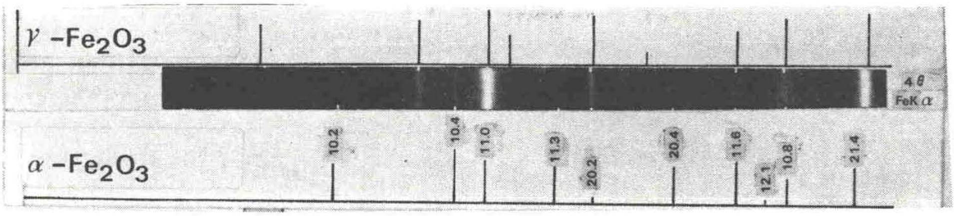

Fig. 4. X-ray powder pattern of product from isothermal run under water vapour (cf. Fig. 3f).

TABLE 5

Symbol	*Mathematical expression*	*Denomination*
D_1	$\alpha^2 = kt$	One-dimensional diffusion; parabolic law; Wagner's law
D_2	$(1-\alpha)\ln(1-\alpha)+\alpha = kt$	Two-dimensional diffusion for cylinder
D_3	$[1-(1-\alpha^{\frac{1}{3}}]^2 = kt$	Three-dimensional diffusion for sphere
D_4	$(1-\frac{2}{3}\alpha)-(1-\alpha)^{\frac{2}{3}} = kt$	Three-dimensional diffusion for sphere
F_1	$-\ln(1-\alpha) = kt$	Random nucleation; first order law
A_2	$\sqrt{-\ln(1-\alpha) = kt}$	Random nucleation; (Avrami equation)
A_3	$\sqrt[3]{-\ln(1-\alpha) = kt}$	Random nucleation (Avrami–Erofeyev equation)
R_2	$1-(1-\alpha)^{\frac{1}{2}} = kt$	Phase boundary controlled reaction for disc
R_3	$(1-(1-\alpha)^{\frac{1}{3}} = kt$	Phase boundary controlled reaction for sphere

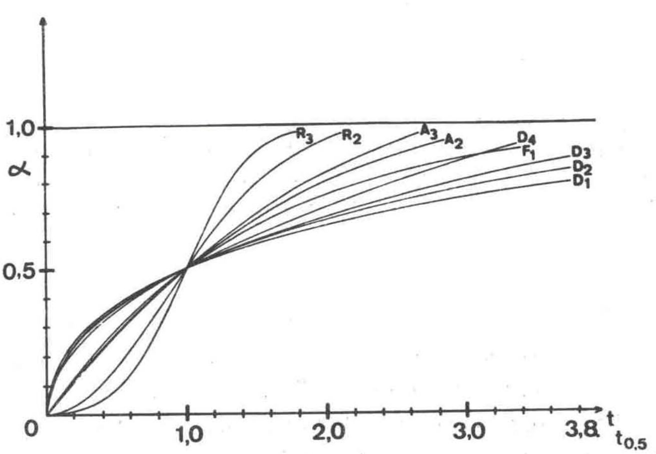

Fig. 5. Reduced time representation of time laws from Table 5.

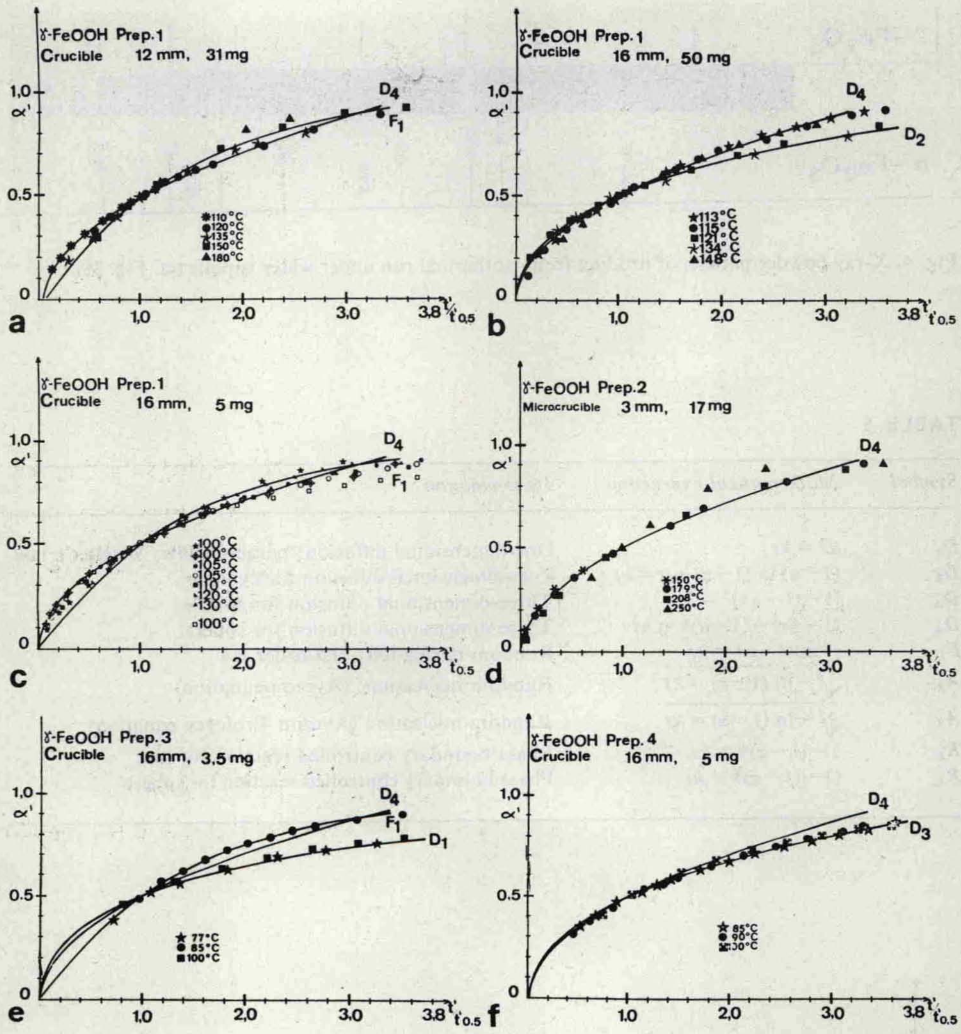

Fig. 6. Isothermal dehydration of 4 samples of γ-FeOOH at various temperatures in vacuo. Reduced time representation. The drawn out functions are those of Fig. 5. (a) Preparation 1, crucible 12 mm ∅, 31 mg. (b) Preparation 1, crucible 16 mm ∅, 50 mg. (c) Preparation 1, crucible 16 mm ∅, 5 mg. (d) Preparation 2, crucible 3 mm ∅, 17 mg. (e) Preparation 3, crucible 16 mm ∅, 3.5 mg. (f) Preparation 4, crucible 16 mm ∅, 5 mg.

presentations can eo ipso not be compared with each other. The way to overcome this difficulty has been shown, amongst others, by Delmon[7] in using a reduced time plot. The ordinate shows the decomposed fraction (from 0 to 1) after correction for adsorbed water, and the abscissa is drawn out in multiples of the half-time ($t/t_{1/2}$). Under such conditions the most important time laws as listed in Table 5 take the form of Fig. 5 and are either sigmoid or monotonous functions. It is crucial at this point