

PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE ON TAILINGS
AND MINE WASTE '97/FORT COLLINS/COLORADO/USA/13-17 JANUARY 1997

Tailings and Mine Waste '97

OFFPRINT



A.A. BALKEMA/ROTTERDAM/BROOKFIELD/1997

Physical-chemical model compositly grainy of environment, strength and unbakly wally stone from garbage of mountain rocks in the area of Novosibirsk

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ABSTRACT: Fact of "know-how" compositlyes grainy of environments (glass, the ceramics, concrete), having quasielastic (quasifrail) condition, is possible to consider from uniform positions of application of viscosity solidly solution, structure-warmthphysical the gear of change of which is described appropriate integrated structure-warmthphyscales by criteria similariness. Like S.A.Kutolin & V.A.Kutolin.

1 CONCEPTUAL MODEL AND RESULTS

Undemensionly criterion of deformation seating KN relative size of the geometrical sizes solidly grainy of environment Dt (where a t-time diffusion of a liquid in the area of sol-gel-cut) and linear is defined as area such cut r^2 :

$$KN = Dt/r^2. \quad (1.1)$$

The bond of criterion of deformation seating (KN) with strength (R) and module of elasticity (E) is defined under the formula Griffiths:

$$KN = 2E/R^2 \pi(1-\nu^2), \nu = 0.437. \quad (1.2)$$

Kynetic of deformation grainly of environment $\epsilon(r, t)$ for a simplified linear task a Fokker-Planck is described the equation and can be for a limiting stage-diffusion shown to the decision of a equation Fick (Like S.A.Kutolin & A.I.Nejch):

$$\epsilon = \epsilon_0 \operatorname{erf}(1/2 [KN]^{1/2}), \quad (1.3)$$

ϵ_0 - average of deformation grainly of environment $\epsilon(r, t)$.

The strength as function KN is well described hyperbole of a sighthy:

$$R = 11.316 + [43.332/KN], \text{MPa}, \quad (1.4)$$

That is confirmed (S.A.Kutolin & V.V.Nigshevjasov etc.) on a data of normative documents: SNiP 2.05.03-84 and SN 365-67.

The raw mix for unbakly wally of a stone was produced from garbage mountain magmatics rocks with addition up to 20 % of a cement of the mark 400, condensation of a mix on vibration-desk, formation of samples and intersteam of a material during 15 hours at temperature 60 ... 65°C. A Water, used for preparation a wally stone - activator "Bulsak", the way and structure of preparation of which is protected a.o. N 888339.

Conducted after this test of a building brick by size 250x120x65 mm on GOST 8462-85 have allowed to receive average strength at compression and bend, respectively, 10.83 MPA, 4.14 MPA; tests on GOST 7025-78 have allowed to establish, that the

brick of the given structure provides the mark on frostfirmness more than 35 cycles, and factor of warmthconductivity lies in limits at 297 ° K: 0.67. ...0.76 wt /MK at conduct of measurements on GOST 8.140-82.

At normal hardenize during 29 days of strength of these samples on compression -16.9 MPA, and module of elasticity $0.174 \cdot 10^5$ MPA, that corresponds KN=6.9 for unbakly wally of a stone. At a given time hardenize at least two samples the formula of account KN permits to define sizes: D,r-required model physical-chemical hardenize grainy of enviroment. And, on the contrary, being set parameters D, r at fixed sizes t, can predict on size KN strength and module of elasticity of samples grainy of environment.

2 SUMMARY AND CONCLUSIONS

Characteristic of a Brick, executed from waste mountains rocks and cement of the mark M-400:

The size 250 x120 x65 MM GOST 530-71

Mark 100

Weight 4,4 KGS

Average density 2,3 - 1,8 t.m⁻³

Waterabsorbing of 5,7 %- 8 %

Frostfirmness of 35 cyckles-25 cycles of the contents of a cement.

Cement in a BRICK 17 % - use of a catalyst.

Catalyst "BULCAK" YES.

Factor of Warmthconductivity 0,6-0,8 WT.M⁻¹ -0,5 WT.M⁻¹.

Main advantages of a brick, made under the given recipe before a earthenware brick of the mark "100":The low cost price.

High strength - practically not pricked at unloading and transport convey. After of 8-10 hours prosteam it has the mark 100, through month-be strengthened in 1,5 time is received. Make produceed from sitting from splitting on road-metal magmaticrocks (granits, doiriths, cerathofirs, alibitofirs, andesite, dacits and etc.). High frostfirmness-35 of cycles against 25 cycles of a red brick. Low waterabsorbing -5 of % against 8 % of a red brick. Ecology is pure, there is the permission for the manufacture of the given brick oblses and use it in residential and public buildings.

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