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658.264

MATHEMATICAL MODELLING OF GROUND-SURFACE PIPELINES
 INTERACTING WITH ENVIRONMENT

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Key words: heat pipeline, heat insulation

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[1].

[2].

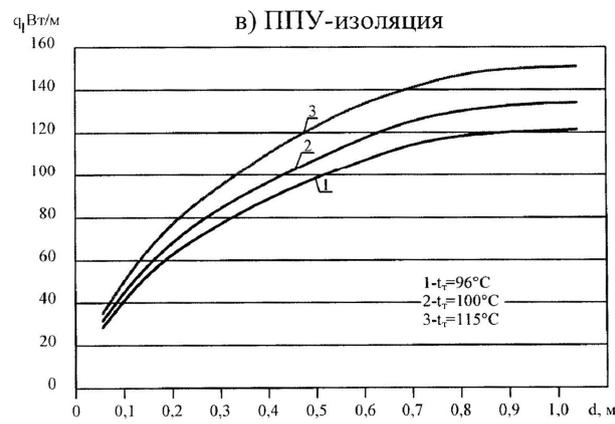
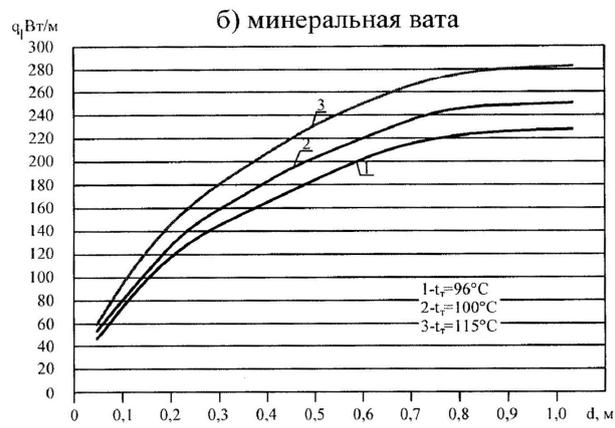
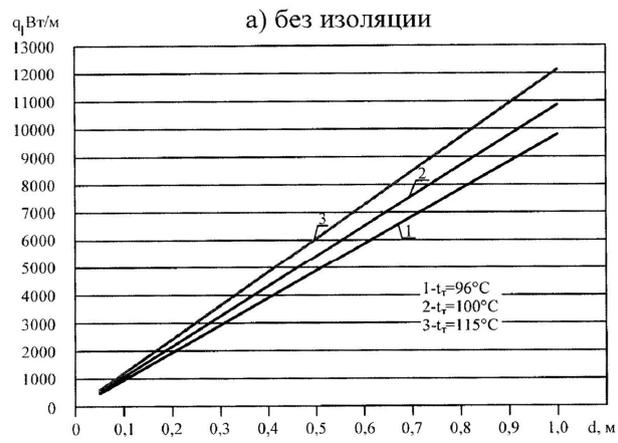
, d	, d	, d	, d	q_l , (/)	() /			q_l , (/)	t , °
					R	R	R + R		
57×3,5	50	34	125	30	3,4716	0,0849	3,5565	20,47	-6,06
76×3,5	69	36	148	36	2,9465	0,0717	3,0182	24,12	-6,07
89×4	82	38	165	40	2,7291	0,0643	2,7934	26,06	-6,12
133×4	125	40	213	50	2,0820	0,0498	2,1318	34,15	-6,10
159×4,5	150	42	243	53	1,8752	0,0437	1,9189	37,94	-6,14
219×6	207	45	309	63	1,5220	0,0343	1,5563	46,78	-6,19
273×7	259	50	373	65	1,3798	0,0284	1,4083	51,69	-6,33
325×8	309	62	449	84	1,4288	0,0236	1,4525	50,12	-6,62
426×9	408	66	558	111	1,1933	0,0190	1,2123	60,05	-6,66
530×8	514	70	670	120	1,0363	0,0158	1,0521	69,19	-6,70
630×9	612	74	778	142	0,9329	0,0136	0,9465	76,92	-6,75
720×10	700	80	880	159	0,8872	0,0121	0,8992	80,96	-6,82
820×10	800	88	996	180	0,8596	0,0107	0,8703	83,65	-6,91
1020×10	1000	110	1240	237	0,8635	0,0086	0,8720	83,49	-7,09

(.1).



. 1.

. 2



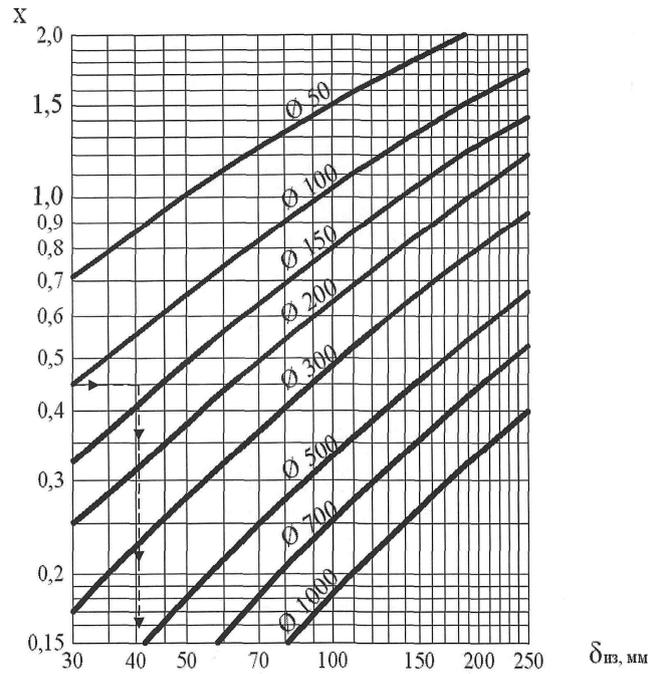
. 2.

(. . 2)

(. 3).

$$q_l = \frac{t - t_0}{R_l}; R_l = \frac{1}{2\pi\lambda} \ln \frac{D}{D_0};$$

$$\frac{D}{D_0} = e^{2\pi\lambda R_l}; 2\pi\lambda R_l = x; \delta = \frac{e^x - 1}{2} D_0,$$



3.

$$R \gg R_3,$$

4

$$q_1 \gg q_1$$

[4, 5, 6].

1. // -2004. - 5. - 81-85.

2. // , 2007. - 114 .

