Ms 5108/227. Pekár Oenő kisebb művei

Eötvös törvény oldatokra.

(Pekár)!

Jegyzetek, tabellák!

Ms 5108/227

Eötvös törvény oldatokra.

Pekár Dezső kísérleti vizsgálatai.

Capillaris dolgok.

Ugyanazon t°C on: két csőben.

v, v' folyadék térfogat
w, w' gőz térfogat

s, s' folyadék sűrűség; ugyanazon
σ, σ' gőz " " hőfokon:

$p\ p'$ a gőzös tömeg.- $s = s'$; $\sigma = \sigma'$ leg:

Akkor áll:

$$\left.\begin{aligned} vs + w\sigma &= p \\ v's + w'\sigma &= p' \end{aligned}\right\}$$

$$s = \frac{pw' - p'w}{vw' - v'w}$$

$$\sigma = \frac{pv' - p'v}{wv' - w'v} = -\frac{pv' - p'v}{vw' - v'w}$$

A felületi feszültség $f = \frac{a^2}{2}(s - \sigma)$

A molekula súly μ ; m. térfogat $\frac{\mu}{s} = \lambda^3$ felület:

λ^2 ; akkor áll $\dfrac{\Delta f \lambda^2}{\Delta T} = \text{const.}$

A menis-csőre áll: $z = \frac{a^2}{2}\left(\frac{1}{\varrho_1} + \frac{1}{\varrho_2}\right)$

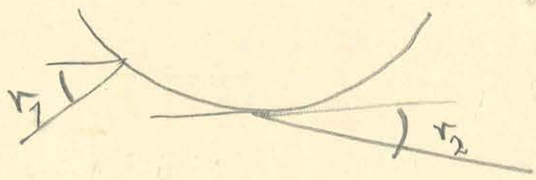
A menis-cus térfogata $= \pi a^2 r - \pi r^2 h$

$\frac{r}{a}$ nak megfelelő $\frac{h}{a}$ t táblázatból kapjuk.

Capillaris engelesek 1898. jun.

Calibrálási tabella a vége:

Érvényes a körülhegő görbére, a mikor is a felületről visszaverten reflectált nyár a becsövek a folyadékban



r = 15 mm re nézve

$m_1 = m_1' - 1{,}3$ m.

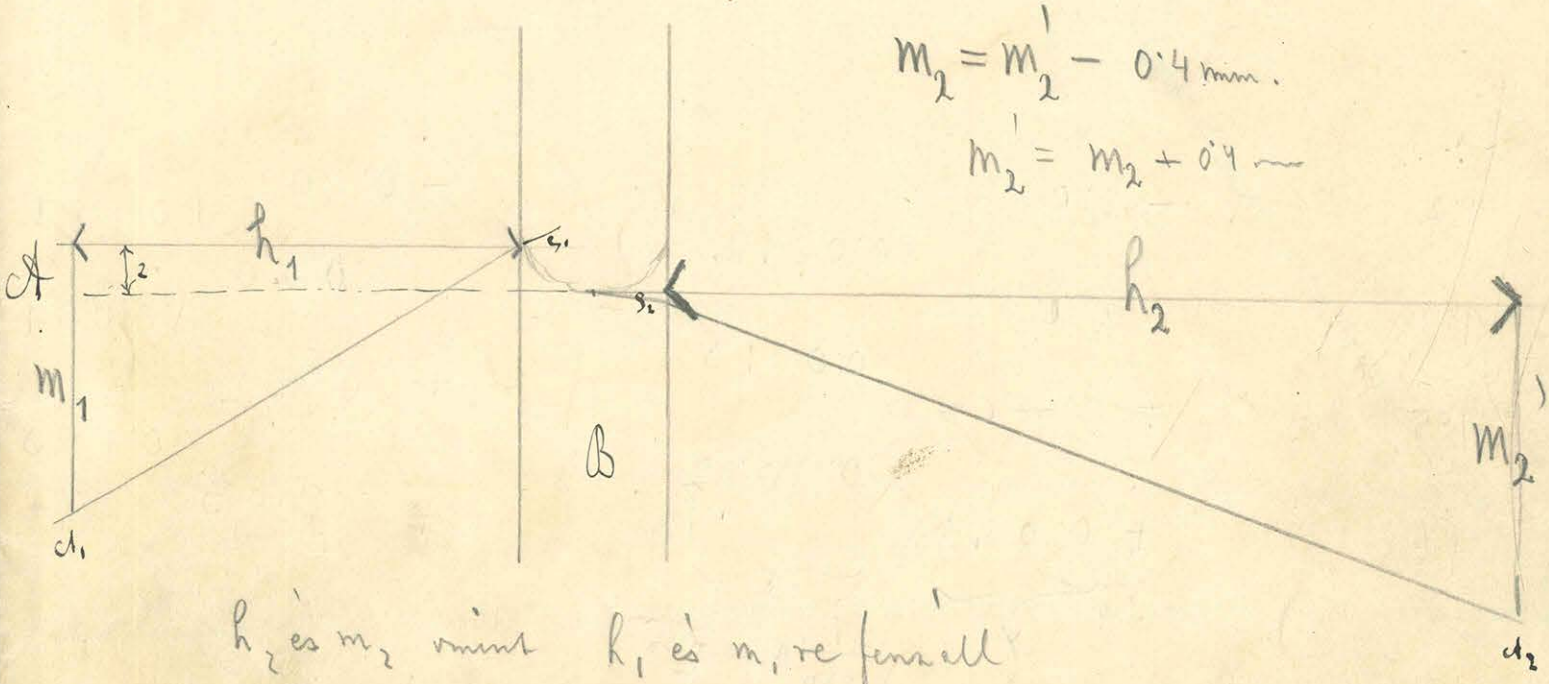
$\beta_2 = r_2 = 5°6'$

$\beta_1 = r_1 = 76°41'$ görgel hegyes.

r = 5 mm re nézve:

$m_2 = m_2' - 0{,}4$ mm.

$m_2' = m_2 + 0{,}4$ —



h_2 és m_2 mint h_1 és m_1 re fennáll

$$m = \frac{n \sin r}{\sqrt{1-(h \sin r)^2}}\, h = \frac{1}{\sqrt{\frac{1}{\sin^2 r} - n^2}}\, h\, n$$

$$m_1 = \frac{1}{\sqrt{12{,}134 - n^2}} \cdot h_1 n$$

$$m_2 = \frac{1}{\sqrt{126{,}25 - n^2}}\, h_2 n$$

1 2

Az $\frac{1}{\sqrt{12{\cdot}134 - n^2}}$ illetve $\frac{1}{\sqrt{126{\cdot}25 - n^2}}$

értékei különböző n re nézve:

$n = 1{\cdot}2$ $0{\cdot}30579$ $0{\cdot}984$ $n = 1{\cdot}2$

n	$\frac{1}{\sqrt{12{\cdot}134 - n^2}}$	Viszonya a vízhez	$\frac{1}{\sqrt{126{\cdot}25 - n^2}}$	Viszonya a vízhez
1·2	0·30579	0·984	0·08951	0·998
1·333	0·31073	1	0·08963	1
1·5	0·31808	1·023	0·08980	1·002
1·6	0·32319	1·040	0·08992	1·003

Eltérő érték. Hasonló érték.

n				
1·2	—	— 0·016	— 0·0012	— 0·002 — 0·0001
1·333	—	0·000	— 0·0013	0·000 — 0·0001
1·5	—	+ 0·023	— 0·0017	+ 0·002 — 0·0001
16	—	+ 0·040		+ 0·003
		γ	$\frac{1}{100}$ n re eső változás	

$$m' = \left(\frac{n'}{n} m\right) + \gamma\left(\frac{n'}{n} m\right)$$

Katheto-meter okulár kihúzva (1 fogkihúzással) ; első cső élesre állítva $h_2 = \sout{164.0\ \text{mm}}$ (csőpl vastagságával (2 mm) együtt)

helyes $h_2 = \sout{164.5\ \text{mm}}$. (Kemenye fel 0'5 mm-rel)

vyre: $m_2 = \sout{68.1\ \text{mm}}$. $= 69.3$ mm

{ Katheto-meter 0 nak megfelel hátsó csőnél 265 mm magasság az asztalról. Menisc. 13 ; az asztaltól 404 }

Első rés — hátsó rés 2 méter.

$2000 - (\sout{195 + 106}) = \sout{1712\ \text{mm}}$. $= h_1$

1781

vyre $m_1 = \sout{\quad\quad}$ mm 217.7 mm

(1.4° kal)

* Optikai tengely javítás! Javítva 0 nak megfelel a hátsó csőnél 271 mm magasság az asztaltól. Meniscus magasság 13 ; az asztaltól 410.

* Katheto-meter 0 nak megfelel az asztaltól 268 mm

* Katth. okulár leütközve a fogasmenet végéig ; első cső élesre állítva: $h_1 = 168.0$ mm.

vyre $m_1 = 69.5$ mm

az az $h = 1.333$ va

$h_2 = 1821.5$ mm

$m_2 = 217.6$ mm vyre

Cröber $h_1 = 167.7$

$m_1 = 69.4$

$h_1 = 167{\cdot}0$ $\quad$ $h_2 = 1820{\cdot}5$ |||| Végcsavar !!!

$m_1 = 69{\cdot}1$ $\quad$ $m_2 = 217{\cdot}5$ (ennyi correctionnal)

m_2 túl még 0'4 adandó !!

$h_1 = 167{\cdot}0$

$h_2 = 1820{\cdot}5$

cső = 14'0 (külső caliber)

Rèsch távolság = 2001'5

1990 julius katheto-mether objectiv ágának asztalról: 290'8 mm

Vonalas üveglemez – katheto-m. objectiv = 712 mm

katheto-m objectiv – tárgy objectiv = ~~635~~ mm

= 263'35 cm

(objectiv keret annyira!)

Vörös vonal – katheto-m. objectiv. 2002 mm.

Interpolási görbe.

$y=\frac{z}{r}$	$t=\frac{a}{r}$ új	régi	$t=\frac{a}{r}$
0·2501	0·2585	0·2601	0·2593
0·2760	0·2855	0·2855	0·2855
0·3611	0·3773	0·3801	0·3787
0·4144	0·4455	0·4471	0·4463
0·4810	0·5378	0·5389 0·5398	0·5388
0·5249	0·6101	0·6115 0·6066	0·6094

"Közelítő" int formula $\frac{a}{r}=1000+0{\cdot}34\frac{z}{r}+0{\cdot}0001195\left(\frac{z}{r}\right)^2$

Ebből számítva 2597·7 −4·7 Ebből 1001·5 −6·2

2848·7 +6·3 +4·8

3785·8 +11·2 − 0·3

4461·1 +1·9 + 0·4

5106·4 −12·1 −13·6

6047·2 +16·8 (valószínű) +15·3

Közelítő

Jól van!

Minthat ebből (10000-el szorva: Jelölés volt vonz.!!

$\frac{a}{r}=1001{\cdot}5+0{\cdot}34\frac{z}{r}+0{\cdot}0001195\left(\frac{z}{r}\right)^2$

Ebből számítva az eltérések * ; a legnagyobb $\frac{24}{10000}$.

Ívvenyes $r_1=16°41'$

$r_2=5°6'$ szögekre.

$10000\cdot\frac{a}{r}=1001{\cdot}5+0{\cdot}34\left(\frac{z}{r}\cdot10000\right)+0{\cdot}0001195\left(\frac{z}{r}\cdot10000\right)^2$

$\frac{a}{r}=0{\cdot}10015+0{\cdot}34\frac{z}{r}+1{\cdot}195\left(\frac{z}{r}\right)^2$

A fenti függvénye tehát:

$$\frac{d}{r} = 0{,}10015 + 0{,}34\left(\frac{z}{r}\right) + 1{,}195\left(\frac{z}{r}\right)^2$$

$\log 0{,}34 = 0{,}5314789 - 1$

$\log 1{,}195 = 0{,}0773679$

Molekulasúly meghatározása:

$$\frac{\Delta f\lambda^2}{\Delta t} = -\frac{f'\lambda'^2 - f\lambda^2}{t'-t} = c \qquad c = 0{,}22\,f$$

$$f'\left(\frac{\mu_0}{\lambda'}\right)^{\frac{2}{3}} - f\left(\frac{\mu_0}{\lambda}\right)^{\frac{2}{3}} = c(t'-t)$$

$$\mu_0^{\frac{2}{3}} = \frac{c(t'-t)}{f'\left(\frac{1}{\lambda'}\right)^{\frac{2}{3}} - f\left(\frac{1}{\lambda}\right)^{\frac{2}{3}}} = \frac{c(\lambda\lambda')^{\frac{2}{3}}(t'-t)}{f'\lambda^{\frac{2}{3}} - f\lambda'^{\frac{2}{3}}}$$

$$\mu_0 = \left(\frac{(\lambda\lambda')^{\frac{2}{3}} c\,(t'-t)}{f'\lambda^{\frac{2}{3}} - f\lambda'^{\frac{2}{3}}}\right)^{\frac{3}{2}} \left(\text{prod. a nevező}^4\right)$$

$\mu_0 = \dfrac{\mu + k\chi}{1+k}$ hol $\underline{\mu}$ az aether molekulasúlya

$\underline{\chi}$ az oldott anyag molekulasúlya

$\underline{k} = \dfrac{\text{oldott anyag molekulái nak száma}}{\text{aether molekulák száma}} = \dfrac{b}{\chi}\dfrac{\mu}{a}$ *)

a = aether súlya

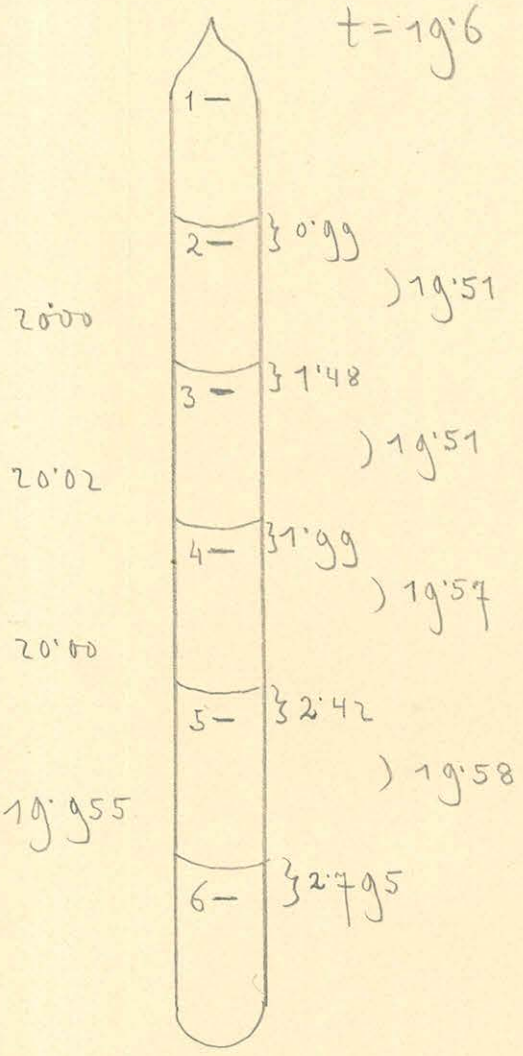
b = oldott anyag súlya

$$\mu_0 = \frac{\mu\left(1+\frac{b}{a}\right)}{1+\frac{b}{a}\frac{\mu}{\chi}}$$ Ebből legkifejthető χ el

$$\chi = \frac{\frac{b}{a}\mu\mu_0}{\frac{b}{a}\mu + \mu - \mu_0}$$! ! !

Számozott 10.

† Elpallantak.



(4)

$t = 19{\cdot}5$	$(C_2H_5)_2O$	$n =$	$1{\cdot}35\,18$	$d_b = 132{\cdot}1$	$d_j = 133{\cdot}5$
$t = 19{\cdot}7$	CS_2	$n =$	$1{\cdot}6277$	$d_b = 74{\cdot}2$	$d_j = 73{\cdot}9$
			0275 g	57 g	59·6

1898 nov. 2

t = 14·5
14·9
14·7

Új pipetta:

16·900 (1·00)
21·0016
4·1016

Ké = 4·1017 %

1·0254 gr ± 0·0001 gr

25·1029
21·0016
4·1013

(légüres cm³ 1·0265 gr
és meik.

Lefogott: 1·0273 cc³ ± 0·1 mm³

29·2048
25·1029
4·1019

(15° on)

33·3069
29·2048
4·1021

Új pipetta lefogatva 15° C on

1·0273 cm³ ± 0·1 mm³ = 1027·3 mm³

2 pip = 2 0546 = (33127273)

4 pip = 4 1092

6 pip = 6 1638

8 pip = 8218·4

Thermometer:

Hőfok aug 24. 20'2° --- norm: 20'2

120 – 140° ra való felmelegítés után

aug 28. 24'4 norm 24'2

Elektromos fürés:

Állandó hőmérséklet 4 óra alatt

Külső temp.	áramint. amp	Belső temp.
24·5	2·5	72°—73
24·5	4	123—124

Kis kemence 10° diff. egész vonal!

Vonal is 6-9° — ——— !

Alkohol.

1 cm³. $\mu_{(34)} = 63{,}67$

21° $a = (0{,}3785461)$ # $a^2 = 5{,}716$

$r = (0{,}7214436)$

$\frac{r}{a} = 2{,}202$ $\quad \frac{h}{a} = 0{,}1483$

4 cm⁴

16,6 $\frac{r}{a} = 2{,}334$ $\quad \frac{h}{a} = 0{,}1245$

Isopropil.

$a^2 = 5{,}786$

$\mu_{(23)} = 72{,}09$ $\quad \mu_{(45)} = 72{,}47.$

$r = (0{,}7474559)$ $\quad (0{,}7512777)$

$\mu = \pi a^2 r - \pi r^2 h$

$\mu = \pi (a^2 r - r^2 h)$

8 cm³

18,3 $\mu_{(34)} = 72{,}87$ $\quad a = (0{,}3800981)$

$r = (0{,}7580351)$ $\quad \frac{r}{a} = 2{,}387$ $\quad \frac{h}{a} = 0{,}1160$

$a^2 = 5{,}757$

5 cm⁴

17,5 $\mu_{(4{,}5)} = 59{,}93$

$a^2 = 5{,}770$ $\quad r = (0{,}7066150)$ $\quad \frac{r}{a} = 2{,}119$ $\quad \frac{h}{a} = 0{,}1655$

$5{,}089$

$a = 2{,}402$

Ez interpolálásnál mindhét tag levonandó!)

6 cm³ 17,9 $\mu_{(45)} = 67{,}50$

$a^2 = 5{,}764$ $\quad r = (0{,}7333849)$ $\quad \frac{r}{a} = 2{,}256$ $\quad \frac{h}{a} = 0{,}1380$

$5{,}416$

$a = 2{,}401$

3 cm⁴ $t = 14{,}8$ $\quad a^2 = 5{,}812$ $\quad \frac{r}{a} = 2{,}192$ $\quad \frac{h}{a} = 0{,}1502$ $\quad \mu = 64{,}72$

$a = 0{,}3821628$ $\quad r = (0{,}7229952)$ $\quad h =$

7 cm⁴ $t = 17{\cdot}8$ $u_{45} = 61{\cdot}70$ $u = \pi(a^2 r - r^2 h)$

$a^2 = 5{\cdot}765$ $r = (0{\cdot}712\,409\,4)$ $\frac{r}{a} = 2{\cdot}178$ $\frac{h}{a} = 0{\cdot}15\,95$

$5{\cdot}157$

$a = 2{\cdot}401$

8 cm⁴ $t = $ ~~20·0~~ $20{\cdot}0$

$a^2 = 5{\cdot}731$ $r = 5{\cdot}2788$ $\frac{r}{a} = 2{\cdot}205$ $\frac{h}{a} = 0{\cdot}1446$ $h = 0{\cdot}3534$

$a = 2{\cdot}394$

$u = 64{\cdot}11$

3.4.

10 cm⁴ $t = 20{\cdot}0°$

$\frac{r}{a} = 2{\cdot}182$ $\frac{h}{a} = 0{\cdot}1523$ $h = 0{\cdot}3646$

$a^2 = 5{\cdot}731$ $r^2 = 27{\cdot}2954$

$a = 2{\cdot}394$ $r = 5{\cdot}2245$

$u_{23} = 62{\cdot}80$

11 cm⁴ $t = 19{\cdot}6$

$\frac{r}{a} = 2{\cdot}313$ $\frac{h}{a} = 0{\cdot}1280$ $h = 0{\cdot}3067$

$a^2 = 5{\cdot}741$ $r^2 = 30{\cdot}7402$

$a = 2{\cdot}396$ $r = 5{\cdot}5431$

$u_3 = 70{\cdot}36.$

12 cm⁴ $t = 19{\cdot}8$

$\frac{r}{a} = 2{\cdot}277$ $\frac{h}{a} = 0{\cdot}1342$ $h = 0{\cdot}3214$

$a^2 = 5{\cdot}734$ $r^2 = 29{\cdot}7408$

$a = 2{\cdot}395$ $r = 5{\cdot}4535$

$u = 68{\cdot}21$

13 cm⁴ $t = 19.3$

$a^2 = 5.742$ $r^2 = 28.829$

$a = 2.396$ $r = 5.369$

$\frac{r}{a} = 2.241$ $\frac{h}{a} = 0.1408$ $h = 0.3374$

$U = 66.29$

14 cm⁴ $t = 19.4$

$a^2 = 5.741$ $r^2 = 27.9905$

$a = 2.396$ $r = 5.296$

$\frac{r}{a} = 2.208$ $\frac{h}{a} = 0.1471$ $h = 0.3525$

$U = 64.43$

Számozott 3. $t = 20.3$

$a^2 = 5.726$ $r^2 = 29.5059$

$a = 2.393$ $r = 5.4319$

$\frac{r}{a} = 2.270$ $\frac{h}{a} = 0.1355$ $h = 0.3242$

$U = 67.66$

Számozott 4 $t = 20.4$

$a^2 = 5.727$ $r^2 = 29.5259$

$a = 2.393$ $r = 5.4338$

$\frac{r}{a} = 2.271$ $\frac{h}{a} = 0.1354$ $h = 0.3240$

$U = 67.71$

Számozott 5. $t = 20.4$

$a^2 = 5.727$ $r^2 = 34.9358$

$a = 2.393$ $r = 5.9106$

$\frac{r}{a} = 2.470$ $\frac{h}{a} = 0.1039$ $h = 0.2486$

$U = 79.06$

Számozott 8. $t = 20.4$

$a^2 = 5.727$ $r^2 = 29.9587$

$a = 2.393$ $r = 5.4734$

$\frac{r}{a} = 2.287$ $\frac{h}{a} = 0.1325$ $h = 0.3171$

$U = 68.62$

Számozott 9 $t = 19.7$

$a^2 = 5.737$ $r^2 = 34.4573$

$a = 2.395$ $r = 5.8700$

$\frac{r}{a} = 2.451$ $\frac{h}{a} = 0.1066$ $h = 0.2553$

$U = 78.16$

Számozott 11 $t = 19{,}6$

$a^2 = 5{,}738$ $r^2 = 5{,}8386$ $\frac{r}{a} = 2{,}437$ $\frac{h}{a} = 0{,}1086$ $h = 0{,}2602$

$a = 2{,}396$ $r^2 = 34{,}0891$ $u = 77{,}39$

Számozott 1. $t = 20{,}2$

$a^2 = 5{,}727$ $r = 5{,}8700$ $\frac{r}{a} = 2{,}453$ $\frac{h}{a} = 0{,}1063$ $h = 0{,}2544$

$a = 2{,}393$ $r^2 = 34{,}4573$ $u = 78{,}07$

Számozott 7. $t = 20{,}2$

$a^2 = 5{,}727$ $r = 5{,}7994$ $\frac{r}{a} = 2{,}423$ $\frac{h}{a} = 0{,}1106$ $h = 0{,}2647$

$a = 2{,}393$ $r^2 = 33{,}6333$ $u = 76{,}37$

Számozott 6 $t = 20{,}0$

$a^2 = 5{,}731$ $r = 5{,}4380$ $\frac{r}{a} = 2{,}272$ $\frac{h}{a} = 0{,}1351$ $h = 0{,}3234$

$a = 2{,}394$ $r^2 = 29{,}5726$ $u = 67{,}86$

Számozott 12. $t = 19{,}7$

$a^2 = 5{,}745$ $r = 5{,}4949$ $\frac{r}{a} = 2{,}292$ $\frac{h}{a} =$ $h =$

$a = 2{,}397$ $r^2 = 30{,}1939$ $u = 69{,}3$

Számozott 14 $t = 19{,}3$

$a^2 = 5{,}742$ $r = 5{,}4647$ $\frac{r}{a} = 2{,}281$ $\frac{h}{a} =$ $h =$

$a = 2{,}396$ $r^2 = 29{,}8630$ $u = 68{,}5$

Számozott 15 $t = 19{,}3$

$a^2 = 5{,}742$ $r = 5{,}4027$ $\frac{r}{a} = 2{,}255$ $\frac{h}{a} =$ $h =$

$a = 2{,}396$ $r^2 = 29{,}1899$ $u = 67{,}1$

μ = az aether molekula súlya
χ = az oldott anyag " "

a = az aether súlya
b = az oldott anyag súlya

$\frac{b}{a} = c$

$k = \frac{b}{a}\frac{\mu}{\chi} = c\frac{\mu}{\chi}$

lásd másik lapot *)

Föltéve, hogy csak az aether párolog el, miként változik meg a folyadék keverési viszonya? $k' = ?$

$\frac{\text{folyó térfogat}}{\text{gőz térfogat}}$ egyenlő a 3 csőre hőmérséklet vonzás $= B$

$$B\frac{s}{\sigma} = \frac{\text{folyadék tömeg}}{\text{gőz tömeg}} = \frac{F}{G} = A$$

Állnak a következők:

$$\frac{\text{oldott anyag súlya}}{\text{aether folyadék súlya}} = c' = \frac{b}{a-G} = \frac{b}{a-\frac{a+b}{A+1}} \quad * \text{ folytatása:}$$

$$a+b = F+G = GA+G = G(A+1)$$

$$G = \frac{a+b}{A+1}$$

$$* \quad c' = \frac{b}{a-\frac{a+b}{A+1}} = \frac{\frac{b}{a}}{1-\frac{a+b}{a}\cdot\frac{1}{A+1}} = \frac{c}{1-(1+c)\frac{1}{A+1}}$$

$$= \frac{c(A+1)}{A+1-1-c} =$$

$$= \frac{cA+c}{A-c}$$

$$k' = c'\frac{\mu}{\chi} = \frac{cA+c}{A-c}\frac{\mu}{\chi}$$

Számításegyszerűsítésből kritikus pont ? ? ?

A folyadékok felületi feszültsége és chemiai alkata közötti kapcsolat.

Br. Eötvös Loránd. — (Math. Termt. Ert 4. 1885/6 lap 34.)

Van der Wals: testek megfelelő állapotban hasonlíthatók össze. Ő a kritikus temperatura hanyadait vette ilyennek.

Eötvös: u a folyadék v a gőz (telített) molekulaterfogata, akkor megfelelő állapot van ha:

$$\frac{v_1}{u_1} = \frac{v_2}{u_2}$$

Egyesítve ez a gáztörvénnyel $\frac{v_1 p_1}{T_1} = \frac{v_2 p_2}{T_2}$

Ekkor Van der Wals feltételét is teljesítik.

Megfelelő állapotban a vizek energiájai is egy.

$$\frac{m v_1^{\frac{1}{3}} \alpha_1}{n p_1 v_1^{\frac{2}{3}}} = \frac{m v_2^{\frac{1}{3}} \alpha_2}{n p_2 v_2^{\frac{2}{3}}}$$

felületi fesz.
a gőz nyomo ereje

m és n molekulák száma egy bizonyos felületen illetve vonalon α_1 és α_2 a homogenségre vonatkozó felületi energia, a felületi feszültség.

Két egyszerűen ömlesztett folyadékra áll tehát

$$\frac{V_1 p_1}{T_1} = \frac{V_2 p_2}{T_2}$$

természetesen megfelelő T_1 T_2 nél:

$$\frac{\alpha_1}{p_1 V_1^{\frac{1}{5}}} = \frac{\alpha_2}{p_2 V_2^{\frac{1}{5}}}$$

E kétő egyenlőségből:

$$\frac{\alpha_1 V_1^{\frac{2}{5}}}{T_1} = \frac{\alpha_2 V_2^{\frac{2}{5}}}{T_2}$$

Van der Waals nyomást megfelelő állapotba jut a test ha a hőmérséklet úgy változik, hogy

$$T_1 \frac{d}{dt}\left(\frac{\alpha_1 V_1^{\frac{2}{5}}}{T_1}\right) = T_2 \frac{d}{dt}\left(\frac{\alpha_2 V_2^{\frac{2}{5}}}{T_2}\right)$$

honnan

$$\frac{d}{dt}\left(\alpha_1 V_1^{\frac{2}{5}}\right) = \frac{d}{dt}\left(\alpha_2 V_2^{\frac{2}{5}}\right)$$

Ez a hányados az egyszerűen ömlesztett folyadékokra állandó.

Ha T oly hőfok, melynél $a v^{\frac{2}{3}} = 0$ egy úgy látszik hogy a kritikus tempe-ratúrával eme összefüggésben áll, akkor ez írható:

$$a v^{\frac{2}{3}} = 0{\cdot}227 (T - \mathcal{T})$$

Eötvös és Schiff kísérletei számítva megfelelnek ennek:

Aethylaether
Aethylenbromid
Chloroform
Higanymethyl.
$COCl_2$, CO_2, CS_2, SO_2 stb.

Alkohol, víz nem hódol csak közel 200°C fok felfele. Többszörös molekulát lehet felvenni alacsonyabb hőfokon.—
Zsírsavaknál hasonló az eset.—

Módszer: Műegyetemi Lapok I k. 7 szám.
Wied. Ann. 27 p. 449.

Jegyzet:

α ez a felület egységgel való nagyobbodás munkája a felületi energia. –

Jám értéke = f a vonal egység mentén működő feszítő erővel, a feszültséggel mert a munka l hosszal való eltolódására $lhf = lh\alpha$

$$(rh) = a^2 = \frac{2f}{sg}$$

$$f = \frac{a^2 s}{2} g$$

Refractometer hőmérőjelzése −0·2 vesszővel.

Törésmutató

Aether dest

t = 18·0	1·3525	erte
t = 18·2	1·3525	t = 18·2 n = 1·3525
t = 18·4	1·3525	

CS_2

t = 18·2	n = 1·6290	erte
18·2	1·6289	t = 18·2 n = 1·6289
18·2	1·6289	

Aether

t = 8·8	1·3580	nappali fény és ether nem ter hőmérsékletet.
8·4	1·3580	t = 8·8 n = 1·3580
8·8	1·3579	

CS_2

t = 8·9	1·6362
8·7	1·6364
8·5	1·6367

t = 8·7 n = 1·6364

$(C_2H_5)_2O$

t = 18·2	n = 1·3525	
t = 8·8	n = 1·3580	
Δt = 9·4	Δn = −0·0055	$\frac{\Delta n}{\Delta t} = -0{\cdot}00059$

8 − 18

CS_2

t = 18·2	n = 1·6289	
t = 8·7	n = 1·6364	
Δt = 9·5	Δn = −0·0075	$\frac{\Delta n}{\Delta t} = -0{\cdot}00079$

8 − 18

Aether:

$t = 29{\cdot}6$	$1{\cdot}3468$	$1{\cdot}3462$
$t = 29{\cdot}3$	$1{\cdot}3461$	$t = 29{\cdot}4$
$t = 29{\cdot}4$	$1{\cdot}3463$	

$t = 18{\cdot}2 \quad n = 1{\cdot}3525$

$t = 29{\cdot}4 \quad n = 1{\cdot}3462$

$11{\cdot}2 \qquad 0{\cdot}0063$

$$\underbrace{\frac{\Delta n}{\Delta t}}_{18-29} = -0{\cdot}00056$$

Fizeau.

$t = 29{\cdot}3$	$1{\cdot}6198$	$n = 1{\cdot}6198$
$t = 29{\cdot}3$	$1{\cdot}6198$	$t = 29{\cdot}3$
$t = 29{\cdot}3$	$1{\cdot}6198$	

$t = 18{\cdot}2 \quad n = 1{\cdot}6289$

$t = 29{\cdot}3 \quad n = 1{\cdot}6198$

$11{\cdot}1 \qquad 0{\cdot}0091$

$$\underbrace{\frac{\Delta n}{\Delta t}}_{18-29} = -0{\cdot}00082$$

Vizes csövek ujból

$h_1 = 168{\cdot}0$ $\quad$ $h_2 = 1821{\cdot}5$

$m_1 = 69{\cdot}5$ $\quad$ $m_2 = 217{\cdot}6$

$r = 14{\cdot}8$

$t = 21{\cdot}5$

0·070	7·475	7·405
0·058	7·460	7·402
0·080	7·480	7·400
0·052	7·453	7·401
0·084	7·486	7·402
		7·402

$\frac{Z}{r} = 0{\cdot}2501$

$t = 21{\cdot}6$

$\frac{a}{r} = 0{\cdot}2585$

$t = 21{\cdot}9$ $\quad$ $Z = 3{\cdot}701$

$r = 13{\cdot}40$

$t = 21{\cdot}5$

0·300	7·700	7400
0·275	7·670	7·395
0·310	7700	7·390
0·289	7·680	7·391
0·325	7·724	7·399
		7·395

$\frac{Z}{r} = 0{\cdot}2760$

$\frac{a}{r} = 0{\cdot}2855$

$t = 21{\cdot}75$

$Z = 3{\cdot}698$

50·8
(kath 0 · 267)
3178
217·6
10 0·2
12
99·0

hasrább
1 gmm.

ugyancsak 99·0.

267·0
73·0
340·0
218·5
121·5
26·8
20·6
16

$t = 21{\cdot}6$

$r = 8{,}5\,g$

$t = 27{,}5\,\Gamma$

$9{,}423$	$0{,}312$	$3{,}111$
$7{,}632$	$0{,}315$	$3{,}173$
$7{,}480$	$0{,}356$	$3{,}124$
$7{,}411$	$0\,323$	$3{,}118$
$7{,}481$	$0{,}369$	$3{,}121$
$7{,}432$	$0{,}321$	$3{,}111$
$7{,}481$	$0{,}361$	$3{,}126$

$3{,}119$

$t = 21{,}9$ $\qquad z = 3{,}559\,\Gamma$

$\frac{z}{r} = 0{,}447\,\Gamma$

$r = 10{,}14$

$t = 21{,}5$

$0{,}823$	$8{,}193$	$3{,}324$
$0{,}852$	$8{,}123$	$3{,}321$
$0{,}846$	$8{,}200$	$3{,}324$
$0{,}855$	$8{,}186$	$3{,}325$
$0{,}881$	$8{,}201$	$3{,}320$

$3{,}323$

$t = 21{,}8$ $\qquad z = 3{,}664\,\Gamma$

$\frac{a}{r} = 0{,}3{,}671$

$\frac{a}{r} = 0{,}3{,}423$

$6{,}8$

$268{,}0$

$365\,0$

218

$182{,}0$

$t = 27{,}6$

$\frac{z}{r} = 0{,}447\,\Gamma$

$t = 21{,}6$

$1\,257{,}5$

$218{,}3$

$343{,}8$

$268{,}0$

$96{,}05$

$2{,}119$

$z = 3{,}559\,\Gamma$

r = 7·115.

t = 21·4

		6
0·339	7·188	7·849
0·321	7·168	7·847
0·345	7·193	7·848
0·329	7·169	7·840
0·351	7·198	7·847
0·331	7·171	7·840
		6·8452

t = 21·6

z = 3·4226

111·1
267·0
378·1
218
160·1

$\frac{z}{r}$ = 0·4810

$\frac{a}{r}$ = 0·5378

r = 6·27

t = 21·55

90·8
267·0
357·8
217·9
140·0

0·007	6·597	6·590
0·990	7·571	6·581
0·028	6·608	6·580
0·996	7·579	6·583
0·028	6·611	6·583
0·998	7·578	6·580
		6·5828

t = 21·6

$\frac{z}{r}$ = 0·5249

$\frac{a}{r}$ = 0·6101

t = 21·8

z = 3·2914

R Schiff: A capillaris felületi feszültség a forráspontban additiv tulajdonság. (Ostw)

Bielinginski: Szobahőmérsékletnél a felületi feszültség az oldat növekedő koncentrációval arányosan növekedik!! (Ostw) —

Folyadékelegyekre általános tétel nincs. Alkoholok és egyes savakénál nem könnyű (l Ostw 535)

Cohen A hőmérséklet és homológia vsh. copp. áll. heverch különösképpen 1886 Ph.

Klyposthy: 1887 Erdélyi. Szobahőmérsékletnél növekszik az a^2 és egy max. érték.

1894 Ramsay és Schields Eötvös oldalon

!!! (448 lap) 1894 Ramsay és Shields. (Revéleták) !!!
Ostwalds Lehr. 15.

Gőzhevesen: Journal physik Chemie 3. Ramsay

Carvelli. Beiblätter 1879, 759

Kémiai Közlemények Zeitschrift f. Phys. Chemie

2 cső	0·052	0·058	0·110
3	0·024	0·056	0·080
4	0·044	0·026	0·070
5	0·024	0·037	0·061
6	0·021	0·049	0·070
7	0·023	0·057	0·080
8	0·024	0·069	0·093
	0·030	0·050	

Számolások. Kijav. együtthatók

Thermometer 15° nál −0·2

100° nál + 0·4

+ 0·7

Adunjo 65° nál hozzáadódik 100° nál + 0·7

60° nál + 0·4

0°	−0·5
11°	−0·4
22°	−0·3
33	−0·1
44	+0·1
55	+0·3
66	+0·5
77	+0·6
88	+0·5
100	+0·4

0°	−0·5
20	−0·3
40	+0·1
60	+0·4
80	+0·6
100	+0·4

Romlbarometer 2·3 mm el mutat hőfokot.

Diphenylamin: $(C_6H_5)_2NH$ } molekulatömeg: 169.11

(C_6H_5): 77.033 — NH: 15.044

Op 54°

Fp 310°

Aether molekulatömeg: 74.044 / 42.277

148.088 / 84.554

Vizes Aether 1 / Diphenylamin $\frac{1}{4}$

70.6700
8.4554
79.1254
4.8088
93.9342

0.0

87.5600
14.8088
102.3688

Nem megy

-1.8

O = 16.

Benzol: molekulatömeg (C_6H_6) = 78.037 (O=16) fp 80.36 °C

12.003 · 1.0032 · 6.019

72.018
6.019
78.037

Telített

14.5560 gr benzolos oldatban van 0.3024 gr hán t = 24.0°C

24° on 100 gr benzol 2.121 gr hént old.

S_2Cl_2 fp 137.2° föld thermometer (barometer 758.20°C) !?

hibás!

Hibás barométer! | Aether fp. | Egyéb ther- |
757·0 mm 22°C | corrigált érték 34·5 | mométer |
754·7 corr. | Benzhéney fp 45·9 | (az adatok már |
0° ra reduc. | | corr. számok |

Diphenylamin op. (53·9) corrig 54·1
(egy. ther.)
(? 54·0 eff.)

| 30 |
| ·9 |

3 pr

Aether −74·044
Benz. −74·037

148·088

(+1·9)

Cl_2 76·129 | 22·8387
S 32·063 | 9·6189

−2·5

76·8000
9·6189
86·4189
22·8387
109·2576
5·7097
114·9673

9·221
7·8037
98·0247

76·8000
14·8088
91·6088

5·7097

$1\frac{1}{4} : 1$

$\frac{5}{4} : 1$

$(c_2 u_5)_{20}$	$\int = 4.5.7$	$\lambda^2 = 23$ 88	233
$g_2 d_2$	$\int = 3.7.2$	19.3	202) 221
			240
$c f_2$	$\int = 2.6.7$	15.97	203
$c_2 u_6$	$\int = 23.9$	20.7	233) usw
$\frac{1}{1}$ $cs_2 \int (c_2 u_5 - 1_2)_{20}$	$\int = 4.5.1$	49.95	203
$\frac{1}{1}$	$\int = 1.93$	21.033	222

Szerbhegyen R. Schiff gerint:

12.5° on $a^2 = 5464$

} Nyább adatok magok.

Aether R. Schiff gerint 5.8° on $a^2 = 5.189$

Az aether csupp. all annálja kisebb mint a szerbhegyé.

CS_2 mérsék 1.292 fp 46.04

$(C_2H_5)_2O$ " 0.706 34.9

Tenier: Regnault gerint

	CS_2	$(C_2H_5)_2O$
20°	298	433
60°	1164	1725
100	3325	4953

O=16 ra.

C = 12·003

S = 32·063

H = 1·0032

C · 12·003
S_2 = 64 126
CS_2 = 76·129

$(C_2H_5)_2O$ = 74·044

C_2 = 24·006
H_5 5·016
C_2H_5 29·022
58·044
16
74·044

Levegőtér

aether 74·044
3·7022
11·1066 gr

Cl_2 7·6129
3·8064
11·4193 gr

1

CS_2

g = 0·29 üres

1 edény

86·297 (0·17)
7·613
93·910

73·530
74·094
80·934

aeth

zavet + CS_2
1 g
1
2·0·5
9 7 0

1 cm³ 42·025 (0·38)
47·4368
5 4 1 1 8

(Impr 1·08 o r)

86·296 (+0·3)
CS_2 11·419
97·715

~~2 cm³ 43·504 (- 0·45)~~

7·4044
14·8088

73·530
11·107
aether 84·637

Aether

86·296 (0·4)
14·809
101·105

Cl_2

73·530
7·613
81·143

Aether

86·296 (0·5)
7·404
93·700

73·530
7·613
81·143

823·0
68·7
754·3
14·0

79·2 Benzol.

754·3
1·7
752·6

corr.
79·8

79·8
752·6

823·3
64·1
755·2
14·0

34·2 Aether.
(-01)

75
754·9
1·7
753·2

corr.
34·2

34·2
753·2

823·6
67·9
7557
2021
272·24
634·80
90704

45·8 C S2
3678

755·7
1·7
7540
0
753·2
6348
1184

647·92
27326
92118
750·2
647·9
1053

45·9

45·9
754·0

Aether Reagents gemischt 34·3

Ramsay es Young 33·9

Eigenen

34·2

aether

20·7
18·2
2·5

M

1·3511

aether

20·6
18·2
2·4
13
1·3512

CS_2

19·7
18·2
15
12
1·6277

19·8
18·2
16
12
1·6276

aether

19·7
18·2
1·5
8
1·3517

19·5
18·2
1·3
1·3518

1

69·3250
57·922
11·4030

−1·1

elpárlani

2

63·3032
47·331
15·9722

−1·05

3

60·6776
49·951
10·7266

+1·45

4

59·3503
48·956
10·3943

−0·55

5

65·6165
57·186
8·4305

+0·50

6

52·295

+0·20

7.

59·3054
43·786
15·5194

+1·1

Ilves. (−2·1)

6

59·4498
47·021
12·4288

+0·1

8.

55·5750
48·281
7·2940

0·0

−1·85 4
−1·8 2
−1·15 3
65
11
1/65 10 0·2

5 0·85
6 1·4
25/55 = 4
0·55
95/60 = 1·6
300

+0·2 0·62 12
+0·82 0·55 1·25
300

9.

+0·08

52·8145
46·484
6·3305

10.

(+0·45)

57·440

11.

(+1·55)

53·2055
44·771
8·4345

Wres − 2'05

12)

(1'45)
1'10

56·9941
50·547
6·4471

13)

(−0'05)

43·081

14) Rengol.

(+0'15)
−020

32
58·11
51·907
6·2062

15)

(−0'75)
(−1'10)

50·5503
46·081
4·4693

Kein Wres − 2'85 (−2'00)

16)

(+1'10)

56·5400

3)

(+0'85)

59·3322
48·9360
10·3962

(+0'85)

5)

+0'55
+0'60

67·9556
55·8400
12·1156

(−2·00)
konnte
(~~konnte~~) ? −0'82

25·0250

(−2·6)
+kein
−1'42

39·5133

(−2·6)
(−1·0) 4
3

64·3332

Wolag wesen 25·0242

CS_2 ès $\overline{\text{Ires}}$ — 2·6.

16cm̄ — 0·4

45·675
36·9457
8·7293

jeu — 1·2

37·8000 | 37·8000
31·1558 | 29·2837
6·6442 | 8·5163
(6·6497 corr)

31·1558
29·2837
1·8721
(1·8729 corr)

31·7 net hevecelt

3 cs ^{4} + 0·75

41·545
31·1488
10·3962

(11·3)

5 cm̄ — 0·2

48·961

0·2818 corrélation

$\frac{b}{a} = 0{\cdot}2817$ lég. in 1. Corr (−1)

$\left\{1 + \lambda\left(\frac{1}{s} - \frac{1}{8}\right)\right\}$ $\frac{1}{8} = 0{\cdot}11905$ 3 1

$\frac{b}{a} = 0{\cdot}2817$ $\frac{b}{a}\frac{\mu}{x} = 0{\cdot}66887$

$\frac{\mu}{x} = 2{\cdot}37444$ 6S $\left(\frac{b}{a}\frac{\mu}{6x} = 0{\cdot}11148\right)$ (k)

5S) = 0·13378 7S = 0·09555

4)

~~1495~~

$-2{\cdot}0$

$-2{\cdot}6$

$-0{\cdot}15$

$+0{\cdot}45$

$54{\cdot}4523$

$45{\cdot}3060$

$9{\cdot}1463$

7)

$-0{\cdot}9$

$-0{\cdot}3$

$58{\cdot}1059$

$42{\cdot}9010$

$15{\cdot}2049$

8)

$-0{\cdot}15$

$+0{\cdot}45$

$60{\cdot}2951$

$47{\cdot}3130$

$12{\cdot}9821$

11)

$-0{\cdot}35$

$43{\cdot}7810$

$202 \overline{)221}$
240

$(C_2H_5)_2O$ <u>légüres térben</u>, a csövek kőgül eltörtek:
a ürüségeket a kis könyvből vettem át.

Eötvös:

	f	λ_2
25°	1·676	22·15
72°	1·131	23·48
123°	0·591	25·50

Országalma: a gömbel való érintés

21·9° $a = 2·2105$ $a^2 = 4·8863$

$n = 1·3504$ $\Delta = 0·7018$ $\sigma = 0·00775$

$\Delta - \sigma = 0·6943$

$f = 1·6962$

$\lambda^2 = 22·327$

99·7 $a = 1·6670$ $a^2 = 2·7789$

$n = 1·2722$ $\Delta = 0·6343$ $\sigma = 0·0211$

$\Delta - \sigma = 0·6132$

$f = 0·8519$

$\lambda^2 = 23·885$

(Furcsa egyik a régi (hibás könyv) értelmezésből véve)

27·9° $f\lambda^2 = 37·8771$ 17·5235 0·225

99·7 = 20·3476

Legyen!!

2 cső aether. Nyra ayfelés : gőzzel való melegítéssel.

Kathetometer 0 nak, hátul megfelel az asztaltól számítva 267.5 mm

$t = 21.9$ $\quad n = 1.3504$

$m_1 = 70.4$ $\quad m_2 = 220.6\ (132.1)$

meniscus magassága 85.2

asztaltól 352.7

0.563	4.709	4.146
0.528	4.678	4.150
0.556	4.705	4.149
0.554	4.710	4.156
0.527	4.670	4.143
		4.1488

$t = 21.9$ $\quad z = 2.0744$ mm.

$\frac{z}{r} = 0.3913$ $\quad \frac{a}{r} = 0.4170$ $\quad a = 2.2105$

(0.3444 g61)

$a^2 = 4.8865$

Thermometer norm 21.5 ; másik 21.8

100° on $n = 1.2722$

$m_1 = 66.0$ $\quad m_2 = 207.5$

267.5		
~~3~~ 65.0		
332.5		
207.5		
125.0		

$t = 99.0$ Hem corr 99.7.

0.790	3.995	3.205
0.753	3.961	3.208
0.803	4.009	3206
0.760	3.988	3.208
0.800	4.009	3.209
		3.2072

$t = 99.7$ $\quad z = 1.6035$

$p = 756.7 + 2.4 = 754.3$

$t = 99.8$

$\frac{z}{r} = 0.3021$ $\quad \frac{a}{r} = 0.3140$

$a = 1.6670$

(0.2219396)

Régi

$a^2 = 2.7789$

Ejtvös $\quad a^2$

22° on 4.8838

100° on 2.7735

Eötvös 20 – 100 a víz

új állandó: 0.225

$(s-\sigma)$	f	$f\lambda^2$	
0.711	1.735	38.30	①
0.594	0.822	20.13	②
0.609	0.844	20.67	③

① és ② ból: a 0.232

① és ③ ból 0.226

CS_2 / 011148 S6

3cm"

t = 17.5	a = 2.2817	p = 10408.1	v = 7621.9	V = 10766.1	n = 1.6469
t = 60.5	a = 2.1162		v = 7969.7	V = 10777.1	(3) n = 1.6363
t = 99.9	a = 1.9443		v = 8323.7	V = 10788.1	n = 1.6207

5cm"

t = 17.5	a = 2.3158	p = 12129.7	v = 8888.0	V = 12691.0	n = 1.6462
t = 60.5	a = 2.1453		v = 9287.2	V = 12703.9	(2) n = 1.6372
t = 99.9	a = 1.9731		v = 9700.6	V = 12716.9	n = 1.6186

9cm"

t = 17.5	a = 2.2778	p = 8530.7	v = 6248.9	V = 12671.9	n = 1.6504
t = 60.5	a = 2.1236		v = 6523.2	V = 12684.8	(1) n = 1.6344
t = 99.9	a = 1.9334		v = 6787.3	V = 12697.7	n = 1.6198

---

t = 17.5

a = 2.2778	n = 1.6504	v_1 = 6248.9	v_2 = 8888.0	v_3 = 7621.9
2.3158	1.6462			
2.2817	1.6469	w_1 = 6423.0	w_2 = 3803.0	w_3 = 3144.2
2.2918	1.6478			

t = 60.5

a = 2.1236	n = 1.6344	v_1 = 6523.2	v_2 = 9287.2	v_3 = 7969.7
2.1453	1.6372			
2.1162	1.6363	w_1 = 6161.6	w_2 = 3416.7	w_3 = 2807.4
2.1284	1.6360			

t = 99.9

a = [illegible]	n = 1.6198	v_1 = 6787.3	v_2 = 9700.6	v_3 = 8323.7
1.9731	1.6186			
1.9443	1.6207	w_1 = 5910.4	w_2 = 3016.3	w_3 = 2464.4
1.9587	1.6197			
		p_1 = 8530.7	p_2 = 12129.7	p_3 = 10408.1

$t = 17{\cdot}5$

$a^2 = 5{\cdot}2523$

$\Delta = 1{\cdot}3644$ $\quad$ $\sigma = 0{\cdot}0007$

$1{\cdot}3658$ $\quad$ $0{\cdot}0000$

$1{\cdot}3651$ $\quad$ $0{\cdot}0003$

$f = \frac{a^2}{2}(\Delta - \sigma) =$

$= 3{\cdot}5842$

$\Delta - \sigma = 1{\cdot}3648$

$t = 60{\cdot}5$

$a^2 = 4{\cdot}5301$

$\Delta = 1{\cdot}3050$ $\quad$ $\sigma = 0{\cdot}0029$

$1{\cdot}3048$ $\quad$ $0{\cdot}0030$

$f = 2{\cdot}9491$

$1{\cdot}3049$ $\quad$ $0{\cdot}0029$

$\Delta - \sigma = 1{\cdot}3020$

$t = 99{\cdot}9$

$a^2 = 3{\cdot}8365$

$f = 2{\cdot}3702$

$\Delta = 1{\cdot}2468$ $\quad$ $\sigma = 0{\cdot}0115$

$1{\cdot}2471$ $\quad$ $0{\cdot}0112$

$1{\cdot}2469$ $\quad$ $0{\cdot}0113$

$\Delta - \sigma = 1{\cdot}2356$

A gömben volt $6{\cdot}6442$ gr CS_2 (légü. l. c.: $6{\cdot}6497$)

$1{\cdot}8721$ gr S (" " $1{\cdot}8729$)

Hasonlóan a vizsgálatnál $\frac{b}{a} = 0{\cdot}2817$ $\quad$ és $\frac{b}{a}\frac{\mu}{s} = 0{\cdot}66887$

CS_2 $\mu = 76.129$ $\quad S = 32.063$

S_6 ol vere: 192.378 $\quad$ ès $k = 0.11148$

$S_5 = 160.315 \quad 0.13377 \qquad S_4 = 0.16722 \qquad S_4 = 128.252$

$S_7 = 224.441 \quad 0.09555 \qquad S_2 = 0.33443 \qquad S_2 = 64.126$

$$S_6 : \bar{\mu} = \frac{97.575}{1.11148} = 87.788$$

+	λ^3	λ^2	$f\lambda^2$			
17.5	64.3088	16.051	57.530			
) 43.0				) 8.749	0.203	
60.5	67.2756	16.541	48.781			) 0.207
) 39.4				) 8.369	0.212	
99.9	70.4050	17.050	40.412			

$$S_4 : \bar{\mu} = \frac{97.575}{1.16722} = 83.596$$

61.2380	15.536	55.684		
			) 8.466	0.197
64.0631	16.011	47.218		) 0.201
			) 8.103	0.206
67.0431	16.503	39.115		

$$S_2 : \bar{\mu} = \frac{97.575}{1.33443} = 73.121$$

53.5646	14.210	50.931		
			) 7.747	0.180
56.0357	14.643	43.184		) 0.184
			) 7.408	0.188
58.6422	15.094	35.776		

$$S : \bar{\mu} = \frac{97.575}{1.66887} = 58.468$$

42.8306	12.242	43.878		
			) 6.675	0.155
44.8064	12.615	37.203		) 0.158
			) 6.383	0.162
46.8907	13.003	30.820		

Számozott 5. nyíból.

(03) 4478·0
(3α) 8213·0
12691·0

Cincs felfelé: meniscus távolsága 3 ből (2 felé) 5·465
lefelé: " " 5 ből (4 felé) 0·47
} t = 17·5

folytérf = 8213·0
600·1
88131 + men

(03) = 88131
43351
4478·0

21941·0
21912·5
4386·5
51·4
43351

CS_2 S

12·1156
6
135
12129⁷

$t = 17{\cdot}5$

$\alpha_f = 71{\cdot}4$ $\alpha_j = 71{\cdot}7$

$n = 1{\cdot}6421$ $1{\cdot}6502$ } $1{\cdot}6462$

$m_1 = 89{\cdot}4$ $m_2 = 269{\cdot}9$

$t = 17{\cdot}5$

$z = 4{\cdot}393$
$4{\cdot}399$
$4{\cdot}397$ $z = 2{\cdot}1979\ ^{mg}/_{m}$
$4{\cdot}392$
$4{\cdot}398$
$4{\cdot}3958$

Meniscus 3 hól (2 felé) 5·465

$r = 5{\cdot}9122$

$\frac{z}{r} = 0{\cdot}37176$

$\frac{a}{r} = 0{\cdot}39170$

$A = 2{\cdot}3158$

$u = 74{\cdot}9$

$V = 12697{\cdot}0$

$V = 88131$
74·9
88880

$t = 60'5$

$d_f = 7^{3}7 \quad d_j = 7^{3}6$

$n = 1'6324 \quad 1'6421 \quad \} 1'6372$

$m_1 = 88'9 \qquad m_2 = 268'4$

$t = 60'5$

$z = 4'115$
$4'110$
$4'110$
$4'112$
$4'112$
$4'1118$

$z = 2'055\,g^{m}/_{m}$

Mérés az 3 hőt (2 felé) $9'08$

$r = 5'9142$

$\frac{z}{r} = 0'34762$

$\frac{a}{r} = 0'36274$

$a = 2'1453$

$n = 68'0$

$V = 12703'9$

$V = 8221'4$
$997'8$
$68'0$
$9287'2$

$t = 99.9$

$d_y = 78.1 \quad d_j = 78.0$

$n = 1.6137 \;/\; 1.6235 \} 1.6186$

$m_1 = 87.6 \quad m_2 = 265.3$

$t = 99.9$

$z = 3.810$
3.810
3.810
3.810
3.809
3.8098

$z = 1.9049 \; m/m$

Meiricus 3 tol (2 fele) 12.83

$r = 5.9162$

$\frac{z}{r} = 0.32198$

$\frac{a}{r} = 0.33351$

$a = 1.9731$

$n = 60.1$

$V = 12716.9$

$v = 8229.7$
1470.8
60.1
9700.6

Számozott 3 ujból.

(03) 3768·2
(3∞) = 6997·9
10766·1

Cúcs felfelé : meniscus távolsága 3-tól (2 felé) 6·02
lefelé : " " 5-től (6 felé) 0·71 } 17·5

folyt. ref = 6997·9
55·4
7557·3 + men

(03) = 7557·3
3789·1
3768·2

186·5
1853·3
66·3
3789·1

CS_2 S

10'3962
5
114
104081

$t = 17'5$

$d_f = 66'0$ $d_j = 68'0$

$n = 1'6531$ $1'6407$ } $1'6469$

$m_1 = 89'5$ $m_2 = 270'0$

$t = 17'5$

$z = 4'286$
$4'281$
$4'288$ $z = 2'1425$ m/m
$4'281$
$4'289$
$4'285$ }

Merisans 3 bol (2 pelé) 6'02

$r = 5'4387$

$\frac{z}{r} = 0'39394$

$\frac{a}{r} = 0'41954$

$a = 2'2817$

$n = 64'6$

$V = 10766'1$

$v = 7557'3$
$64'6$
$7621'9$

$t = 60{\cdot}5$

$d_f = 68{\cdot}4 \quad d_j = 69{\cdot}8$

$n = 1{\cdot}6406 \quad 1{\cdot}6319 \} \; 1{\cdot}6363$

$m_1 = 88{\cdot}8 \quad m_2 = 268{\cdot}3$

$t = 60{\cdot}5$

$z = 4{\cdot}019$
$4{\cdot}023$
$4{\cdot}026$
$4{\cdot}020$
$4{\cdot}017$
$\overline{4{\cdot}0210}$ }

$z = 2{\cdot}0105$ mm

Meniscus 3 tol (2 felé) 9·74

$r = 5{\cdot}4405$

$\frac{z}{r} = 0{\cdot}36954$

$\frac{a}{r} = 0{\cdot}38898$

$a = 2{\cdot}1162$

$h = 59{\cdot}0$

$V = 10777{\cdot}1$

$V = 7005{\cdot}0$
$905{\cdot}7$
$59{\cdot}0$
$\overline{7969{\cdot}7}$

$t = 99.9$

$\alpha_b = 71.3 \qquad \alpha_j = 73.1$

$n = 1.6255 \qquad 1.6160 \} 1.6207$

$m_1 = 87.8 \qquad m_2 = 26.57$

$t = 99.9$

$z = 3.737$
3.732
3.734
3.732
3.726
3.7322 f

$z = 1.8661$ m/m

Meniscus 2 hol (3 felé) 6.37

$r = 5.4390$

$\frac{z}{r} = 0.34310$

$\frac{a}{r} = 0.35747$

$a = 1.9443$

$n = 52.6$

$V = 10788.1$

$v = 8862.4$
5911.3
8271.1
52.6
8323.7

Számozott 16. Menisc. mérőpont.

$t = 19{,}2$

Long becsapott!!!! ✝

20.005	0.635	19.44	105.6893	33.6419 / 5.8002
20.00	0.07	19.34	106.2358	33.8159 / 5.8157
20.005	0.59	19.36	106.1260	33.7810 / 5.8121
19.99	1.235	19.335	106.2632	33.8246 / 5.8159
	1.89			

(4–5)

$t = 19{,}7$ $(C_2 n_5)_2 O$ $n = 1.3517$ $d_l = 132.0$ $d_j = 132.2$

$t = 19{,}7$ Cl_2 $n = 1.6277$ $d_l = 74.6$ $d_j = 77.2$

0.2760 | 57.4 | 55.0

$\frac{\Delta n}{\Delta d_l} = -0.004808$ $\frac{\Delta n}{\Delta d_j} = -0.005018$

Cirus felfelé: meniscus 3 hól (4 felé): 17.24
lefelé: " 3 hól (4 felé): 12.57
} $t = 17{,}2$

Nem vettem figyelembe

CS_2 8 8·7293

$t = 17·2$

$d_f = 70·7$ $d_j = 72·2$

$n = 1·6465$ $1·6528\}\ 1·6496$

$m_1 = 89·6$ $m_2 = 270·5$

$t = 17·2$

$z = 4·240$
$4·245$
$4·244$
$4·239$
$4·244$
$\overline{4·2424}$

$z = 2·1212$ m/m

menisans 3 tol (4 pelé) 17·24

$r = 5·8151$

$\frac{z}{r} = 0·36477$

$\frac{a}{r} = 0·38317$

$a = 2·2282$

$t = 60.5°$

$d_f = 73.0$ $d_j = 73.7$

$n = 1.6354$ 1.6453 } 1.6403

$m_1 = 89.0$ $m_2 = 268.9$

$t = 60.5°$

$z = 3.978$
3.981
3.982
3.989
3.979
$3.9818 f$

$Z = 1.9909\ ^{my}/_{m}$

Meniscus 3 hol (4 felé) 14.58

$r = 5.8171$

$\frac{z}{r} = 0.34225$

$\frac{a}{r} = 0.35649$

$a = 2.0737$

$t = 99.9$

$d_f = 76.8$ $d_j = 76.7$

$n = 1.6171$ 1.6302 $\}1.6236$

$m_1 = 87.9$ $m_2 = 266.1$

$t = 99.9$

$z = 3.696$
3.691
3.690
3.693
3.704
3.6948

$z = 1.8474$ mm

meniscus 3tól (4 felé) 12.02

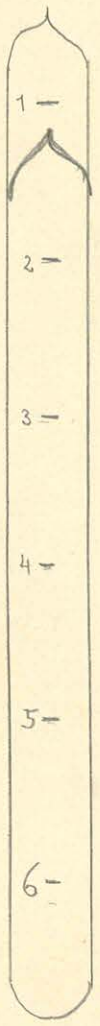
$r = 5.8191$

$\frac{z}{r} = 0.31747$

$\frac{a}{r} = 0.32853$

$a = 1.9117$

Számozott gyűjtő



(04) 6494.0
(400) 6177.9
12671.9

Cincs felfelé: menisc. 4-től (5 felé) 0.03
lefelé: " 4-től (3 felé) 2.94
} + = 17.5

folyt. = 6177.9
3.2
6174.7 + men

(04) = 6174.7
319.3
6494.0

CS_2 8

8'5163
4
140
8530'7

$t = 17'5$

$d_b = 65'2$ $d_j = 68'3$

$n = 1'6645$ $1'6363$ } $1'6504$

$m_1 = 89'7$ $m_2 = 270'6$

$t = 17'5$

$z = 4'336$
$4'324$
$4'333$ $z = 2'1651$ mm/m
$4'327$
$4'331$
$4'3302$

Meniscus 4 hol (5 felé) 0'03

$r = 5'8793$

$\frac{z}{r} = 0'36826$

$\frac{a}{r} = 0'38742$

$a = 2'2778$

$u = 74'2$

$V = 12671'9$

$v = 6174'7$
$74'2$
$6248g$

$t = 60.5$

$d_f = 68.9 \quad d_j = 70.9$

$n = 1.6464 \quad 1.6223 \} 1.6344$

$m_1 = 88.7 \qquad m_2 = 268.0$

$t = 60.5$

$z = 4.074$
4.074
4.068
4.071
4.074
4.0722 f

$z = 2.0361$ m/m

Menisco 4 bol (3 fele) 2.50

$r = 5.8813$

$\frac{z}{r} = 0.34620$

$\frac{a}{r} = 0.36108$

$a = 2.1236$

$n = 67.4$

$V = 126.84.8$

$V = 6184.2$
271.6
67.4
6523.2

$t = 99.9$

$d_f = 72.3$ $\quad d_j = 73.2$

$n = 1.6297$ $\quad 1.6099 \} 1.6198$

$m_1 = 87.7$ $\quad m_2 = 265.5$

$t = 99.9$

$t = 3.741$
3.732
3.740
3.738
3.732
$\overline{3.7366}$

$z = 1.8683$ mm

meniscus 4 hől (3 felé) 4.94

$r = 5.8833$

$\frac{z}{r} = 0.31756$

$\frac{a}{r} = 0.32863$

$a = 1.9334$

$u = 59.6$

$V = 12697.7$

$V = 6790.5$
537.2
59.6
$\overline{6787.3}$

S_2Cl_2 / S

4 cm

$p = 9157.9$

$t = 17.7$	$a = 2.3755$	$v = 5190.2$	$V = 10320.5$		$n = 1.6800$
$t = 61.3$	$a = 2.2717$	$v = 5365.4$	$V = 10331.0$	(1)	$n = 1.6768$
$t = 100.2$	$a = 2.1659$	$v = 5533.6$	$V = 10341.5$		$n = 1.6671$

7 cm

$p = 15218.8$

$t = 17.7$	$a = 2.3912$	$v = 8687.7$	$V = 12855.3$		$n = 1.6810$
$t = 61.3$	$a = 2.2788$	$v = 8972.9$	$V = 12868.4$	(2)	$n = 1.6794$
$t = 100.2$	$a = 2.1765$	$v = 9247.4$	$V = 12881.5$		$n = 1.6705$

8 cm

$p = 12994.2$

$t = 17.7$	$a = 2.4361$	$v = 7391.0$	$V = 11151.4$		$n = 1.6774$
$t = 61.3$	$a = 2.2940$	$v = 7640.6$	$V = 11162.8$	(3)	$n = 1.6708$
$t = 100.2$	$a = 2.1825$	$v = 7876.4$	$V = 11174.1$		$n = 1.6636$

$t = 17.7$

$a = 2.3755$	$n = 1.6800$	$V_1 = 5190.2$	$V_2 = 8687.7$	$V_3 = 7391.0$
2.3912	1.6810			
	1.6774	$W_1 = 5130.3$	$W_2 = 4167.6$	$W_3 = 3760.4$
2.3833	1.6795			

$t = 61.3$

$a = 2.2717$	$n = 1.6768$	$V_1 = 5365.4$	$V_2 = 8972.9$	$V_3 = 7640.6$
2.2788	1.6794			
2.2940	1.6708	$W_1 = 4965.6$	$W_2 = 3895.5$	$W_3 = 3522.2$
2.2815	1.6757			

$t = 100.2$

$a = 2.1659$	$n = 1.6671$	$V_1 = 5533.6$	$V_2 = 9247.4$	$V_3 = 7876.4$
2.1765	1.6705			
	1.6636	$W_1 = 4807.9$	$W_2 = 3634.1$	$W_3 = 3297.7$
2.1712	1.6671			

$p_1 = 9157.9$ $p_2 = 15218.8$ $p_3 = 12994.2$

$t = 17.7$

$a^2 = 5.6801$

$f = \frac{a^2}{2}(1-\sigma) =$

$= 4.9036$

$1 = 1.7398$
1.7514
1.7456

$\sigma = 0.0249$
0.0132
0.0190

$1-\sigma = 1.7266$

$t = 61.3$

$a^2 = 5.2052$

$f = 4.3541$

$1 = 1.6866$
1.6946
1.6906

$\sigma = 0.0219$
0.0133
0.0176

$1-\sigma = 1.6730$

$t = 100.2$

$a^2 = 4.7141$

$f = 3.8326$

$1 = 1.6381$
1.6449
1.6415

$\sigma = 0.0194$
0.0115
0.0155

$1-\sigma = 1.6260$

$k'_{Ken} = 14.4887$ gr

$s_2 Cl_2 = 24.8199$ gr

$\frac{b}{a} = 0.58375$

$\frac{\mu}{s} = 4.21146$

$\frac{b}{a}\frac{\mu}{s} = 2.45844$

$S_2 Q_2$ 135'032

$S_4 = 128.252$ $k = 0.61461$ $M = 132'457$

$S = 32.063$ $k = 2.458$44

15'8441	47'923	81'881	0'163 0'184
48'3455	48'310	49'424	8'458 0'210
80'689o	48'643	41'566	0'719o

$S_6 = 32.063$ $k = 2.45844$ $M = 61.836$

35'4239	40'486	52'89	4'912 0'413
36'5464	47'019	44'948	0'126
34'644	47'232	43'864	4'911

0'119

$S_8 =$ $k = 0.30430$ $M = 163.584$

93'4139	20'632	101'141	9'400 0'216
96'4624	27'044	91'441	0'228
99'6540	27'495	82'382	9'389 0'247

$S_6 = \sim$ λ^3 λ^2 $f\lambda^2$

44'4	86'9042	49'620	9'940 0'205
617'3	89'4314	20'043	8'924 0'229
402'2	92'4455	20'4441	48'342

0'174

$S_8 = 256.504$ $k = 0.30430$ $M = 163.584$

93'4139	20'632	101'141	9'400 0'216
96'4624	27'044	91'441	0'228
99'6540	27'495	82'382	9'389 0'247

Szármozott 4. ujból

(0 4) 5145·4
(4 ∞) 5175·1
10320·5

Görcs felfelé : meniscus távolsága 4"ből (5 felé) 0·57
lefelé : " " 4"ből (3 felé) 0·25

folyt. köv.: 5175·1
52·8
5122·3 + men

(0 4) = 5122·3
23·1
5145·4

$S_2 a_2$/ §

g'1463
5
111
g1579

t = 17·7

d_s = 60·3 d_j = 61·7

n = 1·6796 1·6805 } 1·6800

m_1 = g1·8 m_2 = 275·5

t = 17·7

menisc. 4töl (5 felé) 0·57

r = 5·4295

z = 4·435
4·430
4·430
4·422
4·424
4·4282 f.

z = 2·2141 m/m

$\frac{z}{r}$ = 0·40779

$\frac{a}{r}$ = 0·43752

a = 2·3755

n = 67·g

V = 10320·5

V = 5122·3
67·g
5190·2

$t = 61{\cdot}3$

$\alpha_f = 61{\cdot}7 \quad \alpha_f' = 61{\cdot}6$

$n = 1{\cdot}6727 \quad 1{\cdot}6810 \;\}\; 1{\cdot}6768$

$m_1 = 91{\cdot}5 \quad m_2 = 274{\cdot}9$

$t = 61{\cdot}3$

$z = 4{\cdot}261$
$4{\cdot}264$
? $4{\cdot}265$
$4{\cdot}275$
$4{\cdot}277$
$4{\cdot}2684$ f

$z = 2{\cdot}1342$ mm

Meniscus 4 Hol (3 fele) $1{\cdot}305$

$r = 5{\cdot}4313$

$\frac{z}{r} = 0{\cdot}392\,94$

$\frac{a}{r} = 0{\cdot}41826$

$a = 2{\cdot}2717$

$n = 64{\cdot}1$

$V = 10331{\cdot}0$

$v = 5180{\cdot}4$
$120{\cdot}9$
$64{\cdot}1$
$5365{\cdot}4$

$t = 100{\cdot}2$

$d_b = 63{\cdot}4 \quad d_j = 63{\cdot}8$

$n = 1{\cdot}6645 \quad 1{\cdot}6698 \} 1{\cdot}6671$

$m_1 = 90{\cdot}7 \qquad m_2 = 273{\cdot}3$

$t = 100{\cdot}2$

$z = 4{\cdot}092$
$4{\cdot}095$
$4{\cdot}105$
$4{\cdot}104$
$4{\cdot}108$
$\overline{4{\cdot}1008}$

$z = 2{\cdot}0504$ mm

meniscus 4 hól (3 felé) 3·10

$r = 5{\cdot}4332$

$\frac{z}{r} = 0{\cdot}37738$

$\frac{a}{r} = 0{\cdot}39865$

$a = 2{\cdot}1659$

$H = 60{\cdot}5$

$V = 10341{\cdot}5$

$v = 5185{\cdot}6$
$287{\cdot}5$
$60{\cdot}5$
$\overline{5533{\cdot}6}$

Szárnyak 7 ujból

(0 3) 475g'8
(3 ∞) 8095'5
12855'3

Cincs felfelé: menis cus távolsága 3tól (2 felé) 4'88
lefelé: " " 5től (4 felé) 3'50

fej tól = 8095'5
515'6
8611'1 + men

(0:3) = 8611'1
3851'3
4759'8

4219'8
368'5
3851'3

$S_2 a_2$ / S

15·2049
7
132

15218·8

$t = 17{\cdot}6$

$d_f = 60{\cdot}3 \quad d_j = 63{\cdot}7$

$n = 1{\cdot}6896 \quad 1{\cdot}6724 \} 1{\cdot}6810$

$m_1 = 91{\cdot}8 \quad m_2 = 275{\cdot}7$

$t = 17{\cdot}7$

$Z = 4{\cdot}504$
$4{\cdot}506$
$4{\cdot}508$
$4{\cdot}517$
$4{\cdot}510$

$4{\cdot}509$ f

$Z = 2{\cdot}2518$ mm

meniscus 3 bol (2 felé) 4·88

$r = 5{\cdot}7994$

$\frac{Z}{r} = 0{\cdot}38828$

$\frac{a}{r} = 0{\cdot}41232$

$a = 2{\cdot}3912$

$u = 76{\cdot}6$

$t = 17{\cdot}7 \qquad n = 1{\cdot}6810$

$V = 12855{\cdot}3$

$v = 8611{\cdot}1$
$76{\cdot}6$

86877

$t = 61{,}3$

$d_f = 62{,}0$ $\quad d_j = 62{,}7$

$n = 1{,}6809$ $\quad 1{,}6780 \} 1{,}6794$

$m_1 = 91{,}7$ $\quad m_2 = 275{,}4$

$t = 61{,}3$

$r = 4{,}320$
$\quad 4{,}322$
$\quad 4{,}324$
$\quad 4{,}328$
$\quad 4{,}324$
$\quad \overline{4{,}3238}$

$k = 2{,}1619 \frac{m}{m}$

menisc 3/bol (2 fele) 7,54

$r = 5{,}8014$

$\frac{t}{r} = 0{,}37265$

$\frac{a}{r} = 0{,}39280$

$a = 2{,}2788$

$h = 72{,}0$

$V = 12868{,}4$

$V = 8103{,}7$
$\quad 797{,}2$
$\quad 72{,}0$
$\quad \overline{8972{,}9}$

$t = 100{\cdot}2$

$d_0 = 63{\cdot}4 \quad d_1 = 64{\cdot}6$

$n = 1{\cdot}6737 \quad 1{\cdot}6674 \} 1{\cdot}6705$

$m_1 = 91{\cdot}2 \quad m_2 = 273{\cdot}8$

$t = 100{\cdot}2$

$z = 4{\cdot}161$
$4{\cdot}149$
$4{\cdot}155$
$4{\cdot}154$
$4{\cdot}158$
$4{\cdot}1554$ f

$z = 2{\cdot}0777$ mm

meniscus 3 hól (2 felé) 10·0 g

$r = 5{\cdot}8033$

$\frac{z}{r} = 0{\cdot}35802$

$\frac{a}{r} = 0{\cdot}37505$

$a = 2{\cdot}1765$

$H = 67{\cdot}8$

$V = 12881{\cdot}5$

$V = 8112{\cdot}0$
$1067{\cdot}6$
$67{\cdot}8$
$9247{\cdot}4$

Számozott 8 ujból.

(03) 4084·0
(30) 7067·4
11151·4

Cirkumferentia: meniscus hivolsága 3 ½l (2 felé) 2·70
lefelé : " " 5 ½l (4 felé) 5·30

folyó terj = 7067·4
254·1
7321·5 + men

(03) = 7321·5
3237·5
4084·0

3728·3
490·8
3237·5

S_2Cl_2 /

12·g821
6
115
12gg42

t = 17·6

d_f = 59·0 d_j = 59·7

n = 1·6806 1·6741 } 1·6774

m_1 = 91·6 m_2 = 275·1

t = 17·6

z = 4·522
4·526
4·527 z = 2·2636 mm
4·534
4·527
4·5272

V = 11151·4

t = 17·7 a = 2·4361 n = 1·6774

V = 11151·4 v = 7391·0

Meniscus 3 hol (2 felé) 2·70

V = 5·4734

$\frac{z}{r}$ = 0·41356

$\frac{a}{r}$ = 0·44514

a = 2·4364

h = 68·g

V = 7321·5
68·g
7390·4

$t = 61{\cdot}3$

$d_f = 60{\cdot}2 d_j = 61{\cdot}3$

$n = 1{\cdot}6744 \quad 1{\cdot}6671 \;\Big\}\; 1{\cdot}6708$

$m_1 = 91{\cdot}3 \quad m_2 = 273 g$

$t = 61{\cdot}3$

$z = 4{\cdot}291$
$4{\cdot}307$
$4{\cdot}316$
$4{\cdot}313$
$4{\cdot}318$
$\overline{4{\cdot}309 0 f}$

$z = 2{\cdot}1545 \; {}^{kg}/_{m}$.

Menisque 3 bol (2 pelé) 5·32

$r = 5{\cdot}4753$

$\frac{z}{r} = 0{\cdot}39349$

$\frac{a}{r} = 0{\cdot}41897$

$a = 2{\cdot}2940$

$n = 65{\cdot}0$

$V = 11162{\cdot}8$

$v = 7074{\cdot}6$
$501{\cdot}0$
$65{\cdot}0$
$\overline{7640{\cdot}6}$

$t = 100{\cdot}2$

$d_f = 61{\cdot}6 \qquad d_j = 62{\cdot}9$

$n = 1{\cdot}6672 \quad 1{\cdot}6601 \;\Big\}\; 1{\cdot}66336$

$m_1 = 90{\cdot}5 \qquad m_2 = 272{\cdot}7$

$t = 100{\cdot}2$

$z = 4{\cdot}122$
$4{\cdot}132$
$4{\cdot}136$
$4{\cdot}138$
$4{\cdot}134$
$\overline{4{\cdot}1324}$

$z = 2{\cdot}0662\ ^{m}/_{m}$

meniscus 3 tól (2 felé) 7·78

$r = 5{\cdot}47771$

$\frac{z}{r} = 0{\cdot}377724$

$\frac{a}{r} = 0{\cdot}39847$

$a = 2{\cdot}1825$

$u = 61{\cdot}4$

$V = 11174{\cdot}1$

$V = 7081{\cdot}8$
$733{\cdot}2$
$61{\cdot}4$
$\overline{7876{\cdot}4}$

$1\,CS_2 / 1(C_2H_5)_2O$

(3.4.8) ból

$t = 17{\cdot}5$

$n = 1{\cdot}5001$
$1{\cdot}5049$
$1{\cdot}5058$
$1{\cdot}5036$

$a^2 = 4{\cdot}6994$
$f =$
$\lambda^2 =$

$\lambda = 0{\cdot}8934$
$0{\cdot}0036$
$0{\cdot}8970$

$\sigma = 0{\cdot}0264$
$0{\cdot}0183$
$0{\cdot}0223$

$t = 60{\cdot}7$

$n = 1{\cdot}4654$
$1{\cdot}4613$
$1{\cdot}4672$
$1{\cdot}4646$

$a^2 = 3{\cdot}7071$
$f =$
$\lambda^2 =$

Sűrűség egyéb!

Összállítás belül.

$t = 99{\cdot}7$

$n = 1{\cdot}4169$
$1{\cdot}4227$
$1{\cdot}4204$
$1{\cdot}4200$

$a^2 = 2{\cdot}9049$
$f =$
$\lambda^2 =$

n=

1.4998 (t=17.9)	1.4655 (t=60.6)	1.4169 (t=99.7)
1.5058 (t=16.6)	1.4613 (t=60.7)	1.4227 (t=99.7)
1.5059 (t=17.4)	1.4672 (t=60.7)	1.4204 (t=99.7)

Számítások a 3.4.8 combinatiojából (új pipetta):

t=17.5	V_1= 5531.8	V_2 = 8407.9	V_3= 8901.3
	W_1 = 4896.2	W_2 = 4500.4	W_3 = 3769.5
t=60.7	V_1= 5873.3	V_2= 8957.3	V_3 = 9481.7
	W_1 = 4566.1	W_2 = 3965.1	W_3= 3202.9
t=99.7	V_1= 6262.5	V_2= 9592.7	V_3= 10153.6
	W_1= 4187.5	W_2= 3342.9	W_3= 2544.1
	p_1= 5071.7	p_2= 7630.9	p_3= 8085.6

Végleges:

a

Réglages:

a	a^2	f	$f\lambda^2$			
2.1678	4.6994	2.0663	39.493	9.139	0.272	0.204
1.9284	3.7187	1.5215	30.354	7.634	0.196	
1.7026	2.8988	1.0863	22.720			

λ^3	λ^2
83.5589	19.113
89.1123	19.950
95.6510	20.915

1 CS_2 / 1 $(C_2H_5)_2O$ Valamennyi ételelet felhasználva a capillaris állandóra; számítás az első háromból véve.

$t = 17{\cdot}5$

$a = 2{\cdot}1626$ $\quad a^2 = 4{\cdot}6994$

$2{\cdot}1653$

$2{\cdot}1614$ $\quad f = 2{\cdot}0663$

$2{\cdot}1588$

$2{\cdot}1715$ $\quad \lambda^2 = 19{\cdot}713$

$2{\cdot}1753$

$2{\cdot}1796$

$2{\cdot}1678$

$t = 60{\cdot}7$

$a = 1{\cdot}9271$ $\quad a^2 = 3{\cdot}7071$

~~$(1{\cdot}9138)$~~

$1{\cdot}9275$ $\quad f = 1{\cdot}5167$

$1{\cdot}9301$

$1{\cdot}9286$ $\quad \lambda^2 = 19{\cdot}950$

$1{\cdot}9254$

$t = 99{\cdot}7$

$a^2 = 2{\cdot}9049$

$a = 1{\cdot}7064$

$1{\cdot}7030$

$1{\cdot}7001$ $\quad f = 1{\cdot}0885$

$1{\cdot}7018$

~~$(1{\cdot}7111)$~~

~~$1{\cdot}7044$~~ $\quad \lambda^2 = 20{\cdot}915$

$t = 17{\cdot}5$) $43{\cdot}2$ $\quad f\lambda^2 = 39{\cdot}4931$) $0{\cdot}203$ $\quad 0{\cdot}214$ $\quad 9{\cdot}23503$

$60{\cdot}7$) $39{\cdot}0$ $\quad 30{\cdot}25816$) $0{\cdot}192$ $\quad 4{\cdot}49219$

$99{\cdot}7$ $\quad 22{\cdot}76597$ $\quad 0{\cdot}203$

$17{\cdot}38$) $17{\cdot}5$ $\quad 191{\cdot}3$

$\lambda^2 =$ (λ^2)

$1\,CS_2 \;/\; 1(C_2H_5)_2O$.

1 cső":

$p = 5425{\cdot}9$ mgr.

$t = 17{\cdot}3$	$a = 2{\cdot}1642$	$v = 5905{\cdot}0$	$V = 12055{\cdot}8$
$t = 17{\cdot}9$	$a = 2{\cdot}1631$	$v = 5908{\cdot}9$	$V = 12055{\cdot}8$
$t = 60{\cdot}7$	$a = 1{\cdot}9271$	$v = 6271{\cdot}5$	$V = 12069{\cdot}1$
$t = 99{\cdot}7$	$a = 1{\cdot}7064$	$v = 6666{\cdot}0$	$V = 12081{\cdot}3$

1

4 cső"

$p = 7630{\cdot}9$ mgr

$t = 17{\cdot}9$	$a = 2{\cdot}1591$	$v = 8413{\cdot}0$	$V = 12908{\cdot}3$
$t = 60{\cdot}6$	$a = 1{\cdot}9143$	$v = 8955{\cdot}7$	$V = 12922{\cdot}4$
$t = 99{\cdot}7$	$a = 1{\cdot}7030$	$v = 9592{\cdot}7$	$V = 12935{\cdot}6$

2

8 cső"

$p = 8085{\cdot}6$

$t = 17{\cdot}1$	$a = 2{\cdot}1609$	$v =$ -----	$V = 12670{\cdot}8$
? $t = 16{\cdot}6$	$a = 2{\cdot}1764$	$v = 8889{\cdot}2$	$V = 12670{\cdot}8$?
$t = 60{\cdot}7$	$a = 1{\cdot}9275$	$v = 9481{\cdot}7$	$V = 12684{\cdot}6$
$t = 99{\cdot}7$	$a = 1{\cdot}7001$	$v = 10153{\cdot}6$	$V = 12697{\cdot}7$

3

Interpolálva.

$t = 17{,}5$ $\quad p_1 = 5425{,}9$ $\quad p_2 = 7630{,}9$ $\quad p_3 = 8085{,}6$

$a = 2{,}1626$
$2{,}1653$
$2{,}1614$
$2{,}1588$
$2{,}1715$
$2{,}1639$

$v_1 = 5907{,}5$
$5905{,}6$
$v_1 = 5906{,}5$

$v_2 = 8407{,}9$ $\quad v_3 = 8901{,}3$

$w_1 = 6149{,}3$ $\quad w_2 = 4500{,}4$ $\quad w_3 = 3769{,}5$

$t = 60{,}7$

$v_1 = 6271{,}5$ $\quad v_2 = 8957{,}3$ $\quad v_3 = 9481{,}7$

$a = 1{,}9271$
$1{,}9138$
$1{,}9275$
$1{,}9228$

$w_1 = 5797{,}6$ $\quad w_2 = 3965{,}1$ $\quad w_3 = 3202{,}9$

$t = 99{,}7$ $\quad v_1 = 6666{,}0$ $\quad v_2 = 9592{,}7$ $\quad v_3 = 10153{,}6$

$a = 1{,}7064$
$1{,}7030$
$1{,}7001$
$1{,}7032$

$w_1 = 5415{,}3$ $\quad w_2 = 3342{,}9$ $\quad w_3 = 2544{,}1$

$CS_2 = 76{,}129$
$(C_2H_5)_2O = 74{,}044$
$150{,}173 : 2 = 75{,}086 = \mu$

$t = 17.5$

$a^2 = 4.6825 \quad \lambda = 0.8958 \quad \sigma = 0.0218 \quad f = \frac{a^2}{2}(1-\sigma) = 2.0588$

$\lambda = 0.9013 \quad = 0.0166$

$0.8986 \quad 0.0192$

$\lambda - \sigma = 0.8794 \qquad \chi^2 = \left(\frac{\mu}{\lambda}\right)^{\frac{2}{3}} = 19.113$

$t = 60.7$

$\lambda = 0.8397 \quad \sigma = 0.0274$

$a^2 = 3.6972 \qquad 0.8456 \quad 0.0211$

$0.8426 \quad 0.0243 \qquad f = 1.5127$

$\lambda - \sigma = 0.8183 \qquad \lambda^2 = 19.950$

$t = 99.7 \qquad \lambda = 0.7816 \quad \sigma = 0.0398$

$a^2 = 2.9009 \qquad 0.7885 \quad 0.0313$

$0.7850 \quad 0.0355 \qquad f = 1.0871$

$\lambda - \sigma = 0.7495 \qquad \lambda^2 = 20.915$

$17.5 \qquad f\lambda^2 = 39.3498$

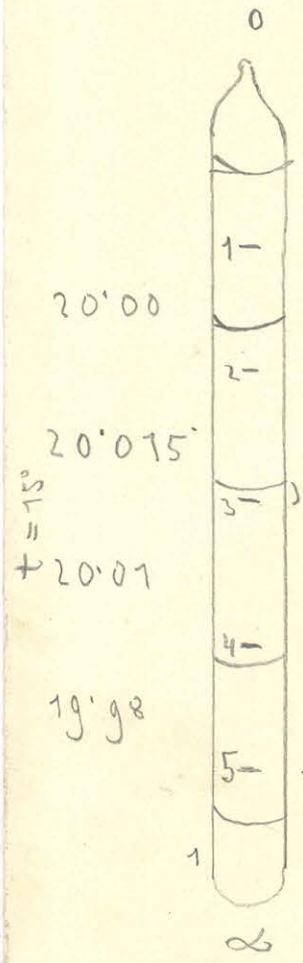
$432 \qquad 60.7 \qquad 30.1784 \quad) 9.1714 \qquad 0.212$

$390 \qquad 99.7 \qquad 22.7367 \quad) 7.4417 \qquad 0.190$

Hgb mv. 15.

Új pipetta. $t = 14{\cdot}8°$

1 mm nak megfelelő térfogat v térfogat



) 23·200 (1·9472393) (0·7250447)

) 23·420 (1·9431404) (0·7229952)

) 23·355 (1·9443474) (0·7235987)

) 23·595 (1·9399073) (0·7213787)

(03) 53777

(3α) 5050·3

10428·0

$t = 15{\cdot}2$

$t = 17{\cdot}9$ $(C_2H_5)_2O$ $n = 1{\cdot}3527$ $d_b = 127{\cdot}9$ $d_j = 127{\cdot}0$

$t = 15{\cdot}8$ Cl_2 $n = 1{\cdot}6308$ $\Delta n = 0{\cdot}2781$ $\frac{6g{\cdot}8}{-58{\cdot}1}$ $\frac{70{\cdot}1}{-56{\cdot}9}$

$\frac{\Delta n}{d_b} = -0{\cdot}004786$ $\frac{\Delta n}{d_j} = -0{\cdot}004887$

Cirkusz felfelé: men. távolsága 3 hőt (2 felé) 4·83
lefelé: " " 3 hőt (4 felé) 1·095
} $t = 17{\cdot}7$

folyt.: 5050·3
4237
5474·0 + men

(0.3) = 5474·0 + men
− 96·3 − men
53777

$1\,(C_2H_5)_2O / 1\,CS_2$ folyhőmérs (corr. nél) $5'059\frac{7}{2}$ gr

118

5071'7 mgr

$t = 17'4$

$d_b = 96'2$ $\quad d_j = 95'4$

$n = 1'5045 \quad 1'5073 \quad = 1'5059$

$m_1 = 80'0$ $\quad m_2 = 246'8$ (asztalról 144'5.)

$z = \begin{cases} 4'110 \\ 4'104 \\ 4'104 \\ 4'102 \\ 4'108 \end{cases}$

4'1056 fok

meniscus távolsága 3 hól (2 felé) 4'82

$z = 2'0528$ mm. $\quad \left(\frac{z}{r}\right) = (0'5893514 - 1)$

$\frac{a}{r} = 0'41256$

$a = (0'3384823) = 2'1802$

$r = (0'7229952)$

$\frac{r}{a} = 2'424$ $\quad \frac{h}{a} = 0'1104$

$N = 57'80$

$V = 10428'0$

$v = 5050'3$
$\quad 422'9$
$\quad 57'8$
$5531'0$

17'5° on $v = 5531'8$ $\quad W = 4896'2$

$t = 60.3$ $\quad d_2 = 102.3$ $\quad d_1 = 105.2$

$n = \left.\begin{matrix} 1.4753 \\ 1.4591 \end{matrix}\right\} 1.4672$

$m_1 = 77.6$ $\quad m_2 = 239.6$ (140.9)

$t = 60.2$ $\quad$ men távol 2ből (3 felé) 11.275

$(t = 60.7°C)$

$\frac{2}{r} = (0.5438777^{-1})$

3.698
3.697
3.701
3.696
3.702
3.6988

$z = 1.8494$ $\quad \frac{a}{r} = 0.36536$

$a = (0.2858742) = 1.9314$

$v = (0.7231582)$

$\frac{r}{a} = 2.737$ $\quad \frac{h}{a} = 0.0731$

$H = 49.55$

men is távol (2 felé) 8.747

$V = 1043.4$ $\quad U = 5055.8$

767.1
496

5873.3

$W = 4566.1$

$t = 99{,}0$ $\quad d_2 = 116{,}3$ $\quad d_1 = 111{,}5$

$$h = \left.\begin{matrix} 1{,}4081 \\ 1{,}4327 \end{matrix}\right\} 1{,}4204$$

$m_1 = 74{,}4$ $\quad m_2 = 232{,}1$ (153)

Mennavol 2-ből (3 felé) 6,83

$$z = \begin{matrix} 3{,}319 \\ 3{,}314 \\ 3{,}313 \\ 3{,}318 \\ 3{,}321 \\ \hline 3{,}3170 \end{matrix} \quad (99{,}7\pm)$$

$z = 1{,}6585$ mm $\quad \frac{z}{r} = (0{,}4964143 - 1)$

$\frac{a}{r} = 0{,}32432$

$a = (0{,}2342749\ \text{mm}) = 1{,}7150$

$(r = 0{,}7233012)$

$\frac{r}{a} = 3{,}083 \quad \frac{h}{a} = 0{,}0461 \quad H = 41{,}92$

Menisms 3-ból (2 felé) 13,199

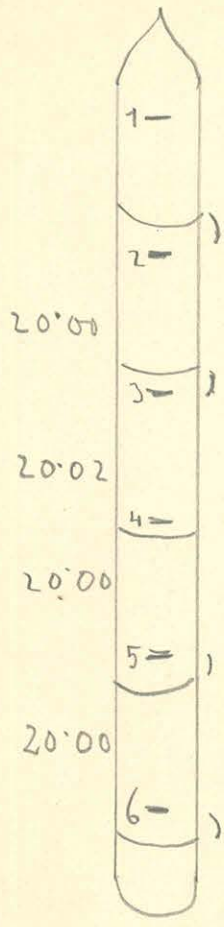
$V = 10450{,}0$

$$\begin{matrix} U = 5061{,}0 \\ 1159{,}6 \\ 41{,}9 \\ \hline 6262{,}5 \end{matrix} \qquad W = 4187{,}5$$

2 cső

$t = 20{\cdot}5$

1 mm nek megf. hőf. v. hőfokot (hiányt)



) 22·75 · (1·9453495) (0·7240998)

) 22·77 · (1·9449679) (0·7239090)

) 22·925 (1·9420246) (0·7224358)

) 22·795 (1·9444913) (0·7236707)

régi pipetta

$t = 18{\cdot}0$ $(C_2H_5)_2O$ $n = 1{\cdot}3526$ $d_b = 118{\cdot}0$ $d_j = 103{\cdot}5$

$t = 17{\cdot}8$ CS_2 $n = 1{\cdot}6292$ $d_b = 66{\cdot}3$ $d_j = 71{\cdot}4$

$\Delta n = 0{\cdot}2766$ $-\ 51{\cdot}7$ $-\ 32{\cdot}1$

$\frac{\Delta n}{d_b} = -0{\cdot}005350$ $\frac{\Delta n}{d_j} = -0{\cdot}008616.$

Cinos felfelé: men. távolsága 2 hőf (3 felé) 5·945
lefelé: men távolsága 5 hőf —— 0.
} $t = 17{\cdot}7$

Igen nagy! Hőmérséklete nem használható!!

$1(C_2H_5)_2O$ / $1\,CS_2$ folyt. tömeg (corr. nélkül) 7·3415 gr

$t = 17{\cdot}4$

$d_b = 89{\cdot}4$ $\quad d_j = 86{\cdot}0$

$n = 1{\cdot}5057$ $\quad 1{\cdot}5035$ $\quad = 1{\cdot}5041$

$h_1 = 168{\cdot}0$ $\quad h_2 = 1821{\cdot}5$

$m_1 = 80{\cdot}0$ $\quad m_2 = 245{\cdot}8$ (asztalról $164{\cdot}6$)

$z = \begin{cases} 4{\cdot}107 \\ 4{\cdot}100 \\ 4{\cdot}098 \\ 4{\cdot}101 \\ 4{\cdot}097 \end{cases}$ $\quad z = 2{\cdot}0503$ mm

$4{\cdot}1006$

meniscus távolsága 2 hól (3 felé) $6{\cdot}00$

$\frac{z}{r} = (0{\cdot}5877176 - 1)$

$\frac{a}{r} = 0{\cdot}41071$

$t = 17{\cdot}4$ $\quad a = (0{\cdot}3376351) = 2{\cdot}1759$

$t = 60{\cdot}3 \qquad \alpha_b = 98{\cdot}6 \qquad \alpha_j = 94{\cdot}5$

$h = \left.\begin{matrix} 1{\cdot}4564 \\ 1{\cdot}4403 \end{matrix}\right\} 1{\cdot}4483 \cdot$

$h_1 = 167{\cdot}7 \; (69{\cdot}4)^{m_1} \qquad h_2 = 1821{\cdot}5 \; (217{\cdot}6)^{m_2}$

$m_1 = 76{\cdot}6 \qquad m_2 = 237{\cdot}0 \; (174{\cdot}4)$

$t = 60{\cdot}3$

mer távol $2'' 6'' (1 \text{ fele}) \; 0{\cdot}07$

$z \left\{ \begin{array}{l} 3{\cdot}701 \\ 3{\cdot}700 \\ 3{\cdot}699 \\ 3{\cdot}706 \\ 3{\cdot}703 \\ \hline 3{\cdot}7018 \end{array} \right. \qquad z = 1{\cdot}8509$

$r' = r(1 + \beta 43)$

$r' = r \underbrace{(1{\cdot}0003655}_{(0{\cdot}0001580)})$

$\frac{z}{r} = (0{\cdot}5431252 - 1)$

$\frac{a}{r} = 0{\cdot}36464$

$a = (0{\cdot}2861227) = 1{\cdot}9325$

* $t = 99{,}4$ $\quad d_2 = 111{,}3$ $\quad d_j = 96{,}7$

$n = \begin{matrix} 1{,}3884 \\ 1{,}4012 \end{matrix} \Big\} \; 1{,}3948$

$m_1 = 75{,}0$ $\quad m_2 = 228{,}1 \; (191{,}1)$

$t = 90{,}0$

men hőv. 2 hőf (1 fele') 7,005

$r' = r(1 + \beta . 83)$

$r' = r . 1{,}00007055$

(0,0003060)

$r' = (0{,}7244058)$

3,287
3,289
3,285
3,274
3,280
3,2850

$z = 1{,}6425$ mm

$\left(\frac{z}{r}\right) = (0{,}4910996 - 1)$; $\frac{a}{r} = 0{,}32019$; $a = (0{,}2298136) = 1{,}6975$

t	a
17,4	2,1759
60,3	1,9325
99,0	1,6975

t	a	a^2
17,5	2,1753	4,7319
60,7	1,9301	3,7252
99,7	1,7018	2,8961

felhasználva a hármas csoportban nyert ismeretet:

$f\lambda^2$ leg:

t			
17,5	39,7669	9,3601	0,217
60,7	30,4068	7,7017	0,197
99,7	22,7051		

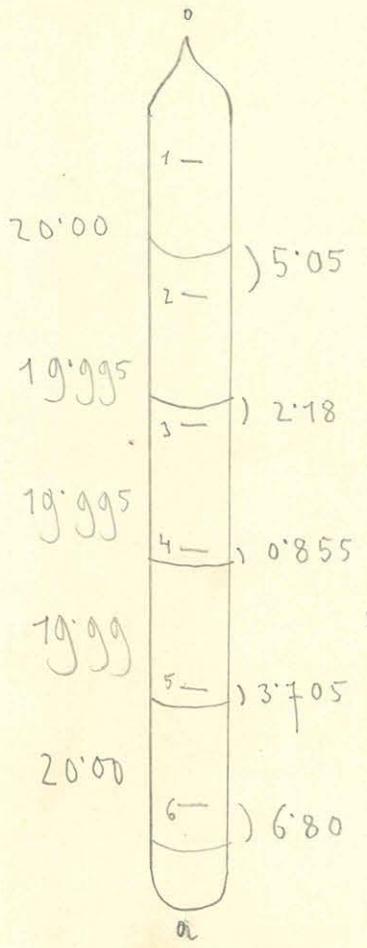
$t = 21{\cdot}6$ / $20{\cdot}5$) $21{\cdot}0$

1 cm"

Régi pipetta.

1 mm nek megfelelő
térfogat
log.

térf:



) 22·865 (1·9431597) (0·7230049) (0 3) 5288·4

) 23·030 (1·9400370) (0·7214436) (4.3) 1741·6

) 22·835 (1·9437299) (0·7232900)

(4.9) 5025·8

) 23·095 (1·9388129) (0·7208315)

12055·8

Kathetometer object – üveg = 705 mm, első cink (az ehhez a vonalig fúrt lyukkal) élesre állítandó. $t = 18{\cdot}7$

5 ik vonal körül:

CS_2 $n = 1{\cdot}6292$ $d_b = 67{\cdot}7$ d.o.r $d_j = 66{\cdot}7$ –

$(C_2H_5)O$ $n = 1{\cdot}3519$ $d_b = 122{\cdot}0$ $d_j = 122{\cdot}0$ – Régi állása a távmérőnek.

$\Delta n = 0{\cdot}2773$ ---- – 54·3 – 55·3

$\frac{\Delta n}{d_b} = -0{\cdot}004486$ $\frac{\Delta n}{d_j} = -0{\cdot}004110$

Cinc felfelé: menis-cus távolsága a 3 tól (4 felé) 10·58
lefelé: " " 4 től (3 felé) 13·595
} $t = 17{\cdot}5$

$a = 2{\cdot}1642$ $\underset{(34)}{u} = \pi a^2 r - \pi r^2 h = 56{\cdot}88$

$\frac{r}{a} = 2{\cdot}433$ $\frac{h}{a} = 0{\cdot}1092$ $h = (0{\cdot}3734799 - 1)$

820·1

fok hőf $= 5025{\cdot}8 + \overbrace{9{\cdot}415(n.1{\cdot}9400370)} + \text{men} = 5845{\cdot}9 + \text{men}.$

$(0.3) = 5845{\cdot}9 - \underbrace{6{\cdot}4(n.1{\cdot}94\ldots)}_{557{\cdot}5} = 5288{\cdot}4$

$1(C_2H_5)_2O$ / $1\,CS_2$ folyt. tömeg (corr. nélkül) 5·4118 gr

Régi keverék.

(agyag 5·4 × 0·00005) kiszk vízből 3

$\left(\left(V\,cm^3 - \frac{5{\cdot}4}{8{\cdot}4}\right) 0{\cdot}0012\right)$ levegő 138

5425·g mgr

Kathetométer 0 nak megfelel hárul: 268·0 mm

$d_s = 91{\cdot}7 \quad d_j = 92{\cdot}6$

$n = 1{\cdot}5288 - 1{\cdot}5227 = 1{\cdot}5257$ (1 hár-csövet hígben elmozdítottam)

$h_1 = 167{\cdot}0 \qquad h_2 = 1820{\cdot}5$

$m_1 = 81{\cdot}4 \qquad m_2 = 250{\cdot}6$ mm (asztalról 131·5)

$t = 17{\cdot}3$ menis-cus távolsága a 4 hól (3 felé) 9·474 mm

$z = 4{\cdot}079$
$4{\cdot}079 \qquad z = 2{\cdot}0390$ mm
$4{\cdot}078$
$4{\cdot}078$
$4{\cdot}076$
$4{\cdot}0780$ ford

$\frac{z}{r} = (0{\cdot}5879736 - 1)$

$\frac{a}{r} = 0{\cdot}4110$

$a = (0{\cdot}3352854) = 2{\cdot}1642$

$t = 17{\cdot}9$

$n = 1{\cdot}4998$ va $m_1 = 79{\cdot}8$ $\qquad m_2 = 247{\cdot}4$ (asztalról 141·2)

Meniscus 3 hól (4 felé) 10·51·

z
$4{\cdot}081$
$4{\cdot}077$
$4{\cdot}078 \qquad 2{\cdot}0382$
$4{\cdot}072$
$4{\cdot}074$
$4{\cdot}0764$

$\frac{z}{r} = (0{\cdot}5878032)$ (−1)

$\frac{a}{r} = 0{\cdot}4108$

$a = (0{\cdot}3350740) = 2{\cdot}1631$

$t = 60{\cdot}3$

$h = 1{\cdot}4606$ (Középértéke a négy mérésnek.)

$m_1 = 77{\cdot}3$ $\qquad$ $m_2 = 23g{\cdot}2$ $(145{\cdot}2)$

Mennyivel több (4 jelé) $6{\cdot}33$

z { $3{\cdot}6g2$, $3{\cdot}700$, $3{\cdot}680$, $3{\cdot}6g2$, $3{\cdot}686$ } $1{\cdot}8450$

$3{\cdot}69o$ $\qquad$ $t = 60{\cdot}7$

$\frac{z}{r} = (0{\cdot}5443g48 - 1)$

$\frac{a}{r} = 0{\cdot}36585$

$a = (0{\cdot}284g047) = 1g271$

$u = 49{\cdot}13$

$V = 1206g{\cdot}1$

$\frac{r}{a} = 2{\cdot}733$ $\qquad$ $\frac{h}{a} = 0{\cdot}0734$ $(0{\cdot}0001580)$

$(1+p43) = 1{\cdot}0003655$

$(1+2p43) = 1{\cdot}0007310$ $(0{\cdot}0003017)$

$(1+3p43) = 1{\cdot}0010g65$ $(0{\cdot}0004731)$

$v = 5031{\cdot}3$
$\quad 1191{\cdot}1$
$\quad 49{\cdot}1$
$\overline{6271{\cdot}5}$

$17{\cdot}3$ $\quad u = 56{\cdot}g$ $\quad v = (a4) + g{\cdot}44\,(n.\,1g400370) + u =$

$= 5025{\cdot}8 + 822{\cdot}3 + 56{\cdot}g = 5g05{\cdot}0$

$17{\cdot}g$ $\quad u = 56{\cdot}g$ $\quad v = 5025{\cdot}8$
$\quad 826{\cdot}2$
$\quad 56{\cdot}g$
$\overline{5g08{\cdot}g}$

$V = 12055{\cdot}8$

$t = 99{,}0$

$n = 1{,}4737$

$m_1 = 74{,}0$ $\qquad$ $m_2 = 230{,}6\ (163{,}8)$

mer. tömör 3 hól (4 fele) 1,80

$z =$ 3,297
3,305
3,301
3,302
3,298
3,3006

$z = 1{,}6503$ mm

$\frac{z}{r} = (0{,}4958133 - 1)$

$\frac{a}{r} = 0{,}32385$

$t = 99{,}7$

$a = (0{,}2320935) = 1{,}7064$

$V = 12081{,}3$

$H = 41{,}4$

$(1 + p\,83) = 1{,}0007055\ (0{,}0003060)$

$(1 + 2p\,83) = 1{,}0014110\ (0{,}0006120)$

$(1 + 3p\,83)\ 1{,}0021165\ (0{,}0009136)$

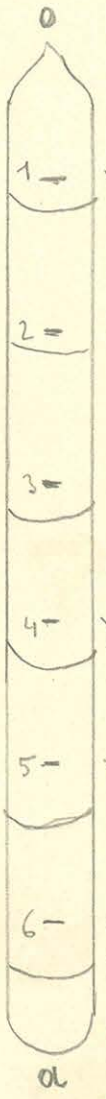
$V = 5036{,}4$
$1588{,}2$
$41{,}4$
$6666{,}0$

$\frac{r}{a} = 3{,}088$ $\qquad$ $\frac{h}{a} = 0{,}0459$

98. mon. 16

4 cm

$t = 16{\cdot}0$
$t = 16{\cdot}9$) $16{\cdot}6$



$14{\cdot}435$

$20{\cdot}02$) $20{\cdot}88$ $(1{\cdot}992968)(0{\cdot}747923^4)$ $(03)5180{\cdot}8$

$5{\cdot}295$

$20{\cdot}02$) $20{\cdot}925$ $(1{\cdot}992068)(0{\cdot}744559)$

$6{\cdot}20$

$20{\cdot}00$) $20{\cdot}80$ $(1{\cdot}994664^0)(0{\cdot}748757^0)(3.4)1972{\cdot}0$

$7{\cdot}00$

$20{\cdot}02$) $20{\cdot}56$ $(1{\cdot}999704^2)(0{\cdot}751277^1)$

$7{\cdot}54$ $(4.a)\ 5755{\cdot}5$

$20{\cdot}00$) $20{\cdot}60$ $12908{\cdot}3$

$8{\cdot}14$

a

$t = 17{\cdot}8$ $(C_2H_5)_2O$ $n = 1{\cdot}3527$ $d_b = 116{\cdot}0$ $d_j = 128{\cdot}8$

$t = 16{\cdot}0$ CS_2 $1{\cdot}6306$ $71{\cdot}0$ $71{\cdot}4$

$\Delta n = 0{\cdot}2779$ $-\ 45{\cdot}0$ $-\ 57{\cdot}4$

$\frac{\Delta n}{d_b} = -0{\cdot}006175$ $\frac{\Delta n}{dj} = -0{\cdot}004841$

Cső felfelé: menisc. távolsága 2 hől (3 felé) 13.66 } $t = 17{\cdot}8$
lefelé: " " 5 hől (4 felé) 8.02 }

folyl. = $5755{\cdot}5$
$1972{\cdot}0$ + men
$624{\cdot}5$
$8352{\cdot}0$

$(0;3) = 8352{\cdot}0$
$-1972{\cdot}0$
$-1199{\cdot}2$
$5180{\cdot}8$

$1\,(C_2H_5)_2O \,/\, 1\,CS_2$ folyhőmérs (corr. nélkül) $7{,}6161$ gr
4

$$\left(V_{cm^3} - \frac{7{,}6}{8{,}4}\right) 0{,}0012 : 144$$

$7630{,}9$ mgr

$t = 17{,}9$

$d_b = 92{,}8 \qquad d_j = 98{,}4$

$n = 1{,}5005 - 1{,}4990 = 1{,}4998$

$m_1 = 79{,}8 \qquad m_2 = \overset{245{,}7}{\underset{\uparrow}{247{,}4}}$ (asztalról 153,6)

Menisc. stól (2 felé) 6,34

Z { 4,111 ; 4,107 ; 4,102 ; 4,104 ; 4,108 } / 4,1064

$Z = 2{,}0532$ mm

$\frac{2}{T} = (0{,}5649754 - 1)$

$\frac{a}{T} = 0{,}3862$

$a = (0{,}3342682) = 2{,}1591$

$t = 17{,}2$

$u = 63{,}02$

$m_1 = 79{,}8 \qquad m_2 = 245{,}7$

$\frac{r}{a} = 2{,}589 \qquad \frac{h}{a} = 0{,}0889$

Z { 4,089 ; 4,090 ; 4,090 ; 4,086 ; 4,095 } / 4,090

$Z = 2{,}0452$ mm.

$V = \begin{array}{r} 8350{,}0 \\ 63{,}0 \\ \hline 8413{,}0 \end{array}$

$t = 60{\cdot}2$ $\quad d_b = 100{\cdot}1$ $\quad d_j = 104{\cdot}8$

$n = \left.\begin{matrix} 1{\cdot}4510 \\ 1{\cdot}4800 \end{matrix}\right\} 1{\cdot}4655$

$m_1 = 77{\cdot}6$ $\quad m_2 = 240{\cdot}0$ $(163{\cdot}0)$.

$t = 60{\cdot}15$ $\quad$ mert lavol 2 hól (3 fele) 8'15

$2 \left\{\begin{matrix} 3{\cdot}683 \\ 3{\cdot}694 \\ 3{\cdot}692 \\ 3{\cdot}689 \\ 3{\cdot}688 \end{matrix}\right.$ $\quad z = 1{\cdot}8446$ mm.

$\frac{2}{r} = (0{\cdot}5182883 - 1)$

$\frac{a}{r} = 0{\cdot}34229$

$a = (0{\cdot}2820087) = 1{\cdot}9143$

$3{\cdot}6892$ $\quad t = 60{\cdot}6$

$H = 53{\cdot}62$

$\frac{r}{a} = 2{\cdot}921$ $\quad \frac{h}{a} = 0{\cdot}0572$

$V = 7735{\cdot}8$
$1166{\cdot}3$
$53{\cdot}6$
89557

$t = 99{\cdot}0$ $\quad d_b = 107{\cdot}0$ $\quad d_j = 112{\cdot}9$

$n = \left.\begin{matrix} 1{\cdot}4082 \\ 1{\cdot}4296 \end{matrix}\right\} 1{\cdot}4169$

$m_1 = 741$ $\quad m_2 = 2315$ $(178{\cdot}7)$

Mer távol 2 tól (3 felé) $1{\cdot}70$

3·293
3·299
3·297
3·309
3·304
3·3004

$z = 1{\cdot}6502$ mm

$t = 99{\cdot}7$

$\frac{z}{r} = (0{\cdot}469\,7747 - 1)$

$\frac{a}{r} = 0{\cdot}30440$

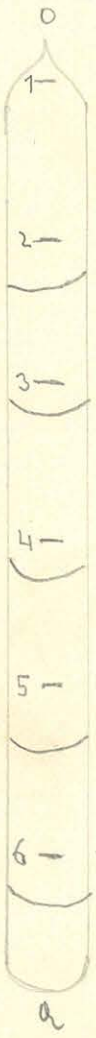
$a = (0{\cdot}2372065) = 1{\cdot}7030$

$n = 47{\cdot}53$

$\frac{R}{r} = 3{\cdot}285$ $\quad \frac{h}{a} = 0{\cdot}0353$

$V = 7743{\cdot}8$
$1801{\cdot}4$
$47{\cdot}5$
$9592{\cdot}7$

nagy mv. 19 $t = 18{\cdot}2 \atop 18{\cdot}4 \Big) 18{\cdot}3$ 8 cm³



2 — 16·62 — 103·298 — 57342 — (0 3) 4882·5

20·01 — 19·89 — (2·0140925) (0·7584713)

3 — 16·50 — 103·091

20·00 — 19·93 — (2·0132200) (0·7580351) (3:4) 2061·8

4 — 6·43 — 102·987

20·00 — 19·95 — (2·0127844) (0·7578173)

5 — 6·38 — (4. a) 5726·5

20·02 — 20·22 — (2·0069461) (0·7548981) — 12670·8

6 — 6·58

$t = 17{\cdot}7$ $(C_2H_5)_2O$ $n = 1{\cdot}3528$ $d_b = 130{\cdot}0$ $d_j = 117{\cdot}7$

$t = 16{\cdot}2$ CS_2 $1{\cdot}6305$ — $\Delta n = 0{\cdot}2777$ — $72{\cdot}5$ — $-57{\cdot}5$ — $71{\cdot}9$ — $-45{\cdot}8$

$\frac{\Delta n}{d_b} = -0{\cdot}004829$ $\frac{\Delta n}{d_j} = -0{\cdot}006063$

Cinc felfelé: men. távolsága 3ról (2 felé): 10·02
lefelé: " " 5ről (4 felé): 1·755 } $t = 16{\cdot}9$

Folyt. = 7788·3 + 1035·0 + men = 8823·3

(03) = 8823·3 − 2061·8 = 6761·5 − 1879·0 = 4882·5

Ujkeverék $1(C_2H_5)_2O / 1CS_2$ folyt tömeg (corr. nél) 8.0719 gr

133

corr = 8085'6

t = 16.6 (vorg < 16.6) ?

$d_b = 97.7$ $d_j = 93.8$

n = 1.5088 — 1.5027 = 1.5058

$m_1 = 80.0$ $m_2 = 246.5$ (154.8)

Mennivol 3 hl (1 fele) 20.02

Z { 4.158 / 4.158 / 4.148 / 4.145 / 4.140 } 4.1488

Z = 2.0744 mm.

$\frac{l}{r} = (0.5584272 - 1)$

$\frac{a}{r} = 0.37954$

$a = (0.3377289) = 2.1764$

j'o

t = 17.1 $m_1 = 80$ $m_2 = 246.5$

Z { 4.128 / 4.118 / 4.126 / 4.122 / 4.121 } 4.1230

Z = 2.0615

$\frac{l}{r} = (0.5557120)$

$\frac{a}{r} = 0.37684$

$a = (0334\,6283) = 2.1609$

u = 65.91

$\frac{r}{a} = 2.653$ $\frac{h}{a} = 0.0816$ $h = 0.1763$

v = 88233 / 65.9 / 8889.2

t = 16.6

$t = 60'3 \qquad d_b = 106'4 \qquad d_j = 100'7$

$$n = \begin{matrix} 1'4668 \\ 1'4559 \end{matrix} \Big\} \; n = 14613$$

$m_1 = 77'3 \qquad m_2 = 239'2 \quad (166'2)$

mea hood 2 hl (3 pte') 4'25.

$$z \begin{cases} 3'717 \\ 3'720 \\ 3'725 \\ 3'720 \\ 3'717 \end{cases} \quad z = 1'8599 \text{ mm}$$

$3'7198$

$t = 60'7$

$\frac{z}{r} = (5'5108603 - 1)$

$\frac{a}{r} = 0'33602$

$a = (0'2849944) = 19275$

$\frac{r}{a} = 2'976 \qquad \frac{h}{a} = 0'0532$

$H = 56'33$

$V = 7796'2$
$1629'2$
$56'3$

$9481'7$

$t = 99{\cdot}0$ $\quad d_\beta = 112{\cdot}3$ $\quad \alpha_j = 108{\cdot}7$

$n = \left.\begin{matrix} 1{\cdot}43\,82 \\ 1{\cdot}40\,73 \end{matrix}\right\} 1{\cdot}4227$

$m_1 = 74{\cdot}4$ $\quad m_2 = 232{\cdot}1\ (184{\cdot}8)$

Men. hővol 2hől (1.felé) 2·25

$z = 3{\cdot}297$
$3{\cdot}290$
$3{\cdot}296$
$3{\cdot}297$
$3{\cdot}295$
$3{\cdot}2950$

$z = 1{\cdot}6475$ mm $\quad \frac{z}{r} = (0{\cdot}4588481-1)$

$t = 99{\cdot}7$ $\quad \frac{a}{r} = 0{\cdot}29628$

$a = (0{\cdot}2304796) = 1{\cdot}7001$

$\frac{r}{a} = 3{\cdot}375$ $\quad \frac{h}{a} = 0{\cdot}0335$

$u = 46{\cdot}20$

$V = 78048$
$2302{\cdot}6$
$46{\cdot}2$
$\overline{101536}$

$1\,(C_2H_5)_2O \,/\, \frac{1}{4}\,(C_6H_5)_2NH$

g. cső:

$p_3 = 5791.8$

$t = 23.5$	$a = 2.2098$	$v = 6991.0$	$V = 10695.6$		$n = 1.4920\ (t = 23.5°)$
$t = 60.8$	$a = 2.0028$	$v = 7322.1$	$V = 10706.5$	(3)	$n = 1.4592$
$t = 99.9$	$a = 1.7826$	$v = 7726.7$	$V = 10717.4$		$n = 1.4329$

10 cső:

$p_2 = 5480.6$

$t = 23.5$	$a = 2.2105$	$v = 6646.3$	$V = 10825.3$		$n = 1.4904\ (t = 23.7)$
$t = 60.8$	$a = 2.0175$	$v = 6954.1$	$V = 10836.3$	(2)	$n = 1.4703$
$t = 99.9$	$a = 1.7880$	$v = 7318.5$	$V = 10847.3$		$n = 1.4323$

11 cső:

$p_1 = 4607.2$

$t = 23.5$	$a = 2.2246$	$v = 5576.6$	$V = 12219.3$		$n = 1.4802\ (t = 23.7)$
$t = 60.8$	$a = 2.0080$	$v = 5810.0$	$V = 12231.8$	(1)	$n = 1.4562$
$t = 99.9$	$a = 1.7997$	$v = 6076.6$	$V = 12244.2$		$n = 1.4222$

$t = 23.5°C$

$a = (2.2246)$	$n = 1.4803$	$V_1 = 5576.6$	$V_2 = 6646.3$	$V_3 = 6991.0$
2.2105	1.4905			
2.2098	1.4920	$W_1 = 6642.7$	$W_2 = 4179.0$	$W_3 = 3704.6$
2.2149	1.4876			

$t = 60.8°C$

$a = (2.0080)$	$n = 1.4562$	$V_1 = 5810.0$	$V_2 = 6954.1$	$V_3 = 7322.1$
2.0175	1.4703			
2.0028	1.4592	$W_1 = 6421.8$	$W_2 = 3882.2$	$W_3 = 3384.4$
2.0094	1.4619			

$t = 99.9°C$

$a = (1.7997)$	$n = 1.4222$	$V_1 = 6076.6$	$V_2 = 7318.5$	$V_3 = 7726.7$
1.7880	1.4323			
1.7826	1.4329	$W_1 = 6167.6$	$W_2 = 3528.8$	$W_3 = 2990.7$
1.7901	1.4291			

$p_1 = 4607.2$ $\quad p_2 = 5480.6$ $\quad p_3 = 5791.8$

$t = 23.5$

$a^2 = 4.9058$

$f = \frac{a^2}{2}(s-\sigma) =$
$= 2.0199 6$

$s = 0.8229$
0.8303
0.8266

$\sigma = 0.0028$
0.0034
0.0031

$s - \sigma = 0.8235$

$B = 0.8395$
$= 1.5904$
1.8871
$4.3170 : 3 = 1.4390$

$\frac{s}{\sigma} = 266.64$ $A = 383.69$

$k' = 0.25100$

$t = 60.8$

$a^2 = 4.0377$

$s = 0.7831$
0.7895
0.7863

$\sigma = 0.0089$
$= 0.0031$
0.0060

$f = 1.57531$

$s - \sigma = 0.7803$

$B = 0.9047$
1.7913
2.1635
$4.8595 : 3 = 1.6198$

$\frac{s}{\sigma} = 130.05$ $A = 210.65$

$k' = 0.25184$

$t = 99.9$

$a^2 = 3.2045$

$s = 0.7404$
0.7443
0.7423

$\sigma = 0.0175$
$= 0.0137$
0.0156

$f = 1.16436$

$s - \sigma = 0.7267$

$B = 0.9852$
2.0739
2.5836
$5.6427 : 3 = 1.8809$

$\frac{s}{\sigma} = 47.583$ $A = 89.499$

$k' = 0.25442$

Diph. am. molekulasuly $(O = 16)$ 16.11

$\mu = 74.044$
$x = 169.11$ $\quad k = \frac{1}{4} = 025 \mid c = 0.5709$ $\quad \frac{\mu}{x} = 0.4379$

$k = 0.25 \quad \mu_0 = 93.056$

$k = 0.25100 \quad \mu_0 = 93.118$

$k = 0.25184 \quad \mu_0 = 93.168$

$k = 0.25442 \quad \mu_0 = 93.325$

$k = 0.25142 \quad \mu_0 = 93.144$ ②

†. $k = 0.25313 \quad \mu_0 = 93.246$

Közép keverési viszonyokat véve (†)

mol. tér hibásan van számítva!!!

$t = 23.5$

$\lambda^2 = \left(\frac{\mu}{\lambda}\right)^{\frac{2}{3}} = 23.329$ $\quad f\lambda^2$

37.3

47.12365 } 9.12717 $\mid k_c = \underline{0.245}$

$t = 60.8 \quad \lambda^2 = 24.120$
$\qquad\qquad 24.138$

37.99648
38.02483 } 8.81919 $\mid k_c = \underline{0.226}$

39.1

$t = 99.9 \quad \lambda^2 = 25.083$

29.20564

$k = \begin{matrix} 0.245 \\ 0.226 \end{matrix}\Big\}\ 0.235(5)$

Sajat keverési viszonyokat vesz:

(Gyökvonásnál a viszonyszám fele illetve 3adra hatványozásnál 2szerese illetve szorzom veendő! pl:

$a' = a(1 + 0.00025)$
$a'^2 = a^2(1 + 0.00050)$
$\sqrt{a'} = \sqrt{a}(1 + 0.00012)$ ††)

$t = 23.5 \quad f\lambda^2 = 47.1147$) $9.1118 \quad k = 0.244$
$t = 60.8 \quad - \quad 38.0029$) $8.7806 \quad k = 0.225$
$t = 99.9 \quad - \quad 29.2225$

Keverési viszonycorrectio nélkül $k = 0.25$

$t = 23.5 \quad f\lambda^2 = 47.0939$) $9.1211 \quad k = 0.244$
$t = 60.8 \quad 37.9728$) $8.8069 \quad k = 0.225$
$t = 99.9 \quad 29.1659$

$k = 0.234(5)$
c

11 cm a kihagyva:

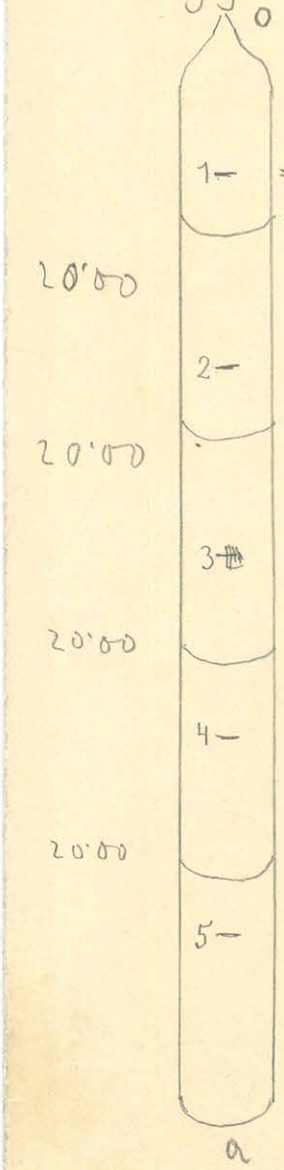
$k = 0{\cdot}25 \qquad \mu = 93{\cdot}056$

a	a^2	f	λ^3	λ^2	$f\lambda^2$		
2·2101	4·8845	2·0112	112·577	23·315	46·891	8·892	0·238
2·0101	4·0405	1·5764	118·347	24·105	37·999	8·991	0·230
1·7853	3·1873	1·1581	125·362	25·048	29·008		

0·234

g. cső. (vegyes 2-2 pipetta)

$t = 20{,}1$
$19{,}9$ } $20{,}0$
0



20,00
20,00
20,00
20,00

) 5,22
) 11,34
) 7,79
) 4,40

1 mm nek megfelelő térfogat

r^2 és r

) 23,44 87,6535 { 27,9009 (02) 3836,9 / 5,2821

) 23,55 87,2441 { 27,7706 (3,2) 1748,4 / 5,2698

) 23,39 87,8409 { 27,9606 (a3) 5110,3 / 5,2878

$a\sqrt{} = 1069{,}6$

4 vonalnál: (kéjejnö vonal felezi ajelt)

$t = 21{,}9$	$(C_2H_5)_2O$	$n = 1{,}3504$	$d_f = 110{,}8$	$d_j = 107{,}9$
$t = 21{,}7$	CS_2	$n = 1{,}6260$	$d_f = 63{,}5$	$d_j = 63{,}2$
$\Delta n = 0{,}2756$			47,3	44,7

$\frac{\Delta n}{\Delta d_f} = -0{,}005826$ $\frac{\Delta n}{\Delta d_j} = -0{,}006165$

Cucs felfelé ; meniscus távolsága 2-től (1 felé) 1,02
lefelé " " " 4-től (3 felé) 4,38
} $t = 24{,}8$ °C

($n = 58{,}43$ (interpolálva) Nem kell)

folyékony: 5110,3
1748,4
89,4
6948,1 +men

(02) 6948,1 +men
− 3111,2 { 1748,4 / 1362,8 +men } 3111,2
3836,9

$1(C_2H_5)_2O$ / $\frac{1}{4}(C_6H_5)_2NH$ folytomeg (corr. nélkül) 5·7795

120

5·7918 gr

$t = 23{,}5°$

$d_b = 85{,}9$ $d_f = 85{,}5$

$n = 1{,}4955$ $n = 1{,}4886$ } $1{,}4920$

$m_1 = 78{,}9$ $m_2 = 244{,}2$ (argoltóc 192·8 mm)

$t = 23{,}5°$

meniscus 2 hőf (1 felé) 0·84 mm

$z = 4{,}164$
$4{,}150$
$4{,}148$
$4{,}146$
$4{,}151$

$4{,}1518$ } $z = 2{,}0759$ mm.

$r = 5{,}2821$ $r^2 = 27{,}9009$

$\frac{z}{r} = 0{,}39301$

$\frac{a}{r} = 0{,}41835$ $\frac{r}{a} = 2{,}3920$

$\frac{h}{a} = 0{,}1155$

$a = 2{,}2098$

$a^2 = 4{,}8832$ $h = 0{,}2552$

$u = \pi(a^2 r - r^2 h) = 58{,}66$

$V = 1069{,}6$ $v = 5110{,}3$) 6858·7
$1748{,}4$
$73{,}6$
$58{,}7$

6991·0

$t = 60{\cdot}8$

$d_\delta = 94{\cdot}2$ $\quad d_\gamma = 88{\cdot}3$

$n = 1{\cdot}44\,71$ $\quad 1{\cdot}47\,13$ $\}$ $1{\cdot}45\,92$

$m_1 = 76{\cdot}8$ $\quad m_2 = 238{\cdot}8$ (asphtlol $201{\cdot}3$)

$t = 60{\cdot}8$

Meniscus 2 Hol (1 felé) $4{\cdot}61$ mm.

$z = 3{\cdot}819$
$3{\cdot}818$
$3{\cdot}819$ $\quad z = 1{\cdot}903$ mm
$3{\cdot}815$
$3{\cdot}822$
$3{\cdot}8186$

$r = 5{\cdot}2838$ $\quad r^2 = 27{\cdot}9185$

$\frac{z}{r} = 0{\cdot}36135$

$\frac{a}{r} = 0{\cdot}37904$ $\quad \frac{r}{a} = 2{\cdot}638$

$a = 2{\cdot}0028$ $\quad \frac{h}{a} = 0{\cdot}0832$

$\beta{\cdot}40{\cdot}8 = 0{\cdot}000349$ $\quad a^2 = 4{\cdot}0112$ $\quad h = 0{\cdot}1666$

$H = 51{\cdot}97$

$V' = V(1 + 3\beta{\cdot}40) = V\,1{\cdot}00102 = 1070{\cdot}65$

$(1 + 3\beta 40) = 1{\cdot}00102$ | $(1 + \beta 40) = 1{\cdot}00034$! ! !
$(1 + 2\beta 40) = 1{\cdot}00068$ |

$V = 6865{\cdot}7$
$404{\cdot}4$
$52{\cdot}0$
$7322{\cdot}1$

$t = 99.9°$

$d_b = 98.1$ $\quad d_j = 93.1$

$h = 1.4243 \quad 1.4416 \;\}\; 1432\,g$

$m_1 = 75.5$ $\quad m_2 = 234.3$

$t = 99.9°$

$z = 3.442$
3.438
3.441 $\quad z = 1.7196$ mm
3.437
3.438

$3.4392\,f$

$\beta \cdot 79.8 = 0.000678$

$n = 44.32$

$V' = V(1+3\beta.80) = 9V\,1.00204 = 10717.4$

$(1+3\beta 80) = 1.00204$
$(1+2\beta 80) = 1.00136$

$(1+\beta 80) = 1.00068$!!

$V = 6872.7$
809.7
44.3

7726.7

menisens 2 hől (1 felé): 9.225.

$r = 5.2856$ $\quad r^2 = 27.9376$

$\frac{z}{r} = 0.32534$

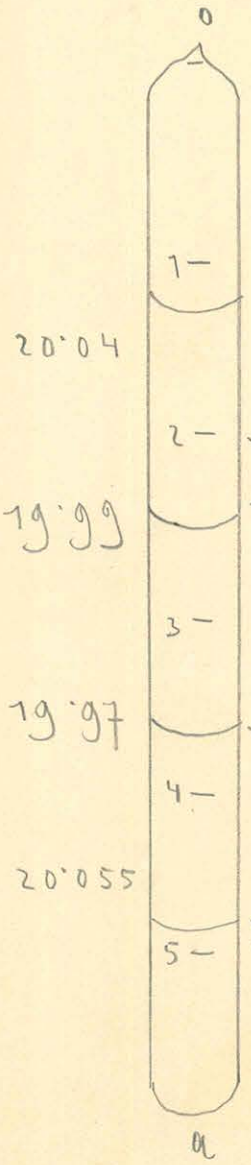
$\frac{a}{r} = 0.33726$ $\quad \frac{r}{a} = 2.965$

$a = 1.7826$ $\quad \frac{h}{a} = 0.0540$

$a^2 = 3.1777$ $\quad h = 0.09626$

10. cső.

$t = 20{\cdot}0$



)5·04

20·04

)24·04

85·4659 { 27·2046 / 52158 (02) 3951·7

)9·04

19·99

)23·96

85·7512 { 27·2954 / 5·2245 (32) 1711·6

19·97

)6·96

)23·950

85·7870 { 27·3084 / 5·2256 (03) 5162·0

20·055

)3·065

$\sqrt{} = 10825{\cdot}3$

Immerk mérő·lép r²és r

4ik vonalnak rend.

$t = 21{\cdot}8$ $(C_2H_5)_2O$ $= n = 1{\cdot}3505$ $d_f = 111{\cdot}5$ $d_j = 103{\cdot}7$

$t = 21{\cdot}7$ CS_2 $n = 1{\cdot}6260$ $d_f = 61{\cdot}7$ $d_j = 61{\cdot}3$

$\Delta n = 0{\cdot}2755$ 49·8 42·4

$\frac{\Delta n}{\Delta d_f} = -0{\cdot}005532$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}006497$

Cucc felfelé: menisc csúcs távolsága 2ik ⌀ól (3 felé) 3·165
lefelé: " " 4ik ⌀ól (3 felé) 9·01
} $t = 24{\cdot}9$

($n = 57{\cdot}15$ (interp) Nem kell)

folyt ⌀ = 6873·6 − 270·5 = 66031 + men

(0:2) 66031 + men − 26514 { 1711·6 / 939·8 + men } = 39517

$1\,(C_2H_5)_2O \Big/ \frac{1}{4}\,(C_6H_5)_2WH$ fok. (corr nélkül) 5·4681

3

122

5·4806

$t = 23{\cdot}7$

$d_b = 88{\cdot}4$ $d_j = 80{\cdot}3$ Kissé elbolttam a csövet.

$n = 1{\cdot}47783$ $1{\cdot}5026$ } $1{\cdot}4904$

$m_1 = 78{\cdot}8$ $m_2 = 244{\cdot}0$ (asztalról $190{\cdot}9$)

$t = 23{\cdot}5$

meniscus 2 fok (3 felé) 3·33 mm

$r = 5{\cdot}2158$ $r^2 = 27{\cdot}2046$

$z = 4{\cdot}144$

$4{\cdot}151$

$4{\cdot}139$ $z = 2{\cdot}0721$ mm

$4{\cdot}146$

$4{\cdot}141$

$4{\cdot}1442$ ∫

$\frac{z}{r} = 0{\cdot}39727$

$\frac{a}{r} = 0{\cdot}42381$

$a = 2{\cdot}2105$

$a^2 = 4{\cdot}8863$

$\frac{r}{a} = 2{\cdot}359$

$\frac{h}{a} = 0{\cdot}1203$

$h = 0{\cdot}265$

$M = 57{\cdot}34$

$V = 10825{\cdot}3$

$v = 6873{\cdot}6$

$-284{\cdot}6$

$6589{\cdot}0$

$57{\cdot}3$

$6646{\cdot}3$

$t = 60{\cdot}8$

$d_g = 89{\cdot}8$ $\quad d_j = 85{\cdot}3$

$n = 1{\cdot}4706$ $\quad 14701$ $\}\ 1{\cdot}4703$

$m_1 = 77{\cdot}6$ $\quad m_2 = 240{\cdot}7$ (asphaltól $197{\cdot}0$)

$t = 60{\cdot}8$

meniscus korrekció 2 hőf (1 felé) $0{\cdot}26$

$z = 3{\cdot}841$
$3{\cdot}830$
$3{\cdot}840$ $\quad z = 1{\cdot}9182$ mm.
$3{\cdot}831$
$3{\cdot}840$
$3{\cdot}83641$

$r = 5{\cdot}2175$ $\quad r^2 = 27{\cdot}2223$

$\frac{z}{r} = 0{\cdot}36765$

$\frac{a}{r} = 0{\cdot}38668$ $\quad \frac{r}{a} = 2{\cdot}586$

$a = 2{\cdot}0175$ $\quad \frac{h}{a} = 0{\cdot}0891$

$a^2 = 4{\cdot}0703$ $\quad h = 0{\cdot}1797$

$u = 51{\cdot}34$

$V = 10836{\cdot}3$

$v = 6880{\cdot}6$
$22{\cdot}2$
$51{\cdot}3$
$6954{\cdot}1$

$t = 99.9$

$d_b = 97.3$ $\quad d_j = 90.6$

$n = 1.42900$ $\quad 1.4356 \} 1.4323$

$m_1 = 75.5$ $\quad m_2 = 234.3$ (ampolla 206.2)

$t = 99.9$

meniscus 24ol (1 gelé) 4.525

$z = 3.443$
3.447
3.451
3.441
3.446
$\overline{3.4456}$

$z = 1.7228$ mm

$r = 5.2192$ $\quad r^2 = 27.2400$

$\frac{z}{r} = 0.33009$

$\frac{a}{r} = 0.34259$ $\quad \frac{r}{a} = 2.919$

$a = 1.7880$ $\quad \frac{h}{a} = 0.0573$

$a^2 = 3.1969$ $\quad h = 0.10245$

$u = 43.66$

$V = 10847.3$

$v = 6887.6$
387.2
43.7
$\overline{7318.5}$

11 cm³ $t = 19.5$ } 19.6
19.7

1 mm mélység r^2 és r

20.00	) 5.935	) 21.185	96.9837	30.8708 / 5.5562	(0;2) 4646.9
20.00	) 4.75	) 21.275	96.5734	30.7402 / 5.5444	(2 3) 1937.7
20.00	) 3.475	) 21.285	96.5281	30.7258 / 5.5431	(3 a) 5634.7
20.01	) 2.20				

$\sum = 12219.3$

4 in von.

$t = 21.8$ $(C_2H_5)_2O$ $n = 1.3505$ $d_b = 118.5$ $d_j = 122.9$

$t = 21.8$ CS_2 $n = 1.6260$ $d_b = 67.0$ $d_j = 67.7$

$\Delta n = 0.2755$ 51.5 55.2

$\frac{\Delta n}{\Delta d_b} = -0.00534$9 $\frac{\Delta n}{\Delta d_j} = -0.004990$

Cmes felfelé meniscus távolsága 3-ból (4 felé) 1.20
lefelé " " 3-ból (2 felé) 11.01
} $t = 24.9$

($n = 64.35$ (int p) Nem kell!)

folyt. ker. = 5634.7
− 115.9
5518.8 + men

(0;2) = 5518.8 + men
− 871.9 − men
4646.9

$1\,(C_2H_5)_2O \,/\, \frac{1}{4}(C_6H_5)_2NH$ | folyt. kön (corr nélkül) 4'5930

42
140

4'6072 gr

$t = 23'7°$

$d_8 = 94'2$ $\quad d_j = 97'0$

$n = 1'4806$ $\quad 1'4798 \} 1'4802$

$m_1 = 78'2$ $\quad m_2 = 242'3$ (asphalttal 173'7)

$t = 23'5°C$

meniscus 3 kal (4 felé) 1'27 mm.

$r = 5'5444$ $\quad r^2 = 30'7402$

$z = 4'208$
$4'203$
$4'213$
$4'205$
$4'211$
$4'2080$ f

$z = 2'1040$ mm

$\frac{z}{r} = 0'37948$

$\frac{a}{r} = 0'40125$ $\quad \frac{r}{a} = 2'492$

$\frac{h}{a} = 0'1009$

$a = 2'2246$

$h = 0'2245$

$a^2 = 4'9488$

$H = 64'51$

$V = 12219'3$

$V = 56347$
$-122'6$
55121
$64'5$
55766

$t = 60{\cdot}8°C$

$d_\delta = 100{\cdot}1 \quad d_\gamma = 100{\cdot}3$

$n = 1{\cdot}4490 \quad 1{\cdot}4634 \} 1{\cdot}4562$

$m_1 = 76{\cdot}7 \quad m_2 = 238{\cdot}3$ (azokból 179·8)

$t = 60{\cdot}8°$

$z = 3{\cdot}853$
$3{\cdot}851$
$3{\cdot}848$
$3{\cdot}850$
$3{\cdot}845$
$\overline{3{\cdot}8494}$ $z = 1{\cdot}9247^{m/m}$

Menisens 3 hól (2 felé) 1·17mm

$r = 5{\cdot}5462 \quad r^2 = 30{\cdot}7603$

$\frac{z}{r} = 0{\cdot}34703$

$\frac{a}{r} = 0{\cdot}36205 \quad \frac{r}{a} = 2{\cdot}762$

$a = 2{\cdot}0080 \quad \frac{h}{a} = 0{\cdot}0707$

$a^2 = 4{\cdot}0321 \quad h = 0{\cdot}1420$

$n = 56{\cdot}53$

$V = 12231{\cdot}8$

$V = 5640{\cdot}4$
$113{\cdot}1$
$56{\cdot}5$
$\overline{5810{\cdot}0}$

$t = 99.9°C$

$d_b = 108.0$ $\quad d_j = 105.4$

$n = 1.4067$ $\quad 1.4378$ } 1.4222

$m_1 = 74.5$ $\quad m_2 = 232.7$ (asphaltból $186.g$)

maniculus 3 tol (2 felé) 3.95

$t = 99.9°C$ $\quad r = 5.5481$ $\quad r^2 = 30.7814$

$z = 3.484$
3.478
3.481 $\quad z = 1.7404\,mm$
3.480
3.481

$3.4808\,f$

$\frac{z}{r} = 0.3136\,g$

$\frac{a}{r} = 0.3243\,g$ $\quad \frac{r}{a} = 3.083$

$a = 1.7997$ $\quad \frac{h}{a} = 0.0461$

$a^2 = 3.2388\,g$ $\quad h = 0.08297$

$n = 48.43$

$\sqrt{} = 12244.2$

$v = 5646.2$
382.0
48.4

6076.6

1. $(C_2H_5)_2O$ / $\frac{1}{2}CS_2$

5 cm"

$p = 5295.4$

$t = 17.9$	$a = 2.1913$	$v = 6377.9$	$V = 9481.9$ a)
$t = 60.3$	$a = 1.9260$	$v = 6813.6$	$V = 9492.1$ b)
$t = 99.15$	$a = 1.6780$	$v = 7338.4$	$V = 9500.5$ c)

a) $n = 1.4462$

b) $n = 1.4001$

c) $n = 1.3420$

2.

6 cm"

$p = 4508.0$

$t = 18.2$	$a = 2.1868$	$v = 5443.9$	$V = 11172.4$
$t = 60.4$	$a = 1.9312$	$v = 5790.8$	$V = 11184.4$
$t = 99.1$	$a = 1.6899$	$v = 6174.6$	$V = 11194.4$

1.

Nas: $n = 1.4456$

$n = 1.4078$

$n = 1.3472$

7 cm"

$p = 5417.9$

$t = 18.2$	$a = 2.1927$	$v = 6536.5$	$V = 10074.7$
$t = 60.4$	$a = 1.9322$	$v = 6981.5$	$V = 10085.5$
$t = 99.2$	$a = 1.6868$	$v = 7507.8$	$V = 10094.5$

3.

Interpolálva: $n = 1.4529$

$n = 1.4105$

$n = 1.3503$

$p_1 = 4508.0$ $p_2 = 5295.4$ $p_3 = 5417.9$

$t = 18.2$ $v_1 = 5443.9$ $v_2 = 6380.3$ $v_3 = 6536.5$

$a =$ 2.1868
2.1901
2.1927
2.1899

$w_1 = 5728.5$ $w_2 = 3101.6$ $w_3 = 3538.2$

$n =$ 18.2
1.4456
1.4458
1.4529
1.4481

$t = 60.4$

$a =$ 1.9312 $v_1 = 5790.8$ $v_2 = 6816.0$ $v_3 = 6981.5$
1.9322
1.9254
1.9299

$w_1 = 5393.6$ $w_2 = 2676.1$ $w_3 = 3104.0$

$n =$ 1.4078
1.4000
1.4105
1.4061

$t = 99.1$

$a =$ 1.6899
1.6777
1.6862
1.6846

$v_1 = 6174.6$ $v_2 = 7339.0$ $v_3 = 7506.6$

$w_1 = 5019.8$ $w_2 = 2161.5$ $w_3 = 2587.9$

$(C_2H_5)_2O = 74.044$
$\frac{1}{2}\ CS_2 = 38.064$
$112.108 : 1+\frac{1}{2} = 74.738$

$n =$ 1.3472
1.3421
1.3501
1.3465

$t = 18'2$

$a^2 = 41'495\,1$

$\lambda = 0'831\,6$

$\sigma = -0'003\,4$

$\lambda = 0'829\,1$

$\sigma = -0'030\,8$

$\lambda = 0'830\,6$

$\sigma = -0'030\,20$

$\left(\frac{\mu}{\lambda}\right)^{\frac{2}{3}} ; \lambda = \left(\frac{\mu}{\lambda}\right)^{\frac{2}{3}} =$

$= 20'080$

$(\lambda - \sigma) = 0'832\,6$

$f = \frac{a^2}{2}(\lambda - \sigma)$

$= 1'996\,40$

$(\sigma = 0'1\%) \; 1'992\,6$

$t = 99'1$

$a^2 = 2'83\,18$

$f = 0'997\,81$

$\lambda = 0'766$

$\sigma = 0'076\,4$

$0'175\,6$

$0'0178$

$0'716\,1$

$\sigma = 0'017\,1$

$(\lambda - \sigma) = 0'699\,0$

$\lambda^2 = 22'76\,1$

$t = 66'4$

$a^2 = 3'12\,45$

$f = 1'435\,38$

$\lambda = 0'731\,5$

$\sigma = 0'062\,9$

$0'731\,8$

$0'005\,0$

$0'714\,8$

$0'062\,40$

$(\lambda - \sigma) = 0'708$

$\lambda^2 = 21'033$

$f.\lambda^2$

18·2	40·08771	)	9·89737	0·234	) 0·222
42·2					
60·4	30·1903 4	)	8·20489	0·211	
38·7					
99·1	21·98545				

$k = 0{\cdot}222$

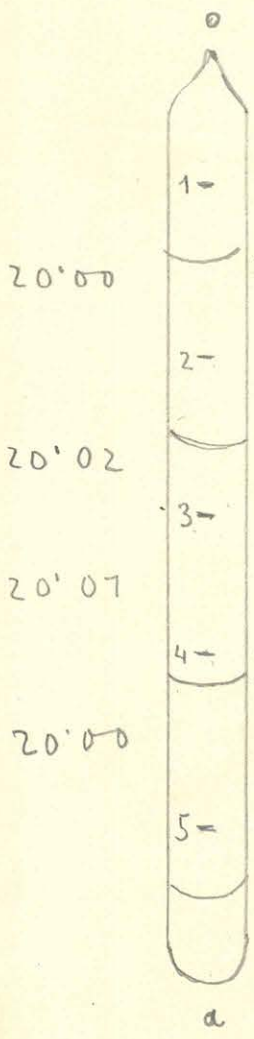
λ^3	λ^2	f				
89·9807	20·080	1·9916	39·991	) 9·801	0·232	) 0·222
96·4610	21·033	1·4354	30·190	) 8·205	0·211	
104·3681	22·167	0·9918	21·985			

a	a^2
2·1899	4·7957

gőmv. 17.

5 cm³

t = 17·4
17·6) 17·5



20·00) 11·43
20·02) 5·51
20·07) 0·275
20·00) 5·53

1 mm nek megfelelő ν
ref.

(20) 3256·0

) 25·94 (1·8987573)(0·7008037)
79·2058 5·021 (3:2) 1588·2

) 25·795 (1·9011918)(0·7020209) (43) 1593·8
79·6571 5·035

) 25·255 (1·9103799)(0·7066150) (4a) = 3043·9
81·3542 5·089

ν = 9481·9

t = 17·8 $(C_2H_5)_2O$ n = 1·3527 d_g = 111·4 d_j = 109·5
t = 16·2 CS_2 1·6305 64·4 65·1
Δn = 0·2778 −47·0 44·4

$\frac{\Delta n}{d_g} = -0{\cdot}0059711$ $\frac{\Delta n}{d_j} = -0{\cdot}0062577$

Cincs felfelé : menis-cus távolsága 2·ről (1 felé) 1·30
4 ről (3 felé) 1·37 } t = 17·9
lefelé : " "

menis cus kép: ~~[illegible]~~ A calibráló alkohol men. kép. n = külön lapon.

~~[illegible]~~

a = 2·1913 $\frac{r}{a}$ = 2·2967 $\frac{h}{h}$ = 0·1308 N = 53·05

folyk ép = 1588·2
1593·8
3043·9
6225·9

6225·9
103·0
6328·9 + men

(02) = 6328·9 − 1588·2 − 1593·8 + 109·1
= 3256·0 3182·0

1 $(C_2H_5)_2O$ / $\frac{1}{2}$ CS_2 folyt. kön. (corr. nélkül) 5'2845 gr

(5'2 . 0'00005) Karoly vny! 3

$\left(\left(V\,cm^3 - \frac{5'2}{8'4}\right)0'0012\right)$ levegő: 106

5'2954 mgr

$t = 17'9$

$d_b = 96'0$ $d_j = 94'2$

$n = 1'4442 - 1'4482 = 1'4462$

$m_1 = 76'3$ $m_2 = 236'6$ (aztalból 177'1)

meniscus távol 2 ből (1 felé) 1'25.

$t = 17'9$

$\frac{z}{r} = (0'6087200 - 1)$

2 { 4'088 / 4'078 / 4'073 / 4'078 / 4'078 } $z = 2'0395$ mm

$\frac{a}{r} = 0'4354$

$a = (0'3396921) = 2'1913$

$n = 53'05$

$V = 6225'9$
$99'0$
$53'0$
$6377'9$

$t = 60.3$ $\quad d_g = 103.5$ $\quad d_j = 101.8$

$n = \left.\begin{matrix} 1.3994 \\ 1.4008 \end{matrix}\right\} 1.4001$

$m_1 = 73.6$ $\quad m_2 = 228.7 (168.5)$

men. távol. 1hl (2 felé) 13.24

$z = \begin{matrix} 3.663 \\ 3.667 \\ 3.671 \\ 3.671 \\ 3.661 \\ \hline 3.6666 \end{matrix}$ $\quad z = 1.8333$ mm.

$\frac{z}{r} = (0.56227 18 - 1)$

$\frac{a}{r} = 0.38343$

$a = (0.2846478) = 1.9260$

$\beta = 0.0000085$

$V' = V(1 + 3\beta 42) = V \cdot 1.0010710 = 9492.1$

$n = 45.29$

$\frac{r}{a} = 2.608$ $\quad \frac{h}{a} = 0.0866$

1.001071 ~~1.00065~~

$V = V_{(a.2)}(1 + 3\beta 42) + (6.76 \cdot 79.2058.)(1 + 2\beta 42) + \text{men.}$

$V = \begin{matrix} 62326 \\ 535.7 \\ 45.3 \\ \hline 68136 \end{matrix}$

$t = 99{\cdot}2$ $\quad d_b = 114{\cdot}3$ $\quad d_j = 110{\cdot}2$

$n = \begin{matrix} 1{\cdot}3356 \\ 1{\cdot}3484 \end{matrix}\Big) 1{\cdot}3420$

$m_1 = 69{\cdot}9$ $\quad m_2 = 279{\cdot}5$

$t = 99{\cdot}15$

men. távol. 1 hőf (2 pelé) 6·615

$z = \begin{matrix} 3{\cdot}237 \\ 3{\cdot}235 \\ 3{\cdot}244 \\ 3{\cdot}238 \\ 3{\cdot}245 \end{matrix}$ $\quad z = 1{\cdot}6199$ mm

$\frac{z}{r} = (0{\cdot}5083785 - 1)$

$\frac{a}{r} = 0{\cdot}33396$

$3{\cdot}2398$

$a = (0{\cdot}2248042) = 1{\cdot}6780$

$u = 37{\cdot}57$

$\beta 81 = 0{\cdot}0006885$
$2\ \ " = 0{\cdot}0012770$
$3\ \ " = 0{\cdot}0019655$

$\frac{r}{a} = 2{\cdot}994$ $\quad \frac{h}{a} = 0{\cdot}0518$

$V = 9500{\cdot}5$

$V = \begin{matrix} 6238{\cdot}1 \\ 1062{\cdot}7 \\ 37{\cdot}6 \end{matrix}$

$7338{\cdot}4$

gőz nov. 28

6 40"

$t = 17{\cdot}8$
$t = 18{\cdot}0$) 17.9

) 2·54

) 21·925 (1·971787) (0·7373189) (02) 4105·9
20·00 — 9·7104 — 5·462

0·615

) 22·155 (1·967255) (0·7350528) (23) 1853·8
19·99 — 9·7375 — 5·433

1·55

) 22·07 (1·968950) (0·7358926)
19·98 — 9·0969 — 5·444

) 3·64

) 22·295 (1·964518) (0·7336849) (a3) 5212·7
19·98 — 9·[illegible]552 — 5·416

) 5·955

1117·4

$t = 17{\cdot}8$ $(C_2H_5)_2O$ $n = 1{\cdot}3527$ $d_b = 111{\cdot}6$ $d_j = 123{\cdot}2$

$t = 16{\cdot}1$ CS_2 1·6306 — 68·6 — 70·2

$\Delta n = 0{\cdot}2779$ — 43·0 — 53·0

$\frac{\Delta n}{d_b} = -0{\cdot}000\,6463$ $\frac{\Delta n}{d_j} = -0{\cdot}000\,5243$

Cinus felfelé : meniscus távolsága 3 hőt (2 felé) : 1·85
lefelé " " 3 hőt (2 felé) 6·205
} $t = 18{\cdot}1$

folyhőf = 5212·7 + 171·6 = 5384·3 + men

(0·2) = 5384·3 − 1853·8 = 3530·5 + 575·4 = 4105·9

1 $(C_2H_5)_2O$ / $\frac{1}{2}CS_2$ folyt. tömeg (corr. nél) 4·4950

2

128

4·5080

$t = 18{\cdot}2$

$d_b = 97{\cdot}6 \quad d_j = 105{\cdot}0$

$n = 1{\cdot}4431 - - 1{\cdot}4480 = 1{\cdot}4456$

$m_1 = 76{\cdot}2 \qquad m_2' = 236{\cdot}3$ (asphaltol 147·7)

meniscus tömeg 3 tol (2 felé) 1·83

$z = \begin{cases} 4{\cdot}140 \\ 4{\cdot}126 \\ 4{\cdot}138 \\ 4{\cdot}133 \\ 4{\cdot}138 \end{cases}$ $z = 2{\cdot}0675$ mm

4·1350 ∫

$\frac{z}{r} = (0{\cdot}5803927 - 1)$

$\frac{a}{r} = 0{\cdot}4025$

$a = (0{\cdot}3398187) = 2{\cdot}1868$

$H = 61{\cdot}22$

$\frac{r}{a} = 2{\cdot}484 \qquad \frac{h}{a} = 0{\cdot}1020$

$V = 1777{\cdot}24$

$V = \begin{array}{r} 5212{\cdot}7 \\ 170{\cdot}0 \\ 61{\cdot}2 \\ \hline 5443{\cdot}9 \end{array}$

$t = 60'3 \qquad d_0 = 104'8 \qquad d_f = 110'5$

$n = \left.\begin{matrix} 1'3966 \\ 1'4191 \end{matrix}\right\} \; 1'4078$

$m_1 = 73'9 \qquad m_2 = 230'2 \; (144'2)$

$t = 60'4$ men. bovol. 2 hol (3 jelé) $14'39$ mm

$z = \begin{matrix} 3'711 \\ 3'710 \\ 3'708 \\ 3'710 \\ 3'707 \\ \hline 3'7092 \end{matrix}$

$z = 1'8546$ mm $\qquad \frac{z}{r} = (0'5330395 - 1)$

$\frac{a}{r} = 0'35531$

$a = (0'2858182) = 1'9312$

$N = 51'92$

$\rho 42 = 0'0003570$
$2 \quad " \quad = 0'0007140$
$3 \quad \quad = 0'0010710$

$\frac{r}{a} = 2'814 \qquad \frac{h}{a} = 0'0659$

$V = 11184'4$

$V = \begin{matrix} 5218'3 \\ 520'6 \\ 51'9 \\ \hline 5790'8 \end{matrix}$

$t = 99{,}2$ $\quad d_b = 113{,}3$ $\quad d_j = 123{,}2$

$n = \left.\begin{matrix} 1{,}3527 \\ 1{,}3418 \end{matrix}\right\} 1{,}3472$

$m_1 = 70{,}1$ $\quad m_2 = 220{,}1$

$t = 99{,}1$

mer távol 2 hól (3 pél) 10.21

3,275
3,278
3,264 $\quad Z = 1{,}6368$ mm
3,274
3,277
3,2736

$n = 42{,}72$

$\frac{z}{r} = (0{,}4786368 - 1)$

$\frac{a}{r} = 0{,}31081$

$a = (0{,}2278538) = 1{,}6899$

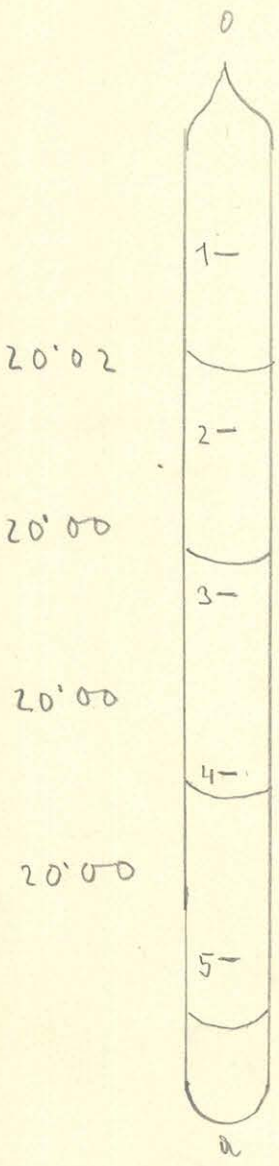
p 81 l ebből

$\frac{r}{a} = 3{,}217$ $\quad \frac{h}{a} = 0{,}0387$

$V = 117\,94{,}4$

$V = 5222{,}9$
90 90
42,7
61746

96 nov 18. $t = 17{\cdot}5$ / $18{\cdot}1$) $17{\cdot}8$



20·02) 7·69

20·00) 24·35 (1·9262243)(0·7145392) 3·34
84·3778 5·182

20·00) 24·70 (1·9200303)(0·7114402) 1·36
83·1821 5·146

20·00) 24·59 (1·9219688)(0·7124094) 5·95
83·5543 5·157

(20) 3594·2

(32) 1683·5

(a 3) = 4797·0

10074·7

$t = 17{\cdot}8$ $(C_2H_5)_2O$ $n = 1{\cdot}3527$ $d_{\frac{5}{6}} = 115{\cdot}3$ $d_j = 111{\cdot}5$

$t = 16{\cdot}2$ CS_2 $1{\cdot}6305$ / $\Delta n = 0{\cdot}2778$ $66{\cdot}3$ / $-49{\cdot}0$ $66{\cdot}2$ / $-45{\cdot}3$

$\frac{\Delta n}{d_{\frac{5}{6}}} = -0{\cdot}000569$ $\frac{\Delta n}{d_j} = -0{\cdot}0006132$

Cmos felfelé: meniscus távolsága 2 hőf (1 felé) 0
lefelé: " " 4 hőf (3 felé) 5·54
} $t = 18{\cdot}2$

folyék = 4797·0 + 1683·5 = 6480·5 + men

(02) = 6480·5 − 1683·5 = 4797·0 − 1202·8 = 3594·2

1 $(C_2H_5)_2O$ / $\frac{1}{2}CS_2$ folyt. hőmérs (corr. nélk) 5·4063

3

113

5·4179

$t = 18{\cdot}2$

$d_b = 98{\cdot}1$ $\quad d_j = 94{\cdot}7$

$n = 1{\cdot}4501 \quad 1{\cdot}4557 = 1{\cdot}4529$

$m_1 = 76{\cdot}5 \qquad m_2 = 237{\cdot}2$ (asztalról 157·5)

2: 4·112
4·106
4·119
4·107
4·116

4·112 fordul

meniskus hibával 2 hol 0.

$2 = 2{\cdot}0560$ mm.

$\frac{2}{r} = (0{\cdot}5984839 - 1)$

$\frac{a}{r} = 0{\cdot}4231$

$a = (0{\cdot}3409822) = 2{\cdot}1927$

$h = 55{\cdot}89$

$\frac{r}{a} = 2{\cdot}363 \qquad \frac{h}{a} = 0{\cdot}7198$

$V = 10074{\cdot}7$

$V = 6480{\cdot}5$
$\quad 56{\cdot}0$
$6536{\cdot}5$

$t = 60'4 \qquad d_g = 105'g \qquad d_j = 101'3$

$n = \begin{matrix} 1'4058 \\ 1'4152 \end{matrix} \Big\} 1'4105$

$m_1 = 74'1 \qquad m_2 = 230'6 \ (165)$

mer. kavol 1 ml (2 fele') 14'735

$z = \begin{matrix} 3'692 \\ 3'683 \\ 3'691 \\ 3'698 \\ 3'695 \\ \hline 3'6918 \end{matrix}$

$z = 1'8459$ mm.

$t = 60'4$

$\frac{z}{r} = (0'5515110 - 1)$

$\frac{a}{r} = 0'37270$

$a = (0'2860566) = 1'9322$

$h = 47'84$

$\frac{r}{a} = 2'683 \qquad \frac{h}{a} = 0'0784$

$V = 1085'5$

$V = \begin{matrix} 6487'4 \\ 446'3 \\ 47'8 \\ \hline 6981'5 \end{matrix}$

$t = 99'2$ $\quad d_b = 116'7$ $\quad d_j = 111'0$

$h = \left.\begin{matrix} 1'3449 \\ 1'3558 \end{matrix}\right\} 1'3503$

$m_1 = 70'5$ $\quad m_2 = 220'3$

menisc. lev. 1 hőf (2 fele) 8'50

$z = \begin{matrix} 3'256 \\ 3'264 \\ 3'261 \\ 3'266 \\ 3'262 \end{matrix}$

$\overline{3'2618}$

$z = 1'6309$ mm

$\frac{z}{r} = (0'4975821 - 1)$

$\frac{a}{r} = 0'32525$

$a = (0'2270625) = 1'6868$

$U = 39'83$

$\frac{r}{a} = 3'074$ $\quad \frac{h}{a} = 0'0467$

$V = 100\ g\ 4'5$

$V = \begin{matrix} 6493'2 \\ 974'8 \\ 39'8 \end{matrix}$

$\overline{7507'8}$

$1\,(C_2H_5)_2O \,/\, \frac{1}{2}\,C_6H_6$

12cm³ $p = 646{\cdot}0\,g$

$t = 19{\cdot}6$	$a = 2{\cdot}2608$	$v = 847{\cdot}2$	$V = 11978{\cdot}2$		$n = 1{\cdot}43312$
$t = 60{\cdot}8$	$a = 2{\cdot}0495$	$v = 9028{\cdot}8$	$V = 11990{\cdot}4$	③	$n = 1{\cdot}3825$
$t = 99{\cdot}9$	$a = 1{\cdot}8089$	$v = 9678{\cdot}8$	$V = 12002{\cdot}6$		$n = 1{\cdot}3261$

14cm³ $p = 6219{\cdot}8$

$t = 19{\cdot}6$	$a = 2{\cdot}3107$	$v = 8174{\cdot}0$	$V = 11864{\cdot}3$		$n = 1{\cdot}4396$
$t = 60{\cdot}8$	$a = 2{\cdot}0843$	$v = 8687{\cdot}8$	$V = 11876{\cdot}4$	②	$n = 1{\cdot}3938$
$t = 99{\cdot}9$	$a = 1{\cdot}8274$	$v = 9293{\cdot}4$	$V = 11888{\cdot}5$		$n = 1{\cdot}3332$

15cm³ $p = 4482{\cdot}6$

$t = 19{\cdot}6$	$a = 2{\cdot}3025$	$v = 5876{\cdot}6$	$V = 11454{\cdot}8$		$n = 1{\cdot}4297$
$t = 60{\cdot}8$	$a = 2{\cdot}0639$	$v = 6236{\cdot}3$	$V = 11466{\cdot}5$	①	$n = 1{\cdot}3938$
$t = 99{\cdot}9$	$a = 1{\cdot}8168$	$v = 6636{\cdot}5$	$V = 11478{\cdot}2$		$n = 1{\cdot}3342$

$t = 19{\cdot}6$

a	n	$v_1 = 5876{\cdot}6$	$v_2 = 8174{\cdot}0$	$v_3 = 8479{\cdot}2$
~~2·3107~~	1·43312			
2·3107	1·4396			
2·3025	1·4297			
2·3066	1·4335	$w_1 = 5578{\cdot}2$	$w_2 = 3690{\cdot}3$	$w_3 = 3499{\cdot}0$

$t = 60{\cdot}8$

a	n	$v_1 = 6236{\cdot}3$	$v_2 = 8687{\cdot}8$	$v_3 = 9028{\cdot}8$
2·0495	1·3825			
2·0843	1·3938			
2·0639	1·3938			
2·0659	1·3900	$w_1 = 5230{\cdot}2$	$w_2 = 3188{\cdot}6$	$w_3 = 2961{\cdot}6$

$t = 99{\cdot}9$

a	n	$v_1 = 6636{\cdot}5$	$v_2 = 9293{\cdot}4$	$v_3 = 9678{\cdot}8$
1·8089	1·3261			
	1·3332			
1·8168	1·3342	$w_1 = 4841{\cdot}7$	$w_2 = 2595{\cdot}1$	$w_3 = 2323{\cdot}8$
1·8128	1·3312			

$p_1 = 4482{\cdot}6$ $p_2 = 6219{\cdot}8$ $p_3 = 6460{\cdot}9$

$t = 19.6$

$a^2 = 5.3204$

$f = \frac{a^2}{2}(1-\sigma) =$

$= 2.0154$

$1 = 0.7592$ $\quad$ $\sigma = 0.0037$

0.7613 $\quad$ 0.0015

0.7602 $\quad$ 0.0026

$1-\sigma = 0.7576$

$\lambda^3 = 99.1502$

$\lambda^2 = 21.422$

$t = 60.8$

$a^2 = 4.2679$

$1 = 0.7137$ $\quad$ $\sigma = 0.0061$

$f = 1.5096$

0.7135 $\quad$ 0.0063

0.7136 $\quad$ 0.0062

$\lambda^3 = 105.6250$

$1-\sigma = 0.7074$

$\lambda^2 = 22.345$

$t = 99.9$

$a^2 = 3.2862$

$1 = 0.6654$ $\quad$ $\sigma = 0.0137$

$f = 1.0673$

0.6636 $\quad$ 0.0162

0.6645 $\quad$ 0.0149

$\lambda^3 = 113.4296$

$1-\sigma = 0.6496$

$\lambda^2 = 23.432$

Molekulasúly $(C_2H_5)_2O = 74.044$

$C_6H_6 = 78.037$

$\mu = 75.374$

$t =$

$\int \lambda^2$

43.173 g

19.6

) 41.2

60.8

) 39.1

99.9

9.441 g

0.229

) 0.226

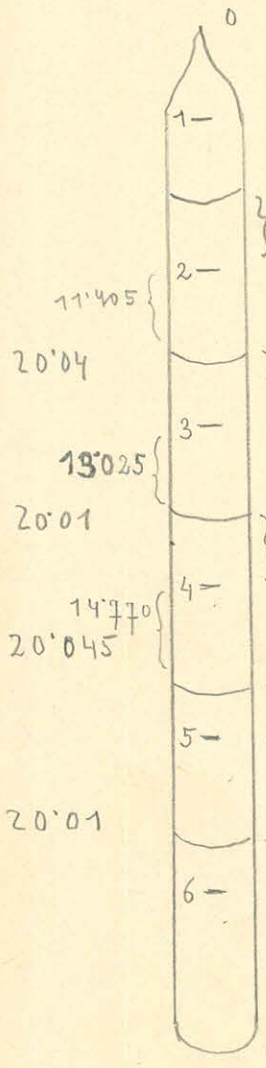
33.7320

) 8.723

0.223

25.0090

Számozott 12.



$t = 19{\cdot}1$

	10·075				
11·405	2–	21·48	g5·6518	30·4469 / 5·5179	
20·04	8·635				
13·025	3–	21·66	g4·856g	30·1939 / 5·4949	
20·01	6·985				
14·770	4–	21·755	g4·4427	30·0620 / 5·4829	
20·045	5·275				
	5–	21·785	g4·3126	30·0206 / 5·4791	
20·01	3·50				
	6–				

(23) 1g10·0
(34) 189 5·2
(45) 189 2·4
56g7·6

(02) 2738·2
(2∞) g240·0
11g78·2

(4-5)

$t = 19{\cdot}7$	$(C_2H_5)O$	$n = 1{\cdot}3517$	$d_b = 131{\cdot}0$	$d_j = 126{\cdot}5$
$t = 19{\cdot}7$	CS_2	$n = 1{\cdot}6277$	$d_b = 727$	$d_j = 72{\cdot}5$
		0·2760	58·3	54·0

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}004734$ $\quad \frac{\Delta n}{\Delta d_j} = -0{\cdot}005111$

Cmics felfelé: meniscus távola 2 hl (3 felé) 8·56
lefelé: " " 5 hl (4 felé) 0·155
} += 20·2

Folyt. lef: g240·0
-818·8
8421·2 +men

(02) = 8421·2
5683·0 { 56g7·6 / 14·6 / 56830
2738·2

$1(C_2H_5)_2O / \frac{1}{2} C_6H_6$

6·4471
3
135
6460·g

t = 20·1

d_b = 113·8 d_j = 111·5

n = 1·4331 1·4284 } 1·4307

m_1 = 75·2 m_2 = 233·8

t = 20·2

z = 4·262
4·253
4·257
4·252
4·256
4·2560 }

z = 2·1280 mm

meniscus 2 hül (3 felé) 8·56

r = 5·5064 r^2 = 30·3204

$\frac{z}{r}$ = 0·38646

$\frac{a}{r}$ = 0·41002 $\frac{r}{a}$ = 2·403

a = 2·2577

U = 66·01

V = 8421·2
66·0
8487·2

V = 11978·2

t = 19·6 n = 1·4312 a = 2·2608

V = 8479·2

$t = 60{\cdot}8$

$d_f = 123{\cdot}5$ $\quad d_j = 121{\cdot}4$

$n = 1{\cdot}3872$ $\quad 1{\cdot}3778$ } $1{\cdot}3825$

$m_1 = 72{\cdot}2$ $\quad m_2 = 226{\cdot}0$

$t = 60{\cdot}9$

Meniscus 2 kül (3 fele) $2{\cdot}90$

$z = 3{\cdot}915$
$3{\cdot}916$
$3{\cdot}919$
$3{\cdot}913$
$3{\cdot}921$
$3{\cdot}9168$

$z = 1{\cdot}9584$ mm

$r = 5{\cdot}5197$ $\quad r^2 = 30{\cdot}4671$

$\frac{z}{r} = 0{\cdot}35480$

$\frac{a}{r} = 0{\cdot}37127$ $\quad \frac{r}{a} = 2{\cdot}672$

$a = 2{\cdot}0490$

$u = 58{\cdot}26$

$V = 11990{\cdot}4$

$V = 9249{\cdot}4$
$-\ 277{\cdot}6$
$8971{\cdot}8$
$58{\cdot}3$
$9030{\cdot}1$

$t = 60{\cdot}8$ $\quad a = 2{\cdot}0495$

$V = 9028{\cdot}8$

$t = 99.9$

$d_f = 135.2$ $d_f' = 132.5$

$n = 1.3313$ 1.3210 } 1.3261

$m_1 = 68.7$ $m_2 = 276.8$

$t = 99.9$

$z = 3.490$
3.502
3.498
3.494
3.499
3.4966

$z = 1.7483^{mm}/_{m}$

mérőcsavar 2 hól (1 fele') 3.875

$r = 5.5216$ $r^2 = 30.4881$

$\frac{z}{r} = 0.31663$

$\frac{a}{r} = 0.32760$ $\frac{r}{a} = 3.038$

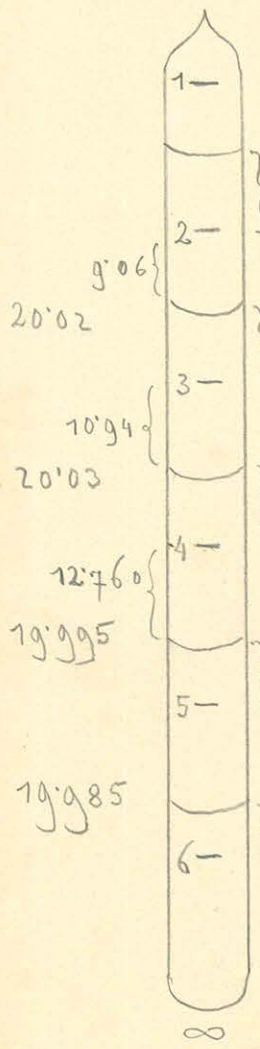
$a = 1.8089$

$h = 48.80$

$V = 12002.6$

$V = 9258.8$
371.2
48.8
9678.8

Számoptika 14.



$g_{3.0104}$ { 29.6061 / 5.4411

$g_{3.8173}$ { 29.8630 / 5.4647

$g_{4.0320}$ { 29.9313 / 5.4709

$g_{3.1791}$ { 29.6598 / 5.4461

(23) 1870.9

(34) 1881.1

(45) 1873.9

5625.9

(02) 2871.7

(α2) 8992.6

11864.3

(4-5)

t = 19.7 $((C_2H_5)_2O$ n = 1.3517 d_b = 127.8 d_j = 141.6

t = 19.7 CS_2 n = 1.6277 d_b = 70.7 d_j = 73.4

0.2760 57.1 68.2

$\frac{\Delta n}{\Delta d_b} = -0.004834$ $\frac{\Delta n}{\Delta d_j} = -0.004047$

Cinos felfelé: menisc. távolsa 2-től (3-felé) 9.54

lefelé: " " 5-től (4-felé) 4.27

MAGYAR TUDOMÁNYOS AKADÉMIA KÖNYVTÁRA

Folytat: 8992.6 + 887.3 = 8105.3 + men

(02) = 8105.3

5233.6 { 5625.9 / 392.3

5233.6

2871.7

1. $(C_2H_5)_2O$ / $\frac{1}{2}C_6H_6$

6·2062
3
133
6219·8

t =

d_g

n =

m

t

z

t = 19·1

d_g = 109·9 d_f = 119·3

n = 1·4382 1·4419 ⅀ 1·4400

m_1 = 75·6 m_2 = 235·4

t = 19·3

z = 4·337
4·330
4·339
4·334
4·333
4·33346

z = 2·1673 mm

meniscus 2 köl (3 fele) 9·54

r = 5·4529 r^2 = 29·7341

$\frac{z}{r}$ = 0·39746

$\frac{a}{r}$ = 0·42407 $\frac{r}{a}$ = 2·380

a = 2·3124

U = 64·86

V = 8105·3
64·9
8170·2

U = 11864·3

t = 19·6 n = 1·4396 a = 2·3107

v = 8174·0

$t = 60{\cdot}8$

$d_2 = 118{\cdot}4$ $\quad d_1 = 132{\cdot}0$

$n = 1{\cdot}3971$ $\quad 1{\cdot}3905$ } $1{\cdot}3938$

$m_1 = 72{\cdot}8$ $\quad m_2 = 227{\cdot}8$

$t = 60{\cdot}8$

$z = 3{\cdot}965$
$3{\cdot}965$
$3{\cdot}967$
$3{\cdot}977$
$3{\cdot}966$
$3{\cdot}96688$ f

$z = 1{\cdot}9844$ mm

menisens 2 hól (3 pelé) $3{\cdot}985$

$r = 5{\cdot}4429$ $\quad r^2 = 29{\cdot}6252$

$\frac{z}{r} = 0{\cdot}36458$

$\frac{a}{r} = 0{\cdot}38295$ $\quad \frac{r}{a} = 2{\cdot}635$

$a = 2{\cdot}0843$

$V = 11876{\cdot}4$

$h = 56{\cdot}89$

$v = 9001{\cdot}8$
$370{\cdot}9$
$8630{\cdot}9$
$56{\cdot}9$
$8687{\cdot}8$

$t = 99.9$

$d_y = 130.0$ $d_{\dot{y}} = 148.1$

$n = 1.3411$ 1.3254 } 1.3332

$m_1 = 69.1$ $m_2 = 217.9$

$t = 99.9$

$z = 3.525$
3.528
3.525
3.528
3.529
3.5270 f

$z = 1.7635\ ^{m}/_{m}$

Menisco 2ª Sol. (1 fele) 2.52

$r = 5.4448$ $r^2 = 29.6458$

$\frac{z}{r} = 0.32389$

$\frac{a}{r} = 0.33563$ $\frac{r}{a} = 2.995$

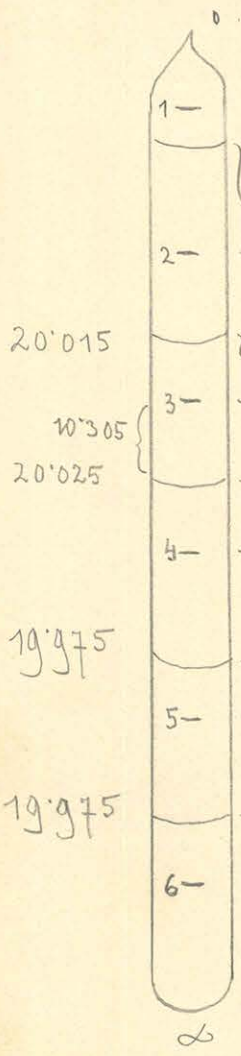
$a = 1.8274$

$U = 47.76$

$V = 11888.5$

$v = 9010.9$
234.7
47.8
9293.4

Számozás 15.



$t = 19{\cdot}3$

1–					
2–	14·67	22·525	g_1 1·2142	29·0344 / 5·3883	
3–	12·16	22·465	g_1 1·4578	29·1119 / 5·3955	
4–	9·72	22·405	g_1 1·7027	29·1899 / 5·4027	(34) 1833·8
5–	7·29	22·215	g_2 1·4871	29·4395 / 5·4258	
6–	5·05				

20·015 / 10·305 / 20·025 / 19·975 / 19·975

6249·4
(∞4) 5205·4
11454·8

(4)

$t = 19{\cdot}7$ $(C_2H_5)_2O$ $n = 1{\cdot}3517$ $d_b = 125{\cdot}6$ $d_j = 125{\cdot}4$

$t = 19{\cdot}7$ CS_2 $n = 1{\cdot}6277$ $d_b = 68{\cdot}8$ $d_j = 71{\cdot}6$

0·2760 56·8 53·8

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}004859$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}005130$

Cmcs felfelé: meniscus távola 3 hól (4 felé) 13·40
lefelé: " " 4 hól (3 felé) 4·76
(−1 mm korrekció) } 19·6

Folyt. = 5205·4 + 607·5 = 5812·9 + men

(04) = 5812·9 + 436·5 = 6249·4

1. $(C_2H_5)_2O$ / $\frac{1}{2} C_6H_6$

4·46 g 3
2
131
44826

t = 19·6

d_f = 106·9 d_f = 112·7

n = 1·4426 1·416g } 1·42g7

m_1 = 75·2 m_2 = 233·6

t = 19·6

Z = 4·317
4·304
4·309 z = 2·155 g/m
4·312
4·317
4·3118 }

Mercurius 3 tot (4 feli) 13·40

(3.4) r = 5·3991 r^2 = 29·1503

$\frac{z}{r}$ = 0·39931

$\frac{a}{r}$ = 0·42646 $\frac{r}{a}$ = 2·356

a = 2·3025

M = 63·6g

V = 11454·8

v = 5812·9
63·7
5876·6

$t = 60.8°$

$d_f = 114.6$ $d_j = 119.4$

$n = 1.4051$ 1.3825 } 1.3938

$m_1 = 72.8$ $m_2 = 227.8$

$t = 60.8$

$z = 3.933$
3.925
3.931
3.934
3.932
3.9310

$z = 1.9655$ mm

Meniscus 3 tol (4 felé) 9.465

$r = 5.4009$ $r^2 = 29.1697$

$\frac{z}{r} = 0.36392$

$\frac{a}{r} = 0.38214$ $\frac{r}{a} = 2.614$

$a = 2.0639$

$N = 56.14$

$V = 11466.5$

$V = 7046.4$
866.2
6180.2
56.1
6236.3

$t = 99.9$

$\alpha_1 = 1254 \quad 1327$

$n = 1.3541 \quad 1.3143 \} 1.3342$

$m_1 = 69.1 \qquad m_2 = 218.1$

$t = 99.9$

$z = 3.507$
3.508
3.504
3.504
3.507
3.5060

$z = 1.7530^{mm}/_{m}$

monis cus 3 tol (4 fele) 5.07

$r = 5.4027 \qquad r^2 = 29.1899$

$\frac{z}{r} = 0.32447$

$\frac{a}{r} = 0.33628 \qquad \frac{r}{a} = 2.972$

$a = 1.8168$

$V = 11478.2$

$U = 47.19$

$v = 7053.6$
464.3
6589.3
47.2
6636.5

S_2Cl_2

1 cm"

$p = 11424{,}5$

$t = 15{,}5$	$a = 2{,}3050$	$v = 6810{,}7$	$V = 13261{,}1$	(1)	$n = 1{,}6391$
$t = 60{,}9$	$a = 2{,}1847$	$v = 7107{,}8$	$V = 13274{,}6$		$n = 1{,}6285$
$t = 99{,}8$	$a = 2{,}0437$	$v = 7388{,}8$	$V = 13288{,}2$		$n = 1{,}6078$

6 cm"

$p = 12440{,}7$

$t = 15{,}5$	$a =$ ——	$v = 7459{,}2$	$V = 10896{,}1$	(2)	$n = 1{,}6391$
$t = 60{,}9$	$a =$ ——	$v = 7778{,}7$	$V = 10907{,}2$		$n = 1{,}6245$
$t = 99{,}8$	$a =$ ——	$v = 8089{,}3$	$V = 10918{,}3$		$n = 1{,}6131$

7 cm"

$p = 15534{,}5$

$t = 15{,}5$	$a = 2{,}2933$	$v = 9328{,}5$	$V = 13746{,}0$	(3)	$n = 1{,}6398$
$t = 60{,}9$	$a = 2{,}1790$	$v = 9743{,}9$	$V = 13760{,}0$		$n = 1{,}6259$
$t = 99{,}8$	$a = 2{,}0530$	$v = 10121{,}6$	$V = 13774{,}0$		$n = 1{,}6077$

$t = 15{,}5$

$a = 2{,}3050$	$n = 1{,}6391$	$v_1 = 6810{,}7$	$v_2 = 7459{,}2$	$v_3 = 9328{,}5$
$2{,}2933$	$1{,}6391$			
$2{,}2992$	$1{,}6398$	$W_1 = 6450{,}4$	$W_2 = 3436{,}9$	$W_3 = 4417{,}5$
	$1{,}6393$			

$t = 60{,}9$

$a = 2{,}1847$	$n = 1{,}6285$	$v_1 = 7107{,}8$	$v_2 = 7778{,}7$	$v_3 = 9743{,}9$
——	$1{,}6245$			
$2{,}1790$	$1{,}6259$	$W_1 = 6166{,}8$	$W_2 = 3128{,}5$	$W_3 = 4016{,}1$
$2{,}1819$	$1{,}6263$			

$t = 99{,}8$

$a = 2{,}0437$	$n = 1{,}6078$	$v_1 = 7388{,}8$	$v_2 = 8089{,}3$	$v_3 = 10121{,}6$
——	$1{,}6131$			
$2{,}0530$	$1{,}6077$	$W_1 = 5899{,}4$	$W_2 = 2829{,}0$	$W_3 = 3652{,}4$
$2{,}0484$	$1{,}6095$			

$p_1 = 11424{,}5$ $p_2 = 12440{,}7$ $p_3 = 15534{,}5$

$t = 15'5$

$\lambda = 1'6587$ $\quad \sigma = 0'0197$

$a^2 = 5'2863$ $\quad 1'6531$ $\quad 0'0257$

$1'6559$ $\quad 0'0227$

$f = \frac{a^2}{2}(\lambda - \sigma) =$

$\lambda - \sigma = 1'6332$

$= 4'31671$

$\lambda^3 = 81'5460$ $\quad \lambda^2 = 18'805$

$t = 60'9$

$\lambda = 1'5924$ $\quad \sigma = 0'0172$

$\left\{ a^2 = 4'7607 \right\}$ $\quad 1'5825$ $\quad 0'0286$

$\left\{ f = 3'72422 \right\}$ $\quad 1'5875$ $\quad 0'0229$

$\lambda - \sigma = 1'5646$

$\lambda^3 = 85'0595$ $\quad \lambda^2 = 19'341$

$t = 99'8$

$\lambda = 1'5315$ $\quad \sigma = 0'0184$

$1'5254$ $\quad 0'0261$

$1'5284$ $\quad 0'0223$

$\left\{ a^2 = 4'1959 \right\}$

$\left\{ f = 3'15965 \right\}$ $\quad \lambda - \sigma = 1'5061$

$\lambda^3 = 88'3486$ $\quad \lambda^2 = 19'837$

$\mu = 135{\cdot}032$

t		$f\lambda^2$				
15·5	) 45·4	81·1757	)	g·1456	0·202	) 0·221
60·g	) 38·g	72·0301	)	g·3521	0·240	
gg·8		62·6780				

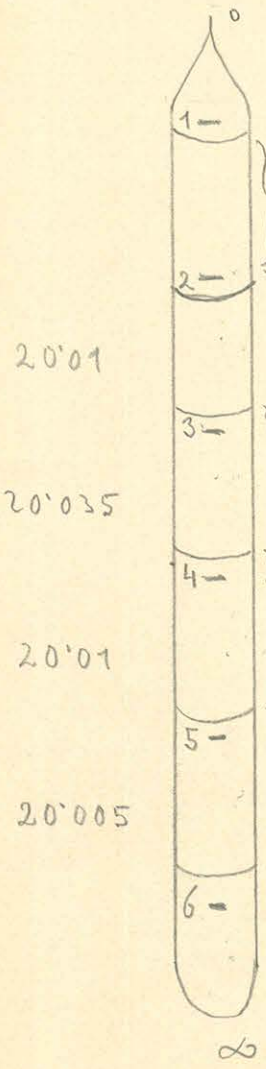
Sűrűség 0° ra extrapolálva 1·6793

0°hőfok	fp.
753·3	136·g (+0·1) tizedfokos hőmérő a rovarból.

Corrigált értek:

	a	a^2	f				
60·g° on	2·1790	4·7480	3·7144	81·176	) g·336	0·206	) 0·217
				71·840	) 8·878	0·228	
gg·8° on	2·0530	4·2148	3·1740	62·962			

Szamozott 7.



t = 20·2

19·31) 19·435 — 105·7165

0·125

) 19·445 — 105·6621 · 33·6333 · 5·7994

20·01

0·44

) 19·460 — 105·5806 · 33·6073 · 5·7972

20·035

1·015

) 19·535 — 105·1753

20·01

1·49

) 19·49 — 105·4181

20·005

2·005

(2.5) 6334·1

(2 3) 2114·3

(0 2) 3536·2

(2∞) 1020g·8

13746·0

(4.5)

t = 20·6	$(C_2H_5)_2O$	n = 1·3512	d_δ = 126·3	d_j = 121·0
t = 19·8	CS_2	n = 1·6276	d_δ = 72·4	d_j = 71·7
		0·2764	53·9	49·3

$\frac{\Delta n}{\Delta d_\delta} = -0{,}005128$ $\frac{\Delta n}{\Delta d_j} = -0{,}005606$

Cinos fellebé: meniscus 2 hol (3 felé) g·02
lefelé: " 5 hol (4 felé) 5·83
} t = 15·6

fedy tér = 1020g·8
g53·1
g256·7 + men

(02) = g256·7
5720·5
3536·2 − { 6334·1, 613·6 } = 5720·5

S_2Cl_2 tömege correctiók nélkül

15·51 g 4.
8
143
15'5345

t = 15·4

d_g = 67·3 d_f = 72·0

n = 1·6537 1·6259 } 1·6398

m_1 = 89·0 m_2 = 268·8

t = 15·6

Meniscus 2 hl (3 felé) g·02

z = 4'352
4'341
4349
4'340
4'351
4'3466 /

z = 2·1733 mm

r = 5·7994 r^2 = 33·6333

$\frac{z}{r}$ = 0·37475

$\frac{r}{a}$ = 2·522

$\frac{a}{r}$ = 0·39538

a = 2·2930

$\frac{h}{a}$ = 0·0970

h = 0·2230

N = 72·75

V = 13746·0

V = g256·7
72·7
g329·4

t = 15·5 n = 1·6398 a = 2·2933 V = g328·5

$t = 60.9$

$\alpha_f = 72.2$ $\alpha_j = 72.5$

$n = 1.6286$ 1.6231 } 1.6259

$m_1 = 87.9$ $m_2 = 266.5$

$t = 61.0$

Meniscus 2 tol (3 felé) 5.14

$z = 4.157$
4.156
4.158
4.160
4.164
4.1590 f

$z = 2.0795$ mm

$r = 5.8013$ $r^2 = 33.6551$

$\frac{z}{r} = 0.35845$

$\frac{a}{r} = 0.37556$ $\frac{r}{a} = 2.659$

$a = 2.1787$ $\frac{h}{a} = 0.0810$

$h = 0.1767$

$U = 68.08$

$V = 13760.0$

$v = 10220.2$
543.5
9676.7
68.1
9744.8

$t = 60.9$ $a = 2.1790$ $v = 9743.9$

$t = 99{,}8$

$d_b = 74{,}3$ $\quad d_j = 77{,}1$

$n = 1{,}6179 \quad 1{,}5974 \} 1{,}6077$

$m_1 = 86{,}7 \quad m_2 = 263{,}6$

$t = 99{,}7$

Meniscus 2 hol (3 jelé) 1,63

$z = 3{,}949$
$3{,}946$
$3{,}945$
$3{,}947$
$3{,}940$
$3{,}9454$

$z = 1{,}9727$

$r = 5{,}8033$ $\quad r^2 = 33{,}6783$

$\frac{z}{r} = 0{,}33993$

$\frac{a}{r} = 0{,}35381$ $\quad \frac{r}{a} = 2{,}833$

$a = 2{,}0533$ $\quad \frac{h}{a} = 0{,}0643$

$h = 0{,}1317$

$H = 62{,}56$

$V = 137740$

$V = 102306$
$\quad 172{,}5$
100581
$\quad 62{,}6$
101207

$t = 99{,}8°$

$a = 2{,}0530$ $\quad V = 101216$

Számosok 6. $t = 20{\cdot}0$ Forrásponál elpattant, újra kihúzva.

12·64) 22·195 g2·5704 · 29·4661 / 5·4282

19·96 10·405) 22·115 g2·9052 · 29·5726 / 5·4380

20·02 8·31) 21·91 g3·7745 ((35) 3725·8)

19·83 6·23) 21·945 g3·6249

20·11 4·395

(03) 3712·3
(α3) 7183·8
10896·1

(4.5)

$t = 20{\cdot}6$	$(C_2H_5)_2O$	$n = 1{\cdot}3512$	$d_\gamma = 126{\cdot}7$	$d_j = 128{\cdot}9$
$t = 19{\cdot}8$	CS_2	$n = 1{\cdot}6276$	$d_\gamma = 72{\cdot}5$	$d_j = 72{\cdot}3$
		0·2764	54·2	56·6

$\frac{\Delta n}{\Delta d_\gamma} = -0{\cdot}005100$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}004883$

Cinc. felfelé: menis ans 3 tól (2 felé) 2·34 (men. mag kbl: 1·8 mμ/m)
lefelé: " 5 től (4 felé) 0·33 (men. mag kbl: 1·5 mμ/m) } $t = 15{\cdot}5$

folyt. = 7183·8 / 217·4 / 58·0 / 7459·2

(03) = 7459·2 / 3746·9 / 3712·3

3725·8 / 30·9 / 3694·9 / 52·0 / 3746·9

S_2Cl_2 tömege correctión nélkül

12·4288
6
113
12·4407

$t = 15{\cdot}5$

$d_f = 69{\cdot}8$ $d_j = 70{\cdot}4$

$n = 1{\cdot}6414$ $1{\cdot}6368$ } $1{\cdot}6391$

$t = 15{\cdot}5$

Nem jól lógnak !!

Meniscus 3 tól (2 felé) 2·34

$r = 5{\cdot}4380$

Meniscus magasság kbb: 1·8 mm

l. előző old.

$\frac{r}{a} = 2{\cdot}365$

Meniscus terf extrapolálva: $u = 64{\cdot}85$

Tökéletlen menis cus terf: cnics felfelé $u = 58{\cdot}0$ kbb

cnics lefelé $u = 52{\cdot}0$

$V = 108{\cdot}961$ $v = 745{\cdot}2$

$t = 60.9$

$d_f = 71.7$ $d_j = 74.4$

$n = 1.6317$ 1.6173 } 1.6245

Nem jól kapod!!

$t = 61.0$

Meniscus magasság kbl: 1.6 mm

meniscus 3 tól (2 felé) 5.76 mm.

$r = 5.4398$

$\frac{r}{a} = 2.493$

$n = 61.55$

Tőhéletlen $n = 53.0$

$V = 10907.2$ $v = 7191.1$
535.5
53.0
7779.6

60.9° on $v = 77787$

$t = 99{\cdot}7$

$d_b = 75{\cdot}3$ $\quad d_j = 75{\cdot}3$

$n = 1{\cdot}6133$ $\quad 1{\cdot}6129 \} 1{\cdot}6131$

$m_1 =$ $\quad m_2 =$

$t = 99{\cdot}7$

Nem jól lapod!! $\quad$ Meniscus 3 tól (2 felé) $9{\cdot}04$

Meniscus magasság $1{\cdot}6$ mm $\quad r = 5{\cdot}4416$

$\frac{r}{a} = 2{\cdot}656$

$u = 56{\cdot}23$

Tökéletlen. $u = 49{\cdot}0$

$V = 1049{\cdot}3$ $\quad v = 7198{\cdot}4$

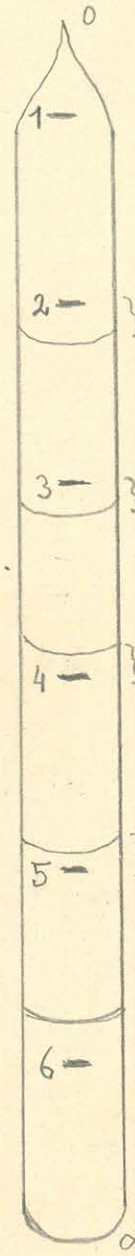
$841{\cdot}0$

$49{\cdot}0$

$8088{\cdot}4$

$t = 99{\cdot}8$ $\quad n = 1{\cdot}6131$ $\quad v = 8089{\cdot}3$

Számozott. 1.



t = 20·2

2·74

21·07) 18·905 108·6802

0·575

20·02) 19·005 108·1083 · 34·4111 / 5·8661

0·44

20·075) 18·980 108·2508 · 34·4573 / 5·8700

1·535

20·045) 19·070 107·7399

2·51

(0 4) 72230

(4 ∞) 6038·1

132611

(4 vonalnál)

t = 20·7 $(C_2H_5)_2O$ n = 1·3511 d_b = 145·4 d_j = 137·5

t = 19·7 CS_2 n = 1·6277 d_b = 77·3 d_j = 74·9

0·2766 68·1 62·6

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}004062$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}004418$

Cinus felfelé: meniscus 4 hol (3 felé) 6·46

lefelé: " 4 hol (3 felé) 4·50 } t = 15·5

Folyj. hj = 6038·1
6698·4
6736·5 + men

(04) = 6736·5 + men
486·5 - men
72230

S_2Cl_2 folyt. tömeg correctionk nélkül

(befoiasztáskor elpattant, a tömeg utólag } (11·4030 gr)
még controlálandó.)

11·4096 gr
6
143
11·4245

t = 15·6

obj = 74·8 obj = 72·0

n = 1·6378 1·6405 } 1·6391

m_1 = 88·8 m_2 = 268·6

t = 15·5

Meniscus kétfogat számításánál a
közép a 1 rétegen figyelembe!!

Meniscus 4ből (3 felé) 6·46

z = 4·370
4·373
4·372
4·374
4·378
4·3734 f

z = 2·1867 mm

r = 5·8661 r^2 = 34·4119

$\frac{z}{r}$ = 0·37277

$\frac{a}{r}$ = 0·39294 $\frac{r}{h}$ = 2·551

a = 2·3050 $\frac{h}{a}$ = 0·0934

h = 0·2147

N = 74·27

V = 132 61·1

V = 6736·5
74·2
68107

$t = 60.9$

$d_0 = 77.1$ $\quad d_1 = 74.7$

$n = 1.6285 \quad 1.6286 \;\} 1.6285$

$m_1 = 88.0 \quad m_2 = 266.9$

$t = 60.9$

$z = 4.178$
4.174
4.173
4.174
4.175
4.1748

$z = 2.0874$ mm

Menisc. 4bol (3 plé) g.19

$r = 5.8681 \quad r^2 = 34.4346$

$\frac{z}{r} = 0.35572$

$\frac{a}{r} = 0.37230 \quad \frac{r}{a} = 2.689$

$a = 2.1847 \quad \frac{h}{a} = 0.0778$

$h = 0.1697$

$N = 69.26$

$V = 13274.6$

$V = 6044.3$
994.2
69.3
7107.8

$t = 99{\cdot}8$

$d_f = 82{\cdot}9$ $\quad d_j = 78{\cdot}8$

$n = 1{\cdot}6050$ $\quad 1{\cdot}6105 \;\}\; 1{\cdot}6078$

$m_1 = 86{\cdot}7$ $\quad m_2 = 263{\cdot}6$

$t = 99{\cdot}8$

$z = 3{\cdot}926$
$3{\cdot}938$
$3{\cdot}936$
$3{\cdot}936$
$3{\cdot}929$
$3{\cdot}933$ f

$z = 1{\cdot}9665$ m/m

Meniscus 4hól (3 felé) 11·775

$r = 5{\cdot}8701$ $\quad r^2 = 34{\cdot}4581$

$\frac{z}{r} = 0{\cdot}33500$

$\frac{a}{r} = 0{\cdot}34816$ $\quad \frac{r}{a} = 2{\cdot}866$

$a = 2{\cdot}0437$ $\quad \frac{h}{a} = 0{\cdot}0615$

$h = 0{\cdot}1260$

$n = 63{\cdot}74$

$V = 132882$

$V = 6050{\cdot}4$
$1274{\cdot}7$
$63{\cdot}7$
$7388{\cdot}8$

C_6H_6

gerö:

$p = 6346{\cdot}8$

$t = 21{\cdot}7$	$a =$ ~~2·6068~~	$v = 7297{\cdot}0$	$V = 14123{\cdot}7$		$n = 1{\cdot}5422$
$t = 60{\cdot}6$	$a = 2{\cdot}4079$	$v = 7654{\cdot}8$	$V = 14138{\cdot}1$	①	$n = 1{\cdot}5261$
$t = 99{\cdot}9$	$a = 2{\cdot}2054$	$v = 8061{\cdot}0$	$V = 14152{\cdot}5$		$n = 1{\cdot}4959$

$p = 7307{\cdot}6$

8 cm" :

$t = 21{\cdot}7$	$a = 2{\cdot}5968$	$v = 8409{\cdot}6$	$V = 11829{\cdot}3$		$n = 1{\cdot}5502$
$t = 60{\cdot}6$	$a = 2{\cdot}3938$	$v = 8824{\cdot}7$	$V = 11841{\cdot}4$	②	$n = 1{\cdot}5280$
$t = 99{\cdot}9$	$a = 2{\cdot}2023$	$v = 9312{\cdot}5$	$V = 11853{\cdot}4$		$n = 1{\cdot}4942$

$p = 8449{\cdot}9$

11 cm"

$t = 21{\cdot}7$	$a = 2{\cdot}6000$	$v = 9707{\cdot}1$	$V = 13475{\cdot}6$		$n = 1{\cdot}5330$
$t = 60{\cdot}6$	$a =$ 2·4041 ~~2·5863~~	$v = 10191{\cdot}1$	$V = 13489{\cdot}3$	③	$n = 1{\cdot}5200$
$t = 99{\cdot}9$	$a = 2{\cdot}1947$	$v = 10748{\cdot}3$	$V = 13503{\cdot}1$		$n = 1{\cdot}4895$

$t = 21{\cdot}7°$

$a =$ ~~2·6068~~ 2·5968 2·6000 — 2·5984

$n = 1{\cdot}5422$ 1·5502 1·5330 — 1·5418

$v_1 = 7297{\cdot}0$ $v_2 = 8409{\cdot}6$ $v_3 = 9707{\cdot}1$

$w_1 = 6826{\cdot}7$ $w_2 = 3419{\cdot}7$ $w_3 = 3768{\cdot}5$

$t = 60{\cdot}6$

$a = 2{\cdot}4079$ ~~2·5938~~ 2·4041 — 2·4060

$n = 1{\cdot}5261$ 1·5280 1·5200 — 1·5247

$v_1 = 7654{\cdot}8$ $v_2 = 8824{\cdot}7$ $v_3 = 10191{\cdot}1$

$w_1 = 6483{\cdot}3$ $w_2 = 3016{\cdot}7$ $w_3 = 3298{\cdot}2$

$t = 99{\cdot}9$

$a = 2{\cdot}2054$ 2·2023 2·1947 — 2·2008

$n = 1{\cdot}4959$ 1·4942 1·4895 — 1·4932

$v_1 = 8061{\cdot}0$ $v_2 = 9312{\cdot}5$ $v_3 = 10748{\cdot}3$

$w_1 = 6091{\cdot}5$ $w_2 = 2540{\cdot}9$ $w_3 = 2754{\cdot}8$

$p_1 = 6346{\cdot}8$ $p_2 = 7307{\cdot}6$ $p_3 = 8449{\cdot}9$

$t = 21.7°$

$a^2 = 6.7516$

$f = \frac{a^2}{2}(\lambda - \sigma)$

$= 2.9349$

$\lambda^3 = 89.7389$

$\lambda = 0.8683$
$= 0.8710$
$\lambda = 0.8696$

$\sigma = 0.0016$
$= -0.0012$
$\sigma = 0.0002$

$(\lambda - \sigma) = 0.8694$

$\lambda^2 = 20.044$

$t = 60.6°$

$a^2 = 5.7888$

$f = 2.3940$

$\lambda^3 = 94.2248$

$\lambda = 0.8274$
0.8291
$\lambda = 0.8282$

$\sigma = 0.0021$
0.0000
$\sigma = 0.0011$

$(\lambda - \sigma) = 0.8271$

$\lambda^2 = 20.707$

$t = 99.9°$

$a^2 = 4.8435$

$f = 1.8897$

$\lambda^3 = 99.4989$

$\lambda = 0.7832$
0.7855
$\lambda = 0.7843$

$\sigma = 0.0055$
0.0024
0.0040

$(\lambda - \sigma) = 0.7803$

$\lambda^2 = 21.472$

$M = 78{\cdot}037$ $\quad (O = 16)$

	+	$f\lambda^2$			
	21·7	58·827	) 9·254	0·238	) 0·233
38·9 (					
	60·6	49·573			
			) 8·997	0·229	
39·3 (					
	99·9	40·576			

Sűrűség 0° ra extrapolálva 0·8927

0° hőfok	fp.
752·6	79·8

Számozott 8.

t = 20·4

13·10) 21·615 g 5·0544 · 30·2567 / 5·5006

20·015 — 11·50) 21·83 g 4·1182 · 29·9587 / 5·4734 (23) 1891·7 (34) 1873·2

20·03 — 9·70) 22·12 g 2·8843 (45) 1855·1 / 3728·3

19·995 — 7·575) 22·185 g 2·6121

20·03 — 5·42

(03) 4761·9
(3α) 7067·4
11829·3

t = 20·6	$(C_2H_5)_2O$	n =	1·3512 (4·5)	d_b = 122·9	d_j = 133·1
t = 19·9	CS_2	= n =	1·6275	d_b = 69·3	d_j = 70·3
			0·2763	53·6	62·8

$\frac{\Delta n}{\Delta d_b} = -0{,}0005155$ $\frac{\Delta n}{\Delta d_j} = -0{,}0004400$

Cmes felfelé : meniscus távolsága 2 hól (3 felé) 6·56
lefelé : " " 5 hól (4 felé) 1·67
} t = 21·8

folyadékf = 7067·4 − 1891·7 − 623·6 = 8335·5 + men

(03) = 8335·5 + men
3573·6
4761·9

1873·2 + 1855·1 = 3728·3 + 154·7 = 3573·6 + men

C_6H_6 tömege corr. nélkül

7.2940
4
132
730.76 mgr

t = 21.7°

= Ismételve! =

d_b = 83.3 d_j = 89.0

n = 1.5553 1.5452 } 1.5502

m_1 = 82.9 m_2 = 253.9

t = 21.8°

meniscus 2 hol (3 felé) 6.56

z = 4.776
4.769
4.764 z = 2.3841 mm
4.766
4.766
4.7682 f.

r = 5.5006 r^2 = 30.2567

$\frac{z}{r}$ = 0.43343

$\frac{a}{r}$ = 0.47201 $\frac{r}{a}$ = 2.118

a = 2.5963 $\frac{h}{a}$ = 0.1657

a^2 = 6.7408 h = 0.4302

M = 75.59

V = 1182.3

V = 8335.5
75.6
8411.1

21.7° leg a = 2.5968

V = 840.6

$t = 60{\cdot}8$

$d_y = 89{\cdot}7$ $\quad d_y = 91{\cdot}7$

$n = 1{\cdot}5223 \quad 1{\cdot}5333 \} 1{\cdot}5278$

$n = 1{\cdot}5280$
$60{\cdot}6$

$m_1 = 81{\cdot}4$ $\quad m_2 = 250{\cdot}2$

$t = 60{\cdot}6$

$z =$

4·462
4·471
4·463
4·470
4·469

4·4670 ∫

$z = 2{\cdot}2335$ m/m

meniscus 3 tol (2 felé) 17·785

2 tol (3 felé) 2·237

$r = 5{\cdot}5024$ $\quad r^2 = 30{\cdot}2764$

$\frac{z}{r} = 0{\cdot}405191$

$\frac{a}{r} = 0{\cdot}43505$ $\quad \frac{r}{a} = 2{\cdot}298$

$a = 2{\cdot}3938$ $\quad \frac{h}{a} = 0{\cdot}1306$

$h = 0{\cdot}3126$

$n = 69{\cdot}32$ $\quad a^2 = 5{\cdot}7303$

$V = 118414$ $\quad V = 8968{\cdot}2$
$\quad\quad 212{\cdot}8$

87554
$\quad\quad 69{\cdot}3$

88247

„a ujraszámlálva megegyezik!

$t = 99.9$

$d_f = 99.2$ $\quad d_j = 95.9$

$n = 1.4735$ $\quad 1.5149 \} 1.4942$

$m_1 = 79.3$ $\quad m_2 = 244.7$

$t = 99.9$

Meniscus 2 hol (1 jelé) 2.86

$z = 4.163$
4.171
4.168
4.167
4.168
4.1674

$z = 2.0837$ mm/m

$r = 5.5042$ $\quad r^2 = 30.2962$

$\frac{z}{r} = 0.37857$

$\frac{a}{r} = 0.40012$ $\quad \frac{r}{a} = 2.4999$

$a = 2.2023$ $\quad \frac{h}{a} = 0.1001$

$a^2 = 4.8501$ $\quad h = 0.2204$

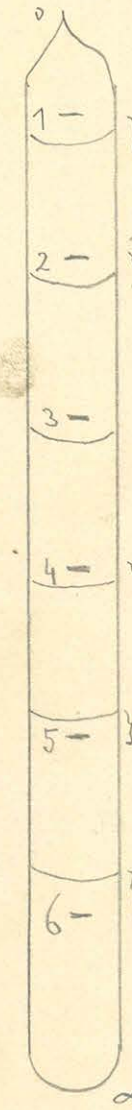
$U = 62.89$

$V = 11853.4$

$v = 8977.4$
272.2
62.9
9312.5

Számozás g. t = 19·7

Folyadék menisc. lehetőleg a közepén legyen!



16·00 } 18·995

2·995 } 2·995 intp.

18·96 – 108·3650 · 34·4936 / 58731

1·93 } 18·92 108·5941 · 34·5666 / 5·8793

0·85 } 18·98 108·2508 · 34·4573 / 5·8700

1·21 } 18·93 108·5367

2·26

20·025

20·00

21·04

19·98

(34) 2171·9

(04) 7945·8

(40) 6177·9

14123·7

(4-5)

t = 19·7	$(C_2H_5)_2O$	n = 1·35197	d_b = 128·9	d_j = 121·1	
t = 19·7	CS_2	n = 1·62777	d_b = 72·7	d_j = 69·9	
		0·27760	56·2		51·2

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}004911$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}005391$

Cmis felfelé: meniscus távolsága 4-től (3felé) 9·51 } t = 21·7

lefelé: " " 4-től (3felé) 6·77 }

folyt.: 6177·9
1032·7
7210·6 + men

(04) = 7210·6 + men
735·2 – men
7945·8

C_6H_6 tömege cca nélkül

6·3305
3
160
63468

t = 21·7

d_b = 89·2 d_j = 86·6

n = 1·5467 1·5377 } 1·5422 Ingar?

m_1 = 82·3 m_2 = 252·6

t = 21·7

Meniscus 4 tol (3 felé) 9·51

z = 4·842
4·850
4·844
4·850
4·851
4·8474 f

z = 2·4237 mm

r = 5·8793 r^2 = 34·5666

$\frac{z}{r}$ = 0·41224

$\frac{a}{r}$ = 0·44339 $\frac{r}{a}$ = 2·255

a = 2·6068 $\frac{h}{a}$ = 0·1383

a^2 = 6·7954 h = 0·3605

u = 86·36

V = 14123·7

V = 7210·6
86·4
7297·0

$t = 60.6$

$d_f = 92.7$ $\quad d_j = 89.4$

$n = 1.5295 \quad 1.5226 \;\}\; 1.5261$

$m_1 = 81.3$ $\quad m_2 = 249.9$

$t = 60.6$

$z = 4.541$
4.538
4.538
4.545
4.539
4.5402 f

$z = 2.2701$ m/m

Meniscus 3 tol (4 felé) 7.20

$r = 5.8813$ $\quad r^2 = 34.5896$

$\frac{z}{r} = 0.3859$

$\frac{a}{r} = 0.4043$ $\quad \frac{r}{a} = 2.442$

$a = 2.4079$ $\quad \frac{h}{a} = 0.1079$

$a^2 = 5.7979$ $\quad h = 0.2598$

4 tol (3 felé)

$n = 78.89$

$V = 14138.1$

$V = 6184.2$
1391.7
78.9
7654.8

$t = 99{\cdot}8°$

$d_f = 98{\cdot}8$ $\quad d_j = 95{\cdot}0$

$n = 1{\cdot}4995$ $\quad 1{\cdot}4924$ } $1{\cdot}4960$

$m_1 = 79{\cdot}4$ $\quad m_2 = 245{\cdot}0$

$t = 99{\cdot}8°$

meniscus távola 3 hól (4 felé) 3·475

$z = 4{\cdot}212$
$4{\cdot}203$
$4{\cdot}216$
$4{\cdot}211$
$4{\cdot}217$
$4{\cdot}2118\ f$

$z = 2{\cdot}1059\ ^{m}/_{m}$

$r = 5{\cdot}8833$ $\quad r^2 = 34{\cdot}6132$

$\frac{z}{r} = 0{\cdot}35794$

$\frac{a}{r} = 0{\cdot}37495$ $\quad \frac{r}{a} = 2{\cdot}667$

$a = 2{\cdot}2059$ $\quad \frac{h}{a} = 0{\cdot}0801$

$a^2 = 4{\cdot}8660$ $\quad h = 0{\cdot}1767$

$u = 70{\cdot}72$

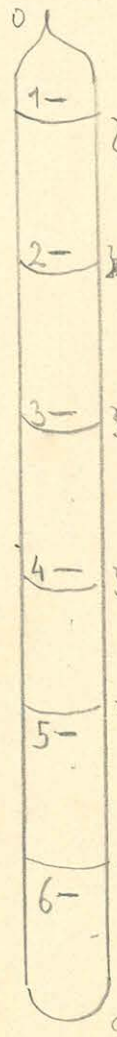
4 hól (3 felé)

$V = 14152{\cdot}5$

$v = 6190{\cdot}5$
$1798{\cdot}5$
$70{\cdot}7$
$8059{\cdot}7$

$99{\cdot}9°$ on $\quad n = 1{\cdot}4959$ $\quad a = 2{\cdot}2054$ $\quad V = 8061{\cdot}0$

Számozás 11.



$t = 19{\cdot}6$

18·32 } 20·03

855 } 19·055

01 } 19·985

20 } 20·00

565 } 1·405

19·175	107·1499	34·1068	
		5·8401	
19·185	107·0941	34·0891	(23) 2145·1
		5·8386	(34) 2034·3
19·245	106·7601		(45) 2136·4
19·22	106·8991		
19·16	107·2338		(03) 5333·5
			(3α) 8142·1
			13475·6

(4)

$t = 19{\cdot}7$	$(C_2H_5)_2O$	$n = 1{\cdot}3517$	$d_b = 120{\cdot}8$	$d_\gamma = 118{\cdot}9$
$t = 19{\cdot}7$	CS_2	$n = 1{\cdot}6277$	$d_b = 70{\cdot}0$	$d_\gamma = 71{\cdot}7$
		0·2760	50·8	47·2

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}005433$ $\quad \frac{\Delta n}{\Delta d_\gamma} = -0{\cdot}005847$

Gmös felfelé: meniscus távolsága 2 ″ől (3 felé) 6·21 } $t = 21{\cdot}7$
lefelé: ″ ″ 5 ″ől (6 felé) 1·10 }

(03) = 9622·1 + men

4288·6	
5333·5 –	2034·3
	2136·4
	117·9
	4288·6 + men

folyt. = 8142·1 + 1480·0 = 9622·1 + men

C_6H_6 hőmérő corr. nélkül

8·4345.
4
150
8449·g

$t = 21·7$

$d_y = 87·3$ $d_y = 88·0$

$n = 1·5337$ $1·5324 \} 1·5330$

$m_1 = 81·8$ $m_2 = 251·1$

Meniscus 2 hol (3 felé) 6·21

$t = 21·7$

$r = 5·8386$ $r^2 = 34·0891$

$z = 4·834$
4·829
4·830 $z = 2·4154^{m/m}$
4·830
4·831
4·8308

$\frac{z}{r} = 0·41369$

$\frac{a}{r} = 0·44531$ $\frac{r}{a} = 2·245$

$a = 2·6000$ $\frac{h}{a} = 0·1400$

$a^2 = 6·7600$ $h = 0·3640$

$H = 85·01$

$V = 13475·6$ $v = 9622·1$
85·0
9707·1

$t = 60.6$

$d_2 = 91.7$ $\quad d_1 = 88.4$

$n = 1.5098$ $\quad 1.5301$ $\quad \} 1.5200$

$m_1 = 80.9$ $\quad m_2 = 248.9$ $\quad$ Chloroform ray!!

$t = 60.6$

Meniscus 2 hol (3 felé) 1.775

$z = 4.503$
4.495
4.497
4.507
4.502
4.5008 f $\quad z = 2.2504$ m/m

$r = 5.8406$ $\quad r^2 = 34.1126$

$\frac{z}{r} = 0.38530$

$\frac{a}{r} = 0.40855$ $\quad \frac{r}{a} = 2.448$

$a = 2.3862$ $\quad \frac{h}{a} = 0.1070$

$a^2 = 5.6939$ $\quad h = 0.2553$

$u = 77.12$

$V = 81504$
19636
77.1
10191.1

$V = 13489.3$

$t = 60.6$

Ujra ènyelve:

$z = 4.525$
4.530
4.537
4.529
4.524
4.5290 f $\quad z = 2.2645$ m/m

$\frac{z}{r} = 0.38772$

$\frac{a}{r} = 0.41162$

$a = 2.4041$

$t = 99.9$

$d_2 = 94.1$ $\quad d_1 = 96.6$

$n = 1.4968 \quad 1.4827 \} 1.4895$

$m_1 = 79.1$ $\quad m_2 = 243.9$

$t = 99.9$

$z = 4.190$
4.185
4.190
4.190
4.192
$\overline{4.1894}$

$z = 2.0947\ mm$

Meniscus 2 tol (1 felé) 3.455

$r = 5.8440$ $\quad r^2 = 34.1523$

$\frac{z}{r} = 0.35844$

$\frac{a}{r} = 0.37555$

$a = 2.1947$

$a^2 = 4.8167$

$\frac{r}{a} = 2.663$

$\frac{h}{a} = 0.0806$

$h = 0.1769$

$V = 69.45$

$V = 13503.1$

$V = 10308.2$
370.7
69.4
$\overline{10748.3}$

CS_2

Számozott 3. cső $\quad p = 10740{\cdot}0$

$t = 20{\cdot}0$	$a = 2{\cdot}2864$	$v = 8573{\cdot}5$	$V = 12041{\cdot}1$		$n = 1{\cdot}6258$ $(t = 20{\cdot}0)$
$t = 61{\cdot}1$	$a = 2{\cdot}1179$	$v = 9010{\cdot}3$	$V = 12053{\cdot}4$	(3)	$n = 1{\cdot}6258$ $(t = 19{\cdot}9)$
$t = 100{\cdot}0$	$a = 1{\cdot}9408$	$v = 9501{\cdot}2$	$V = 12065{\cdot}7$		$n = 1{\cdot}6161$
					$n = 1{\cdot}5959$

Számozott 4 cső. $\quad p = 10407{\cdot}2$

$t = 20{\cdot}0$	$a = 2{\cdot}2998$	$v = 8288{\cdot}2$	$V = 11596{\cdot}6$		$n = 1{\cdot}6274$ $(t = 20{\cdot}0)$
$t = 61{\cdot}1$	$a = 2{\cdot}1091$	$v = 8710{\cdot}0$	$V = 11608{\cdot}4$	(2)	$n = 1{\cdot}6273$ $(t = 20{\cdot}3)$
$t = 100{\cdot}0$	$a = 1{\cdot}9208$	$v = 9190{\cdot}9$	$V = 11620{\cdot}3$		$n = 1{\cdot}6161$
					$n = 1{\cdot}5947$

Számozott 5 cső $\quad p = 8446{\cdot}3$

$t = 20{\cdot}6$	$a = \dfrac{\quad}{t = 20{\cdot}0}$	$v = 6742{\cdot}2$ $v = 6737{\cdot}3$	$V = 13839{\cdot}2$		$n = 1{\cdot}6282$ $(t = 20{\cdot}0)$
$t = 61{\cdot}1$	$a = 2{\cdot}1331$	$v = 7071{\cdot}9$	$V = 13853{\cdot}3$	(1)	$n = 1{\cdot}6283$ $(t = 19{\cdot}7)$
$t = 100{\cdot}0$	$a = 1{\cdot}9393$	$v = 7427{\cdot}8$	$V = 13867{\cdot}4$		$n = 1{\cdot}6091$
					$n = 1{\cdot}5957$

$t = 20{\cdot}0$

$a = 2{\cdot}2864$	$n = 1{\cdot}6282$	$v_1 = 6737{\cdot}3$	$v_2 = 8288{\cdot}2$	$v_3 = 8573{\cdot}5$
$2{\cdot}2998$	$1{\cdot}6274$			
$2{\cdot}2931$	$1{\cdot}6258$	$w_1 = 7101{\cdot}9$	$w_2 = 3308{\cdot}4$	$w_3 = 3467{\cdot}6$
	$1{\cdot}6271$			

$t = 61{\cdot}1$

$a = 2{\cdot}1331$	$n = 1{\cdot}6091$	$v_1 = 7071{\cdot}9$	$v_2 = 8710{\cdot}0$	$v_3 = 9010{\cdot}3$
$2{\cdot}1091$	$1{\cdot}6161$			
$2{\cdot}1179$	$1{\cdot}6161$	$w_1 = 6781{\cdot}4$	$w_2 = 2898{\cdot}4$	$w_3 = 3043{\cdot}1$
$2{\cdot}1200$	$1{\cdot}6138$			

$t = 100{\cdot}0$

$a = 1{\cdot}9393$	$n = 1{\cdot}5957$	$v_1 = 7427{\cdot}8$	$v_2 = 9190{\cdot}9$	$v_3 = 9501{\cdot}2$
$1{\cdot}9208$	$1{\cdot}5947$			
$1{\cdot}9408$	$1{\cdot}5959$	$w_1 = 6439{\cdot}6$	$w_2 = 2429{\cdot}4$	$w_3 = 2564{\cdot}5$
$1{\cdot}9336$	$1{\cdot}5954$			

$p_1 = 8446{\cdot}3$	$p_2 = 10407{\cdot}2$	$p_3 = 10740{\cdot}0$

$t = 20{\cdot}0$

$a^2 = 5{\cdot}2583$

$\delta = 1{\cdot}2569$
$\quad\quad 1{\cdot}2521$
$\delta = 1{\cdot}2545$

$\sigma = -\ 0{\cdot}0030$
$\quad + 0{\cdot}0015$
$\sigma = -0{\cdot}0007$

$f = 3{\cdot}30017$

$\delta - \sigma = 1{\cdot}2552$

$\lambda^2 = 15{\cdot}443$

$\lambda^3 = 60{\cdot}685$

411

389

$t = 61{\cdot}1$

$a^2 = 4{\cdot}4944$

$\delta = 1{\cdot}1951$
$\quad\quad 1{\cdot}1907$
$\delta = 1{\cdot}1929$

$\sigma = -\ 0{\cdot}0008$
$\quad = +\ 0{\cdot}0038$
$\sigma = +\ 0{\cdot}0015$

$f = 2{\cdot}67731$

$\delta - \sigma = 1{\cdot}1914$

$\lambda^2 = 15{\cdot}970$

$\lambda^3 = 63{\cdot}818$

$t = 100{\cdot}0$

$a^2 = 3{\cdot}7388$

$\delta = 1{\cdot}1302$
$\quad\quad 1{\cdot}1273$
$\delta = 1{\cdot}1288$

$\sigma = 0{\cdot}0079$
$\quad = 0{\cdot}0113$
$\sigma = 0{\cdot}0081$

$f = 2{\cdot}0g504$

$\delta - \sigma = 1{\cdot}1207$

$\lambda^2 = 16{\cdot}569$

$\lambda^3 = 67{\cdot}442$

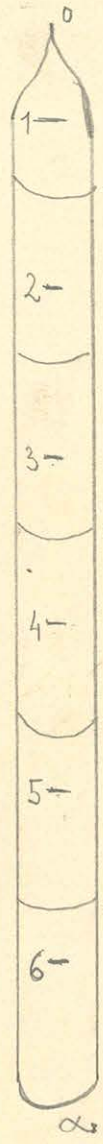
t =	$\int \lambda^2 =$		h =	
20·0°	50·96453	)	0·199	) 0·203
41·1		8·20718		
61·1	42·75664		0·207	
38·9		8·04392		
100·0	34·71272			

Sűrűség 0° on (extrapolálva) 1·2867

0° higany	fp.
754·0	45·9

Molekulasúly (O=16) 76·129

Számozás 4.



$t = 20{\cdot}4$

20·035

20·005

20·025

20·005

14·305) 22·150 g 2·7584 2g·5259 (54338)

12·19) 22·250 g 2·3416

9·945) 22·185 g 2·6121 · { 2g·4793 / 5·4295

7·785) 22·195 g 2·5704

5·595

(2.3) 1853·3

(3.4) 1850·0

(4·5) 1854·3

(0 3) 4571·5

(3 α) 7025·1

11596·6

(4-5)

$t = 20{\cdot}6$	$(C_2H_5)_2O$	$n = 1{\cdot}3512$	$d_\delta = 127{\cdot}9$	$d_j = 126{\cdot}4$	
$t = 19{\cdot}8$	CS_2	$n = 1{\cdot}6276$	$d_\delta = 71{\cdot}0$	$d_j = 72{\cdot}1$	
0·2764			56g	54·3	

$\frac{\Delta n}{\Delta d_\delta} = -0{\cdot}004858$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}005090$

Cséve felfelé : meniscus távolsága 2-től (3 felé) 7·06
lefelé : " " 5-től (4 felé) 0·565 } $t = 20{\cdot}0$

folyadékfej = 7025·1
1853·3
8878·4
−654·9
8223·5 + men

(03) = 8223·5 + men
3652·0
4571·5 { 1850·0 / 1854·3 = 3704·3
52·3 + men
3652·0

CS_2 folyt. törzs correction nélkül

10·3943
5
124
10407·2 mgr

t = 20·3

d_b = 71·2 d_j = 72·0

n = 1·6266 1·6281 } 1·6273

m_1 = 87·9 m_2 = 266·7

t = 20·0

Z = 4·318
4·311
4·312
4·309
4·313
4·3126 f

z = 2·1563 m/m

Mennisus 2 hól (3 febr) 7·06 mm.

r = 5·4338 r^2 = 29·5259

$\frac{Z}{r}$ = 0·39683

$\frac{a}{r}$ = 0·42325 $\frac{r}{a}$ = 2·362

a = 2·2998 $\frac{h}{a}$ = 0·1200

a^2 = 5·2891 h = 0·2760

h = 64·6g

V = 11596·6

V = 8223·5
64·7
8288·2

t =

d_b =

n =

m_1

t =

z =

$t = 61.1$

$d_0 = 74.8$ $\quad d_j = 72.9$

$n = 1.6091$ $\quad 1.6230$ } 1.6161

$m_1 = 87.4$ $\quad m_2 = 264.9$

$t = 61.1$

$z = 4.008$
4.005
4.007
4.009
4.015
4.0088 f

$z = 2.0044$ m/m

Meniscus 2 tol (3 pelé) 2.54

$r = 5.4356$ $\quad r^2 = 29.5457$

$\frac{z}{r} = 0.36875$

$\frac{a}{r} = 0.38801$ $\quad \frac{r}{a} = 2.577$

$a = 2.1091$ $\quad \frac{h}{a} = 0.0902$

$a^2 = 4.4483$ $\quad h = 0.1902$

$H = 58.31$

$V = 116084$

$v = 8887.5$
$- 235.8$
8651.7
58.3
8710.0

$t = 100{\cdot}0$

$d_g = 78{\cdot}2$ $\quad d_j = 78{\cdot}2$

$n = 1{\cdot}5927$ $\quad 1{\cdot}5966$ $\}\ 1{\cdot}5947$

$m_1 = 85{\cdot}9$ $\quad m_2 = 261{\cdot}4$

$t = 100{\cdot}0$

$z = 3{\cdot}692$
$3{\cdot}685$
$3{\cdot}700$
$3{\cdot}687$
$3{\cdot}693$
$3{\cdot}6914$

$z = 1{\cdot}8457$ m/m

meniscus 2hl (1 jelé) 2·615

$r = 5{\cdot}4375$ $\quad r^2 = 29{\cdot}5664$

$\frac{z}{r} = 0{\cdot}33944$

$\frac{a}{r} = 0{\cdot}35325$ $\quad \frac{r}{a} = 2{\cdot}831$

$a = 1{\cdot}9208$ $\quad \frac{h}{a} = 0{\cdot}0645$

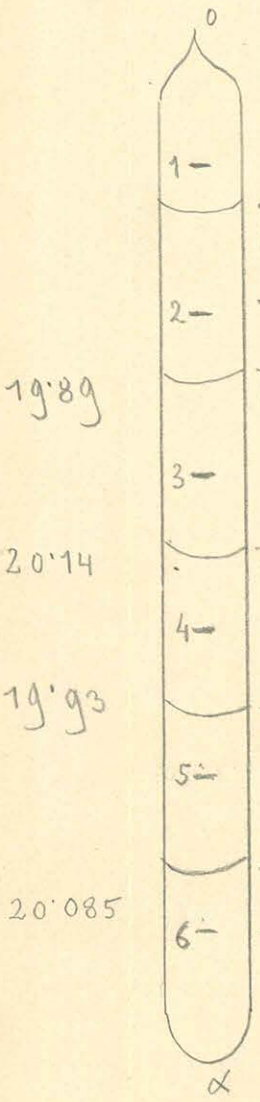
$a^2 = 3{\cdot}6895$ $\quad h = 0{\cdot}1239$

$n = 51{\cdot}52$

$V = 11620{\cdot}3$

$V = 8896{\cdot}5$
$242{\cdot}9$
$51{\cdot}5$
$9190{\cdot}9$

Számozás 3.



$t = 20.3$

		1mm rela megf. tér.	r^2 és r
14.68	22.165	92.6957	29.5059 / 5.4319
19.89 — 12.405	22.110	92.9263	29.5793 / 5.4387
20.14 — 10.435	22.155	92.7375	
19.93 — 8.21	22.010	93.3485	
20.085 — 6285			

(3.2) 1846.5

(3.4) 18.69.5

(4.5) 1853.3

(30) 5043.2

(3α) 6997.9

$V = 12041.1$

(4-5)

$t = 20.6$	$(C_2H_5)_2O$	$n = 1.3512$	$d_b = 124.1$	$d_j = 127.9$
$t = 19.8$	CS_2	$n = 1.6276$	$d_b = 70.9$	$d_j = 70.7$
		0.2764	53.2	57.2

$\frac{\Delta n}{\Delta d_b} = -0.000595$ $\quad \frac{\Delta n}{\Delta d_j} = -0.004832$

Cincs felfelé: meniscus távolsága 2 hl (3 felé) 3.615
lefelé: " " 5 hl (4 felé) 2.75
} $t = 20.1$

folyték = 6997.9 − 1846.5 = 8844.4 − 335.1 = 8509.3 + men

(3.0) = 8509.3 + men − 3466.1 = 5043.2

1869.5 + 1853.3 = 3722.8 − 256.7 = 3466.1 + men.

CS_2 folyhőmeg correctiók nélkül

10·7266 gr
5
12 g
10740·0 mgr

$t = 19{\cdot}9°$

$d_b = 71{\cdot}5$ $d_j = 70{\cdot}8$

$n = 1{\cdot}6245$ $1{\cdot}6271 \} 1{\cdot}6258$

$m_1 = 87{\cdot}9$ $m_2 = 266{\cdot}5$

$t = 20{\cdot}0°$

Meniscus távola 2 hól (3 felé) 3·615

$z = 4{\cdot}297$
$4{\cdot}289$
$4{\cdot}290$ $z = 2{\cdot}1457$ mm
$4{\cdot}290$
$4{\cdot}291$
$4{\cdot}2914$ g

$r = 5{\cdot}4319$ $r^2 = 29{\cdot}5059$

$\frac{z}{r} = 0{\cdot}39502$

$\frac{a}{r} = 0{\cdot}42093$ $\frac{r}{a} = 2{\cdot}375$

$a = 2{\cdot}2864$ $\frac{h}{a} = 0{\cdot}1180$

$a^2 = 5{\cdot}2276$ $h = 0{\cdot}2698$

$M = 64{\cdot}20$

$V = 12041{\cdot}1$ $v = 8509{\cdot}3$
$64{\cdot}2$
$8573{\cdot}5$

$t = 61{\cdot}1$

$d_b = 73{\cdot}1$ $\quad d_j = 73{\cdot}1$

$n = 1{\cdot}6162 \quad 1{\cdot}6161 \} 1{\cdot}6161$

$m_1 = 87{\cdot}4$ $\quad m_2 = 264{\cdot}9$

$t = 61{\cdot}1$

$z = 4{\cdot}029$
$4{\cdot}015$
$4{\cdot}029$
$4{\cdot}017$
$4{\cdot}025$
$4{\cdot}023$ $\quad z = 2{\cdot}0115\ m_m$

meniscus $2\frac{1}{2}$ bl (1 fele) $1{\cdot}06$

$r = 5{\cdot}4337$ $\quad r^2 = 29{\cdot}5251$

$\frac{z}{r} = 0{\cdot}37019$

$\frac{a}{r} = 0{\cdot}38977$ $\quad \frac{r}{a} = 2{\cdot}566$

$a = 2{\cdot}1179$ $\quad \frac{h}{a} = 0{\cdot}0915$

$a^2 = 4{\cdot}4855$ $\quad h = 0{\cdot}1938$

$N = 58{\cdot}60$

$V = 12053{\cdot}4$

$V = 8853{\cdot}4$
$98{\cdot}3$
$58{\cdot}6$
$9010{\cdot}3$

$t = 100{\cdot}0$

$d_g = 76{\cdot}6$ $\quad d_f = 777$

$n = 1{\cdot}5980$ $\quad 15938 \} 1{\cdot}5959$

$m_1 = 85{\cdot}9$ $\quad m_2 = 261{\cdot}6$

$t = 100{\cdot}0$

$z = 3{\cdot}734$
$3{\cdot}722$
$3{\cdot}728$
$3{\cdot}719$
$3{\cdot}727$
$3{\cdot}726\ f$

$z = 1{\cdot}8630\ ^{m}/_{m}$

Meniscus 2 hól (1 fele) 6·32

$r = 5{\cdot}4356$ $\quad r^2 = 29{\cdot}5457$

$\frac{z}{r} = 0{\cdot}34274$

$\frac{a}{r} = 0{\cdot}35706$ $\quad \frac{r}{a} = 2{\cdot}801$

$a = 1{\cdot}9408$ $\quad \frac{h}{a} = 0{\cdot}0671$

$a^2 = 3{\cdot}7667$ $\quad h = 0{\cdot}1302$

$V = 52{\cdot}24$

$V = 12065{\cdot}7$

$v = 8862{\cdot}4$
$586{\cdot}6$
$52{\cdot}2$
$9501{\cdot}2$

Számozás 5.

$t = 20{\cdot}4$

1– } 16·59) 18·56 110·7004

2– } 1·97

20·01) 18·71 109·8129 34·9545 (03) 5626·2
5·9122

3– } 0·67

19·99) 18·72 109·7543. 34·9358
5·9106 (34) 2194·0

4– } 0·60

20·015) 18·755 109·5495 (4:5) 2192·5

5– } 1·86) 18·77 109·4619

20·02

6– } 3·11

(4∞) 6019·0

13839·2

(4,5)

$t = 20{\cdot}6$ $(C_2H_5)_2O$ $n = 1{\cdot}35112$ $d_b = 140{\cdot}1$ $d_j = 142{\cdot}2$

$t = 19{\cdot}7$ CS_2 $n = 1{\cdot}62777$ $d_b = 74{\cdot}8$ $d_j = 77{\cdot}0$

0·2765 65·3 65·2

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}0004234$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}0004241$

Cmcs felfelé: menisc. távolsága (cmcs 10 mm²)
4-től (3 felé) 5·80
3-tól (4 felé) 9·47
} $t = 20{\cdot}5$

folyl. = 6019·0
6366
10·0
6665·6 + men

(03) 6665·6 + men
−1039·4 − men
5626·2

CS_2 hőmérs correction nélkül

8·4305
4
154
8446·3 mgr

$t = 19{\cdot}7$

$d_b = 75{\cdot}6$ $d_j = 75{\cdot}9$

$n = 1{\cdot}6243$ $r6323\ \}\ 1{\cdot}6283$

$m_1 = 88{\cdot}0$ $m_2 = 266{\cdot}9$

$t = 20{\cdot}6$ (v. 1. 04 k)

nehéza lepod!!!!

$z = 4{\cdot}423$
4·430
4·420
4·428
4·430
4·4262 f

$z = 2{\cdot}2131$ m/m

meniscus hőt (3 fele) 5·80
cmcs 10 mm³.

$r = 5{\cdot}9106$ $r^2 = 34{\cdot}9358$

$\frac{z}{r} = 0{\cdot}37443$

$\frac{a}{r} = 0{\cdot}39500$ $\frac{r}{a} = 2{\cdot}531$

$a = 2{\cdot}3346$ $\frac{h}{a} = 0{\cdot}0959$

$a^2 = 5{\cdot}4503$ $h = 0{\cdot}2239$

$n = 76{\cdot}64$

$V = 13839{\cdot}2$

$V = 6665{\cdot}6$
76·6
6742·2

$t = 61{\cdot}1$

$d_b = 80{\cdot}5$ $\quad d_f = 80{\cdot}1$

$n = 1{\cdot}6036 \quad 1{\cdot}6146 \;\Big\}\; 1{\cdot}60g1$

$m_1 = 87{\cdot}0 \quad m_2 = 263{\cdot}7$

$t = 61{\cdot}1$ (mindig három crönel esetleg 0·1 m.)

Menis cus 4 tol (3 jelé) $8{\cdot}g1$

$z = 4{\cdot}083$
$4{\cdot}0g3$
$4{\cdot}089$
$4{\cdot}0g8$
$4{\cdot}0g1$
$4{\cdot}0g08$

$z = 2{\cdot}0454$ mm

$r^2 = 5{\cdot}g126 \quad r^2 = 34{\cdot}g588$

$\frac{z}{r} = 0{\cdot}345g4$

$\frac{a}{r} = 0{\cdot}36078 \quad \frac{r}{a} = 2{\cdot}771$

$a = 2{\cdot}1331 \quad \frac{h}{a} = 0{\cdot}06gg$

$a^2 = 4{\cdot}5501 \quad h = 0{\cdot}14g1$

$U = 68{\cdot}15$

$V = 13853{\cdot}3$

$V = 6025{\cdot}1$
$g78{\cdot}6$
$68{\cdot}2$
$7071{\cdot}g$

$t = 100{\cdot}0$

$d_b = 8{\cdot}37$ $\quad d_j = 8{\cdot}32$

$n = 1{\cdot}5900$ $\quad 1{\cdot}6014$ $\}\ 1{\cdot}5957$

$m_1 = 85{\cdot}9$ $\quad m_2 = 261{\cdot}6$

$t = 100{\cdot}0\ (0{\cdot}1)$

$z = 3{\cdot}745$
$3{\cdot}749$
$3{\cdot}753$ $\quad 1{\cdot}8743\ ^{my}/_{m}$
$3{\cdot}747$
$3{\cdot}749$
$3{\cdot}7486\ f$

Meniscus 3 ból (4 felé) $7{\cdot}84$

$r = 5{\cdot}9746$ $\quad r^2 = 34{\cdot}9825$

$\frac{z}{r} = 0{\cdot}31689$

$\frac{a}{r} = 0{\cdot}32789$ $\quad \frac{r}{a} = 3{\cdot}049$

$a = 1{\cdot}9393$ $\quad \frac{h}{a} = 0{\cdot}0483$

$a^2 = 3{\cdot}7609$ $\quad h = 0{\cdot}0937$

$h = 59{\cdot}59$

Meniscus 4 ből (3 felé) szám: $12{\cdot}164$

$V = 13867{\cdot}4$

$v = 6031{\cdot}3$
$1336{\cdot}9$
$59{\cdot}6$
$7427{\cdot}8$

$(C_2H_5)_2O$

12 cm" $p = 5664{\cdot}5$

					$n = 1{\cdot}3520$
$t = 24{\cdot}7$	$a = 2{\cdot}1921$	$v = 8061{\cdot}2$	$V = 12180{\cdot}8$		$n = 1{\cdot}3530$ $(t = 24{\cdot}1°C)$
$t = 60{\cdot}6$	$a = 1{\cdot}9587$	$v = 8584{\cdot}4$	$V = 12193{\cdot}2$	(3)	$n = 1{\cdot}2908$
$t = 99{\cdot}9$	$a = 1{\cdot}6677$	$v = 9311{\cdot}1$	$V = 12205{\cdot}6$		$n = 1{\cdot}2006$

13 cm" $p = 5427{\cdot}1$

					$n = 1{\cdot}3448$
$t = 24{\cdot}7$	$a = 2{\cdot}1874$	$v = 7740{\cdot}9$	$V = 10908{\cdot}7$		$n = 1{\cdot}3446$ $(t = 24{\cdot}8°C)$
$t = 60{\cdot}6$	$a = 1{\cdot}9550$	$v = 8237{\cdot}1$	$V = 10919{\cdot}8$	(2)	$n = 1{\cdot}2928$
$t = 99{\cdot}9$	$a = 1{\cdot}6855$	$v = 8959{\cdot}9$	$V = 10930{\cdot}9$		$n = 1{\cdot}2133$

14 cm" $p = 3581{\cdot}3$

					$n = 1{\cdot}3498$
$t = 24{\cdot}7$	$a = 2{\cdot}1814$	$v = 5118{\cdot}5$	$V = 10569{\cdot}6$		$n = 1{\cdot}3491$ $(t = 25{\cdot}1°C)$
$t = 60{\cdot}6$	$a = 1{\cdot}9624$	$v = 5417{\cdot}9$	$V = 10580{\cdot}4$	(1)	$n = 1{\cdot}2900$
$t = 99{\cdot}9$	$a = 1{\cdot}6527$	$v = 5813{\cdot}9$	$V = 10591{\cdot}2$		$n = 1{\cdot}1992$

$t = 24{\cdot}7$ (1) (3)

$a = 2{\cdot}1814$	$n = 1{\cdot}3498$	$v_1 = 5118{\cdot}5$	$v_2 = 7740{\cdot}9$	$v_3 = 8061{\cdot}2$
$2{\cdot}1874$	$1{\cdot}3448$			
$2{\cdot}1921$	$1{\cdot}3520$	$w_1 = 5451{\cdot}1$	$w_2 = 3167{\cdot}8$	$w_3 = 4119{\cdot}6$
$2{\cdot}1870$	$1{\cdot}3489$			

$t = 60{\cdot}6$

$a = 1{\cdot}9624$	$n = 1{\cdot}2900$	$v_1 = 5417{\cdot}9$	$v_2 = 8237{\cdot}1$	$v_3 = 8584{\cdot}4$
$1{\cdot}9550$	$1{\cdot}2928$			
$1{\cdot}9587$	$1{\cdot}2908$	$w_1 = 5162{\cdot}5$	$w_2 = 2682{\cdot}7$	$w_3 = 3608{\cdot}8$
$1{\cdot}9587$	$1{\cdot}2912$			

$t = 99{\cdot}9$

$a = 1{\cdot}6527$	$n = 1{\cdot}1992$	$v_1 = 5813{\cdot}9$	$v_2 = 8959{\cdot}9$	$v_3 = 9311{\cdot}1$
$1{\cdot}6855$	$1{\cdot}2133$			
$1{\cdot}6677$	$1{\cdot}2006$	$w_1 = 4777{\cdot}3$	$w_2 = 1971{\cdot}0$	$w_3 = 2894{\cdot}5$
$1{\cdot}6686$	$1{\cdot}2044$			

$p_1 = 3581{\cdot}3$ $p_2 = 5427{\cdot}1$ $p_3 = 5664{\cdot}5$

$t = 2\mu{\cdot}7$

$\alpha^2 = \mu{\cdot}7830$ $\quad \lambda = 0{\cdot}7020 \quad \sigma = -0{\cdot}00271$

$0{\cdot}7054 \quad -0{\cdot}0054$

$f = \frac{\alpha^2}{2}(\lambda - \sigma) = \quad 0{\cdot}7034 \quad -0{\cdot}00031$

$= 1{\cdot}6917\mu 5$ $\quad \lambda - \sigma = 0{\cdot}7074$

$\lambda^2 = 22{\cdot}288$

$\lambda^3 = 105{\cdot}221$

$t = 60{\cdot}6$ $\quad \lambda = 0{\cdot}6574 \quad \sigma = 0{\cdot}0034$

$\alpha^2 = 3{\cdot}8365 \quad 0{\cdot}6589 \quad 0{\cdot}0022$

$0{\cdot}6583 \quad 0{\cdot}0028$

$f = 1{\cdot}2574\mu 8$ $\quad \lambda - \sigma = 0{\cdot}6555$

$\lambda^2 = 23{\cdot}301$

$t = 99{\cdot}9$ $\quad \lambda = 0{\cdot}6019 \quad \sigma = 0{\cdot}0171$

$\alpha^2 = 2{\cdot}7\mu 8\mu 2 \quad 0{\cdot}6037 \quad 0{\cdot}0149$

$0{\cdot}6028 \quad 0{\cdot}0160$

$f = 0{\cdot}8168\mu 8$ $\quad \lambda - \sigma = 0{\cdot}5868$

$\lambda^2 = 24{\cdot}710$

$\lambda^3 = 122{\cdot}833$

$t = 24{\cdot}7$) 35·9 60·6) 39·3 99·9

$\S\lambda^2 = 37{\cdot}7057$) 8·4075 — 29·2982) 9·1131 — 20·1851

0·234 — 0·232) 0·233

Kritikus!

Sűrűség 0° on (extrapolálva) 0·7354

0° higany ff

753·2 34·2.

Molekulasúly (O=16) 74·044

Kritikus hőfoki (Lonsolt ömes égtelelelnek közép értéke): 193·2

1 mol. f.e. számra 0·232 vel :

$\left(\frac{20{\cdot}1851}{0{\cdot}232} + 99{\cdot}9\right) = 186{\cdot}9$

0·233 val : 186·5

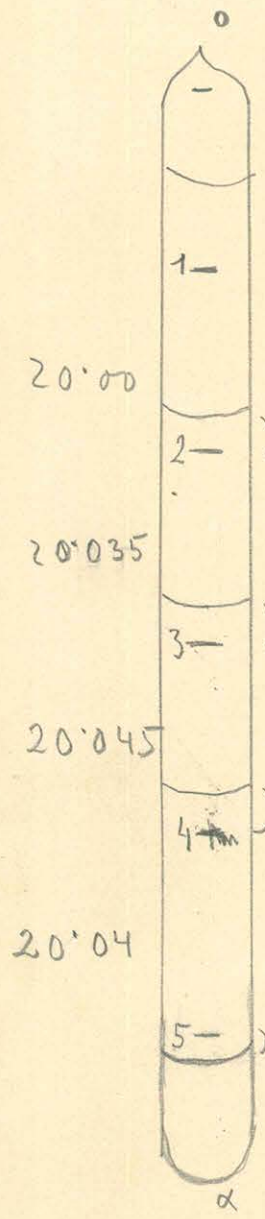
$\sigma = 0$ vesse $t = 24{\cdot}7°$ on

f $f\lambda^2$

1·6829 37·508) 8·210 0·229

12 cső

$t = 19{\cdot}8$



) 6·90

) 22·005 $g_3{\cdot}3697$ · { 29·7204 / 5·4516 } (02) 4488·0

) 4·895

) 21·990 $g_3{\cdot}4334$ · { 29·7408 / 5·4535 }

{ (2.3) 1873·2 }

) 2·94

) 21·865 $g_3{\cdot}8675$

) 1·12

) 21·64 $g_4{\cdot}9445$ (α 2) 7692·8

$V = 12180{\cdot}8$

1 mm-nek megfel. $r^2 \grave{e}s\ r$ tér.

3 és 4 higgan.

$t = 21{\cdot}7$ $(C_2H_5)_2O$ $n = 1{\cdot}3505$ $d_b = 127{\cdot}4$ $d_j = 112{\cdot}8$

$t = 21{\cdot}8$ CS_2 $n = 1{\cdot}6260$ $d_f = 66{\cdot}7$ $d_j = 67{\cdot}5$

$\Delta n = 0{\cdot}2755$ 607 453

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}004538$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}006081$

Görcs felfelé: meniscus távolsága 2 hől (1felé) 3·285 } $t = 24{\cdot}7°C$

lefelé: " 4hől (3felé) 2·59 }

folyt. ter. = 7692·8 + 306·9 = 7999·7 +men

(02) = 7999·7 +men

− 3511·7 { 1873·2 + 1638·5 +men }

4488·0 3511·7

$(C_2H_5)_2O$ =

p = 5650·4
3
138
5664·5 mgr.

Kathetometer 0. asztalról 291·0 mm.

t = 24·1°C

d_b = 124·8 d_j = 113·9

n = 1·36623 1·3438 = 1·3530

m_1 = 70·3 m_2 = 221·2

t = 24·7

meniscus 2 tol (1 felé) = 3·285

r = 5·4535 r^2 = 29·7408

z = 4·145
4·144
4·152 z = 2·0726 mm.
4·140
4·145
4·14.52 f

$\frac{z}{r}$ = 0·38005

$\frac{a}{r}$ = 0·40197 $\frac{r}{a}$ = 2·488

a = 2·1921 $\frac{h}{a}$ = 0·1015

a^2 = 4·8053 h = 0·2225

n = 61·54

V = 12180·8 V = 79997 (61·5)

8061·2

imagr.

$t = 60.6°C$

$d_g = 140.6$ $\quad d_f = 122.6$

$n = 1.2906$ $\quad 1.2910$ $\}$ 1.2908

$m_1 = 66.6$ $\quad m_2 = 210.9$

$t = 60.6°C$

$z = 3.762$
3.757
3.754 $\quad z = 1.8790$ mm
3.757
3.760
3.75807

$u = 53.15$

$V = 12193.2$

Meniscus 2 köl (1 fele) 8.8 g

$r = 5.4535$ $\quad r^2 = 29.7407$

$\frac{z}{r} = 0.34455$

$\frac{a}{r} = 0.3596$ $\quad \frac{r}{a} = 2.784$

$a = 1.9587$ $\quad \frac{h}{a} = 0.0687$

$a^2 = 3.8365$ $\quad h = 0.1346$

$V = 7700.6$
830.6
53.2
8584.4

$t = 99.9°C$

$d_ü = 161.0$ $d_j = 137.0$

$n = 1.1980$ $1.2038\}1.2006$

$m_1 = 61.2$ $m_2 = 195.9$

$t = 99.9°C$ (h. több)

$z = 3.238$
3.226
3.236
3.229
3.230
3.2318 f $z = 1.6159$ mm

$N = 42.07$

$V = 12205.6$

meniscus 2 hül (1 felé) 16.6 g

$r = 5.4553$ $r^2 = 29.7603$

$\frac{z}{r} = 0.29621$

$\frac{a}{r} = 0.30571$ $\frac{r}{a} = 3.271$

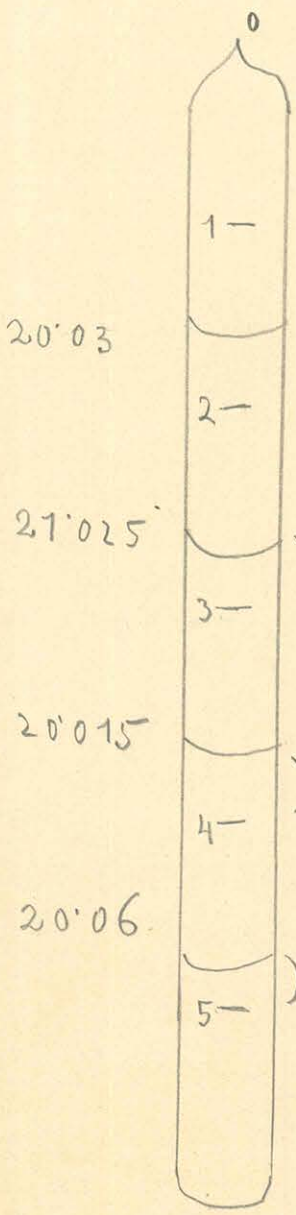
$a = 1.6677$ $\frac{h}{a} = 0.0359$

$a^2 = 2.7812$ $h = 0.05987$

$V = 7708.5$
1560.5
42.1
9311.1

13. cső

$t = 19{\cdot}3$



20·03

1 mm-nek megf. kp.

(02) 3723·9

)10·68

)22·685 g0·5709 · { 28·8296 / 5·3693

21·025

)9·02

)22·72 g0·4313 {(24) 3710·5}

20·015

)6·315

)22·82 g0·0351

20·06

)3·555

(2α) 7184·8

σV = 10908·7

4 vonalnál

$t = 21{\cdot}8$ $(C_1H_5)_2O$ $n = 1{\cdot}3505$ $d_b = 111{\cdot}8$ $d_j = 113{\cdot}1$

$t = 21{\cdot}9$ CS_2 $n = 1{\cdot}6259$ $d_b = 65{\cdot}9$ $d_j = 65{\cdot}5$

$\Delta n = 0{\cdot}2754$ 45·9 47·6

$\frac{\Delta n}{\Delta d_b} = -0{\cdot}0060000$ $\frac{\Delta n}{\Delta d_j} = -0{\cdot}0057850$

Cinca felfelé: meniscus távolsága 2 $\frac{1}{4}$-től (1 felé) 5·48

lefelé: " 4 $\frac{1}{4}$-től (5 felé) 2·74 } $t = 24{\cdot}7$

folyt. = 7184·8 + 496·3 = 7681·1 + men

(02) = 7681·1 + men − 3957·2 = 3723·9 { 3710·5 + 246·7 + men = 3957·2 }

$(C_2H_5)_2O$

$\rho = 5414{\cdot}5$
3
123
$5427{\cdot}1$ mgr

$t = 24{\cdot}8°C$

$d_b = 115{\cdot}8 \quad d_j = 111{\cdot}0$

*) Véletlenül maradt az elöbbi 70·3

$n = 1{\cdot}3265 \quad 1{\cdot}3626 \quad = 1{\cdot}3446$

$m_1 = 69{\cdot}8$ *) $\quad m_2 = 219{\cdot}8$

$t = 24{\cdot}7$

meniscus távolsága 2 hol (1 felé) 5·48

$r = 5{\cdot}3693 \qquad r^2 = 28{\cdot}8296$

$2 = 4{\cdot}131$
$4{\cdot}127$
$4{\cdot}136$
$4{\cdot}123$
$4{\cdot}121$
$z = 2{\cdot}0638$ mm
$4{\cdot}1276$ ⨍

$\frac{z}{r} = 0{\cdot}38437$

$\frac{a}{r} = 0{\cdot}40739$

$\frac{r}{a} = 2{\cdot}455$

$\frac{h}{a} = 0{\cdot}1057$

$h = 0{\cdot}2312$

$a = 2{\cdot}1874$

$a^2 = 4{\cdot}7847$

$u = 59{\cdot}77$

$V = 10908{\cdot}7$

$V = 76817$
$59{\cdot}8$
$7740{\cdot}9$

$t = 60.6\,°C$

$d_g = 124.3 \quad d_i = 120.1$

$n = 1.2755 \quad 1.3100 \;\Big\}\; 1.2928$

$m_1 = 66.7 \qquad m_2 = 211.2$

$t = 60.6\,°C$

Meniscus korrekció 2 hól (1 felé) 10.96

$r = 5.3711 \qquad r^2 = 28.8487$

$z = 3.759$
3.742
3.741
3.746
3.740
$\overline{3.7456}$

$z = 1.8728$ mm.

$\frac{z}{r} = 0.34868$

$\frac{a}{r} = 0.36399 \qquad \frac{r}{a} = 2.747$

$a = 1.9550 \qquad \frac{h}{a} = 0.0720$

$a^2 = 3.8220 \qquad h = 0.1408$

$n = 51.73$

$V = 1091.8$

$V = 719.1$
99.3
51.7
$\overline{823.1}$

$t = 99.9$

$d_b = 134.0$ $\quad d_j = 137.5$

$h = 1.2173$ $\quad 1.2093$ $\quad \} 1.2133$

$m_1 = 62.0$ $\quad m_2 = 198.0$

$t = 99.9$

$z = 3.267$
3.264
3.262 $\quad z = 1.6324$ mm
3.262
3.269
$\overline{3.2648}$

Meniscus lavol 2 hol (1 felé) 18.95

$r = 5.3729$ $\quad r^2 = 28.8680$

$\frac{z}{r} = 0.30382$

$\frac{a}{r} = 0.31376$ $\quad \frac{r}{a} = 3.187$

$a = 1.6855$ $\quad \frac{h}{a} = 0.0402$

$a^2 = 2.8409$ $\quad h = 0.06776$

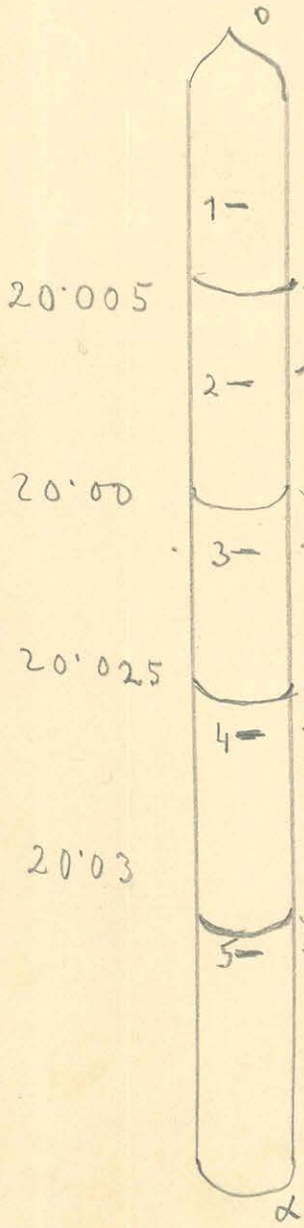
$H = 41.80$

$V = 10930$

$v = 7199.5$
1718.6
41.8
$\overline{8959.9}$

14 cm

t = 19'4



20·005
10·35
23·24 88·4079

20·00
7·11
23·365 87·9349 · { 27·9905 / 5·2906

20·025
3·77
23·21 88·5222

20·03
0·59

1mm vele megy
be

(03) 5095·4

(3.α) 5474·2

γ = 105696

4 vonalnál

t = 21·9 $(C_2H_5)_2O$ n = 1·3504 d_b = 109·7 d_j = 104·1

t = 22·0 CS_2 n = 1·6259 d_b = 64·9 d_j = 63·7

Δn = 0·2755 44·8 40·4

$\frac{\Delta n}{\Delta d_b}$ = −0·006149 $\frac{\Delta n}{\Delta d_j}$ = −0·006819

Cinas felfelé: meniscus távolsága 3-tól (4 felé) 4·705
lefelé: n n 3-tól (2 felé) 0·397
} t = 24·7 °C

folyadéj = 5474·2 − 413·7 = 5060·5 + men

(03) = 5060·5 + men + 34·9 − men = 5095·4

$(C_2H_5)_2O$

$p = 3568 \cdot g$

2

122

3581·3 mgr.

$t = 25{\cdot}1°C$

$d_g = 110 \cdot g$ $d_f = 103{\cdot}4$

$n = 1{\cdot}3431 \quad 1{\cdot}3552 = 1{\cdot}3491$

$m_1 = 7{\cdot}01$ $m_2 = 220{\cdot}6$

$t = 24{\cdot}7$

$z = 4{\cdot}111$

4·104

4·112

4·102

4·113

4·1084 g

$z = 2{\cdot}0542$ mm

meniscus távolsága 3 tól (4 felé) 4·705

$r = 5{\cdot}2906$ $r^2 = 27{\cdot}9905$

$\frac{z}{r} = 0{\cdot}38827$

$\frac{a}{r} = 0{\cdot}41231$ $\frac{r}{a} = 2{\cdot}425$

$a = 2{\cdot}1814$ $\frac{h}{a} = 0{\cdot}1101$

$a^2 = 4{\cdot}7585$ $h = 0{\cdot}2402$

$H = 57{\cdot}97$

$V = 1056 g{\cdot}6$

$v = 50605$

58·0

5118·5

$t = 60.6$

$d_g = 120.8$ $\quad d_j = 112.1$

$n = 1.2821$ $\quad 1.2979 \} 1.2900$

$m_1 = 66.6$ $\quad m_2 = 210.8$

$t = 60.6\,°C.$

Mérések. 3 hó (4 jélé) 1.28

$r = 5.2924$ $\quad r^2 = 28.0095$

$\frac{z}{r} = 0.35445$

$z = 3.753$
3.746
3.753 $\quad z = 1.8759\,mm$
3.747
3.760
$\overline{3.7518}$

$\frac{a}{r} = 0.37079$ $\quad \frac{r}{a} = 2.697$

$a = 1.9624$ $\quad \frac{h}{a} = 0.0771$

$a^2 = 3.8510$ $\quad h = 0.1513$

$u = 50.72$

$V = 105804$

$v = 5479.8$
$-\ 112.6$
$\overline{5367.2}$
$\quad 50.7$
$\overline{5417.9}$

$t = 99.9^{\circ}C$

$d_b = 135.7$ $d_j = 125.0$

$n = 1.1905$ 1.2079 } 1.1992

$m_1 = 61.2$ $m_2 = 195.7$

$t = 99.9$

$z = 3.240$
3.226
3.235 $z = 1.6182$ mm
3.239
3.242
3.2364 f

Menisens 3 hål (2 felé) 3.28

$r = 5.2942$ $r^2 = 28.0285$

$\frac{z}{r} = 0.30565$

$\frac{a}{r} = 0.31218$ $\frac{r}{a} = 3.203$

$a = 1.6527$ $\frac{h}{a} = 0.0393$

$a^2 = 2.7314$ $h = 0.0649$

$n = 39.71$

$\nu = 1059.2$

$V = 5485.4$
288.8
39.7
5813.9