

(-)

[13]:

$$\Delta F_{\Sigma} = 4\pi r^2 \nu \sigma - T\Delta S$$
 F ó

; r ó
 ; S ó
 ; ó
 () ,
 « » ;
 :

$$\nu = \frac{3 V_0 \varphi}{4 \pi r^3}$$
 V₀ ó

(4):

$$\Delta F_{\Sigma} = \nu \cdot \Delta G = 4\pi r^2 \nu \sigma - T\Delta S =$$

$$= \nu 4\pi r^2 \sigma - \nu \frac{4}{3} \pi r^3 \frac{\rho}{M} (\mu - \mu^0) =$$

$$= 4\pi r^2 \sigma \nu - \frac{V_0^M \varphi \rho}{M} (\mu - \mu^0),$$

$$T\Delta S = \frac{V_0^M \varphi \rho}{M} (\mu - \mu^0),$$

$$\mu - \mu^0 = \Delta\mu = \frac{T\Delta S}{V_0^M \varphi \rho}$$

S
 ó
 ó
 [12],

$$\Delta S = \frac{R\nu}{N} \ln\left(\frac{N}{\nu}\right)$$
 (5)
 (6) (4), :

$$\mu - \mu^0 = \Delta\mu =$$

$$= \frac{3}{4} \frac{M}{\rho \pi r^3} \frac{TR}{N} \ln\left(N / \frac{3V_0^M \varphi}{4\pi r^3}\right)$$

(2)

$$\Delta G = -\frac{4}{3} \pi r^3 \frac{\rho}{M} \Delta\mu + 4\pi r^2 \sigma = -\frac{TR}{N} \ln\left(\frac{N}{\nu}\right) + 4\pi r^2 \sigma,$$

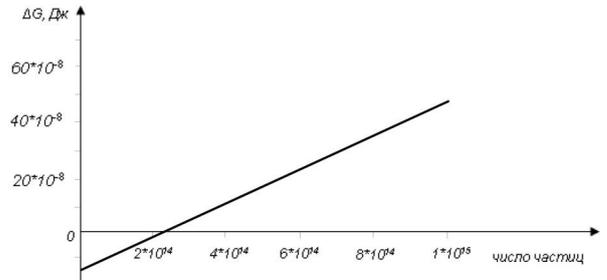
,

$$R = k\alpha N_a,$$

$$\Delta G = -\frac{TkN_a}{N} \ln\left(\frac{N}{\nu}\right) + 4\pi r^2 \sigma.$$
 (8)

G

. 2 3.



. 2.

: = 0.01 / ²; = 200*10⁻³ / ;
 = 900 / ³; = 0.01.

G

ó

(8)

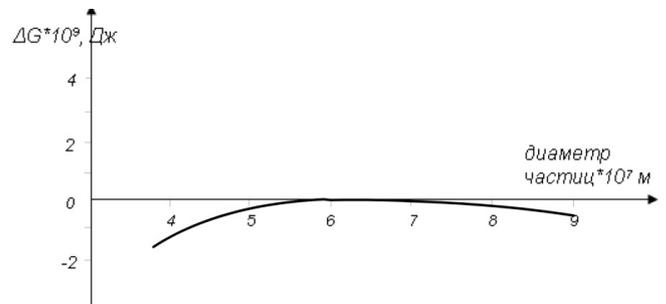
G=0

[14, 16].

(6)

S

(7)



. 3.

: = 0.01 / ²; = 200*10⁻³ / ;
 = 900 / ³; = 0.01.

$$\frac{d\Delta G}{dr} = -\frac{3TkN_a}{Nr} + 8\pi r\sigma = 0 \quad (9)$$

$$\frac{d\Delta G}{dr} = -\frac{3TkN_a}{Nr} + 8\pi r\sigma = 0 \quad (10)$$

$$G=0 \quad (8)$$

$$\sigma = \frac{TkN_a \ln(N/v)}{N4\pi r^2} \quad (11)$$

$$r = \sqrt{\frac{3TkN_a}{N8\pi\sigma}} \quad (12)$$

$$\begin{aligned} \sigma &\in 10^{-8}-10^{-10} \text{ / }^2, \\ r &\in 10^{-6}-10^{-9} \end{aligned}$$

$$N = \frac{V_0(1-\varphi)\rho N_a}{M} \quad (13)$$

$$\sigma = \frac{Tk}{4r^2} \left[\frac{1}{\pi(1-\varphi)} \ln \frac{4(1-\varphi)\rho N_a \pi^3}{3 M_M \varphi} \right] \quad (14)$$

$$\sigma = \gamma \frac{Tk}{d^2} \quad (15)$$

$$r = \sqrt{\frac{3TkN_a}{N8\pi\sigma(1-k)}} \quad (16)$$

$$\gamma = \frac{1}{\pi(1-\varphi)} \ln \frac{4(1-\varphi)\rho_M N_a \pi^3}{3 M_M \varphi} \quad (16)$$

$$\begin{aligned} & \text{« } \gg \\ & r=10^{-6} ; \sigma=0.1; \rho=200 \times 10^{-3} \\ & / ; \rho=900 \text{ / }^3 \\ & =3.88 \times 10^{-8} \text{ / }^2. \end{aligned}$$

$$F = F_0 + F_s - F = F \quad (17)$$

$$F_0 \text{ ó } ; F_s \text{ ó } ; F \text{ ó }$$

$$G=0$$

$$F \text{ ó } ,$$

$$\Delta F = 4k v \pi r^2 \sigma, \quad (18)$$

$$k \text{ ó } \quad (2)$$

$$\Delta G = -\frac{4}{3} \pi r^3 \frac{\rho}{M} \Delta \mu + 4\pi r^2 \sigma = 4k \pi r^2 \sigma, \quad (13)$$

$$\Delta G = -\frac{4}{3} \pi r^3 \frac{\rho}{M} \Delta \mu + 4\pi r^2 \sigma (1-k) \quad (19)$$

$$\sigma = \frac{TR \ln(N/v)}{N(1-k) \pi r^2} \quad (20)$$

$$\frac{d\Delta G}{dr} = -\frac{3TkN_a}{Nr} + 8\pi r\sigma(1-k) \quad (21)$$

$$r = \sqrt{\frac{3TkN_a}{N8\pi\sigma(1-k)}} \quad (22)$$

$$F = F_0 + F_s - F = 0$$

$$\text{« } \gg$$

STUDYING THE CONDITIONS OF EMULSIONS FORMATION WITH THE USE OF THE THEORY OF FORMAL ANALOGY OF PROCESSES

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The article shows the possibility of using formal analogy of processes with restructuring of the original system to calculate the main parameters of self-dispersion: interfacial tension at the interface and the drops radius of the formed emulsion.

Key words: *emulsion, dispersion, surface tension, critical radius, formal analogy, Gibbs energy.*