

125047
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(12 500, 24 000 - 40 000),
 50 5.55 0.335
 50 5.55 1.71
 24
 5.55 100
 (40 000)
 50 0.444
 (40 000) 0.067 50
 0.456 30 25⁰, 250
 24
 5 000,
 (CHRIST RLPHA 1-4LD).
 40⁰
 ≤ Δ (NICOLETn380). ≤ Δ
 10ⁿ³

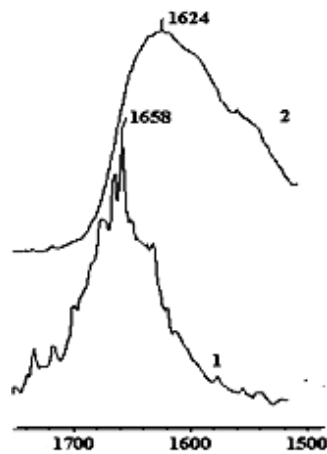
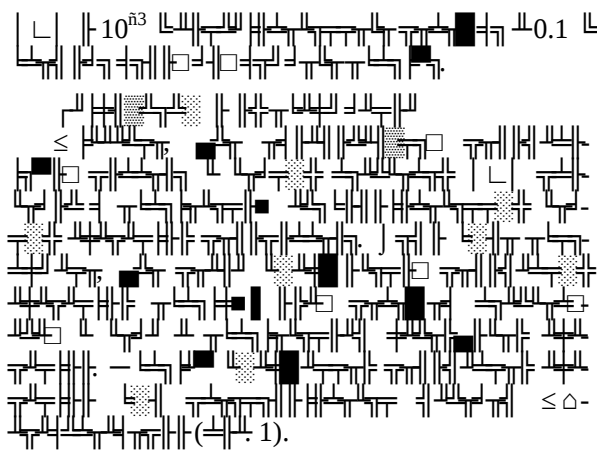
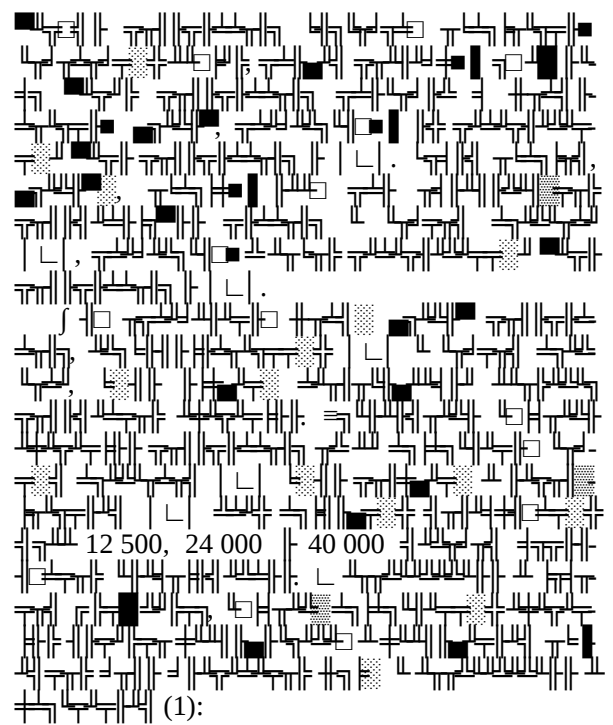
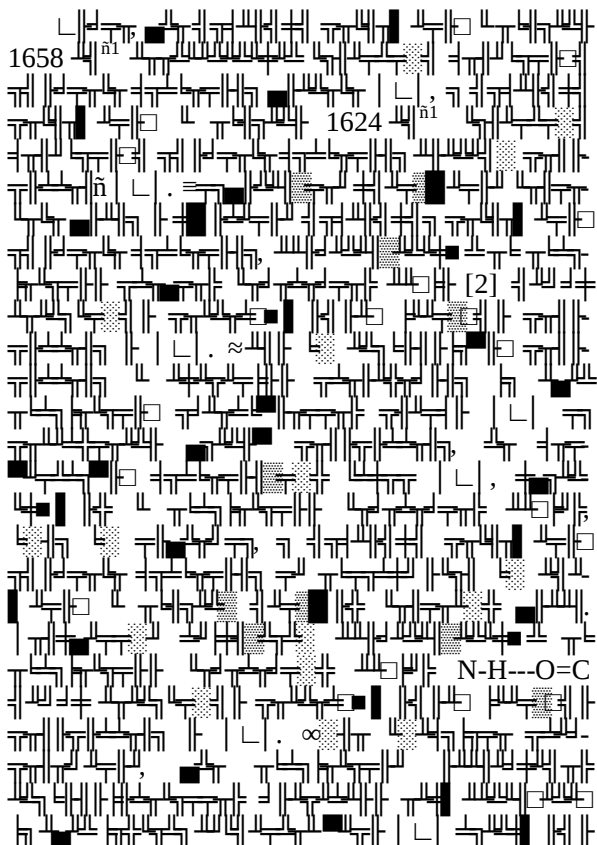


Рис. 1. ИК-спектр пленки полиимидов (1) (2).



$$\epsilon' / \epsilon_0 = 1 + k \epsilon_0 \quad (1)$$

где ϵ_0 — диэлектрическая проницаемость вакуума; ϵ' — действительная часть диэлектрической проницаемости; k — коэффициент пропорциональности; ϵ'' — мнимая часть диэлектрической проницаемости.

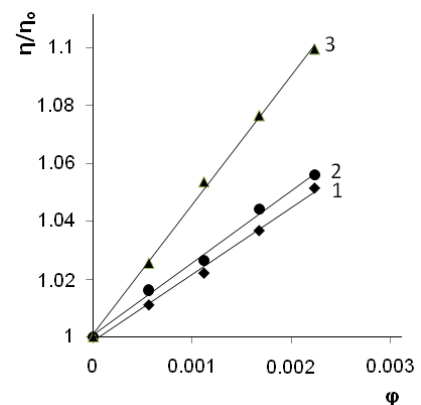
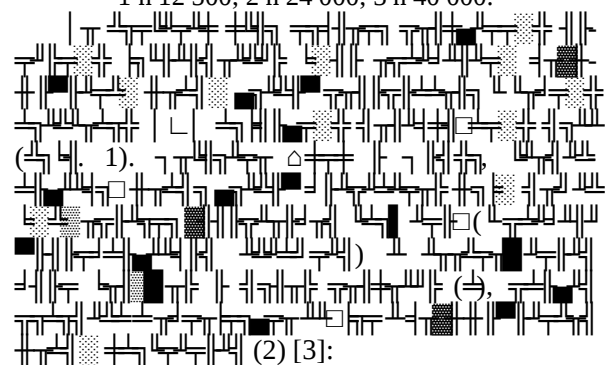
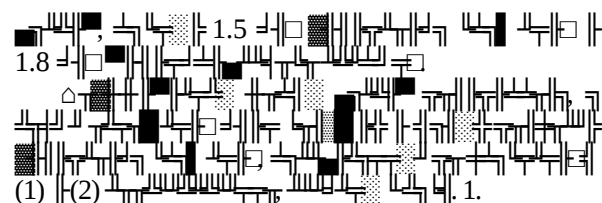


Рис. 2. Зависимость показателя преломления n от угла падения ϕ для полиимидов (1) (2) (3): 1 — $n_0 = 12\,500$; 2 — $n_0 = 24\,000$; 3 — $n_0 = 40\,000$.

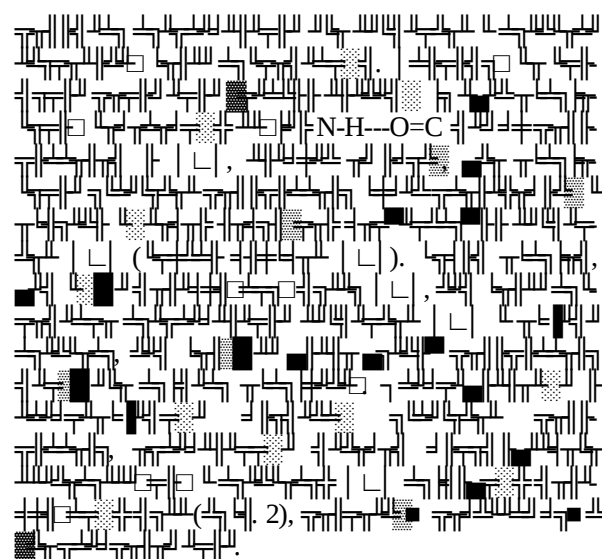
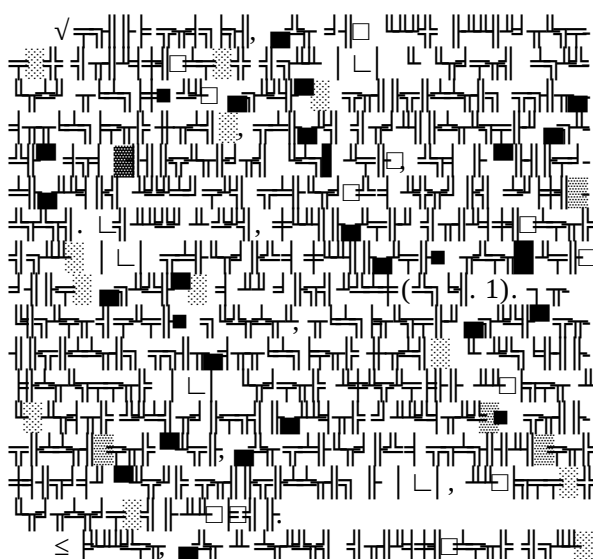


$$k = 14/15 + (12/5)[1/(3(\ln 2 - \ln \epsilon)) + 1/(\ln 2 - \ln \epsilon + 1)], \quad (2)$$

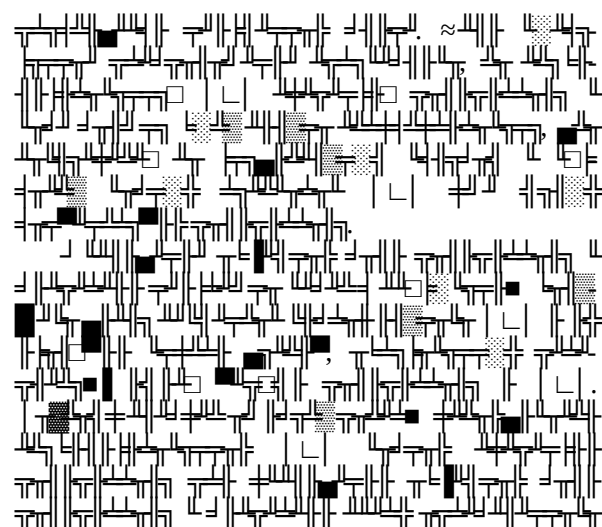
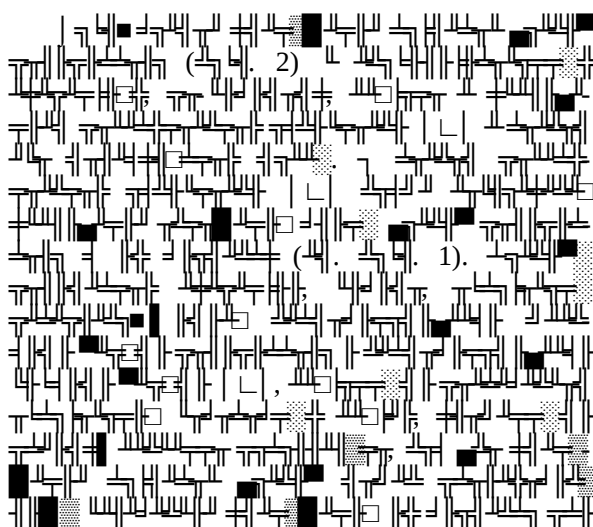
где $\epsilon = 10^{-k}$, $\ln$ – натуральный логарифм; ϵ – вероятность ошибки в битах.



k	k	k (1.5)	k (1.8)
12 500	23.1	14.3	13.3
24 000	25.1	15.1	14.1
40 000	44.9	21.7	20.5



k	d_{1p}	d_{2p}	d_{1p}/d_{2p}
8 000	1816	1851	1.019
24 000	268	879	3.23
40 000	211	372	1.763
160 000	170	234	1.376
360 000	139	191	1.374



$L_{\text{eff}} \leq L$, 2013, 8, 1

40 000 3.

3. (d_{eff}) 40 000 (d_{eff}) (L) *

L /	$d_{\text{eff},1}$	$d_{\text{eff},2}$	$d_{\text{eff},3}$	$d_{\text{eff},4}$	$d_{\text{eff},5}$	$d_{\text{eff},6}$	$d_{\text{eff}}/d_{\text{eff},1}$
20	161	$\tilde{n}$	161	228	$\tilde{n}$	228	1.42
10	211	$\tilde{n}$	211	372	$\tilde{n}$	372	1.76
5	122	273	241	363	1104	545	2.26
3.33	161	714	277	188	905	899	3.46
2.5	221	1553	600	$\tilde{n}$	1751	1751	2.93

* — $d_{\text{eff},1}, d_{\text{eff},2}, \tilde{n}$ $d_{\text{eff},1}, d_{\text{eff},2}, \tilde{n}$ $d_{\text{eff}}/d_{\text{eff},1}$ $\tilde{n}$

5 [1].

$\leq \Delta$ $(N-1)\tilde{n}$ $(N-1)\tilde{n}$ $(N-1)\tilde{n}$ $(N-1)\tilde{n}$

$\geq \sum \Gamma - \sum \Gamma$:

1. DeArmitt C.L., Phil D. Novel colloidal and soluble forms of polyaniline and polypyrrole. $\tilde{n}$ University of Sussex, 1995. 160 p.
2. $\tilde{n}$ $\tilde{n}$ 1977. 590
3. $\tilde{n}$ 1961. 335

SIZE AND SHAPE OF POLYPYRROLE PARTICLES IN AQUEOUS SOLUTIONS OF POLY-(N-VINYLPYRROLIDONE)

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Based on the IR spectroscopy data and on the analysis of rheological characteristics of polypyrrole aqueous suspension stabilized with poly-(N-vinylpyrrolidone) we conjecture that a physical lattice composed with poly-(N-vinylpyrrolidone) is formed, where the lattice points are the polypyrrole chain aggregates interlaced with poly-(N-vinylpyrrolidone) chains. It was shown that there is a hydrogen bond between the constitutional repeating units of poly-(N-vinylpyrrolidone) and polypyrrole. It was determined that the size of the particles of the disperse phase decreases with the increase of poly-(N-vinylpyrrolidone) molecular weight. It was also determined that the size of particles increases with the increase of the mass fraction of polypyrrole aqueous suspension. It was shown that the disperse phase particles are rod-like, and the increase of molecular weight of poly-(N-vinylpyrrolidone) in an aqueous solution results in additional lengthwise stretching of particles. It was also shown that the viscosity of the stabilized poly-(N-vinylpyrrolidone) aqueous suspension follows the Einstein law.

Key words: polypyrrole, pyrrole, poly-(N-vinylpyrrolidone), oxidation, polymerization.