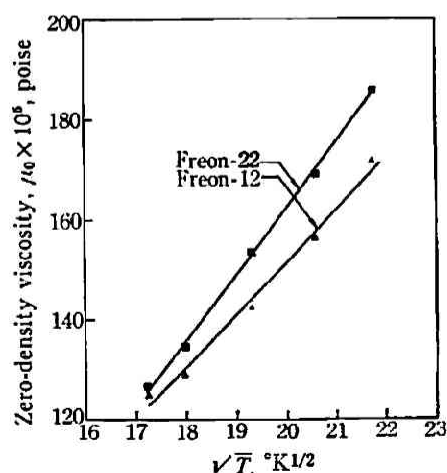


Fig. 4 Zero-density viscosity of Freon-12 and Freon-22 vapours