

TO'SIQ KONSTRUKSIYALAR MATERIALLARIDA SUYUQ NAMLIKNING MIGRASIYASI

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Annotatsiya

Maqolada keramzitobeton va og'ir betonni namlik va eritma o'tkazuvchanligi bo'yicha ma'lumot berilgan.

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Qurilish materiallarining namlik va eritma o'tkazuvchanligini o'rganish tadqiqotlar R.Ye.Brilling tomonidan ishlab chiqilgan metodologiyaga muvofiq amalga oshirildi.

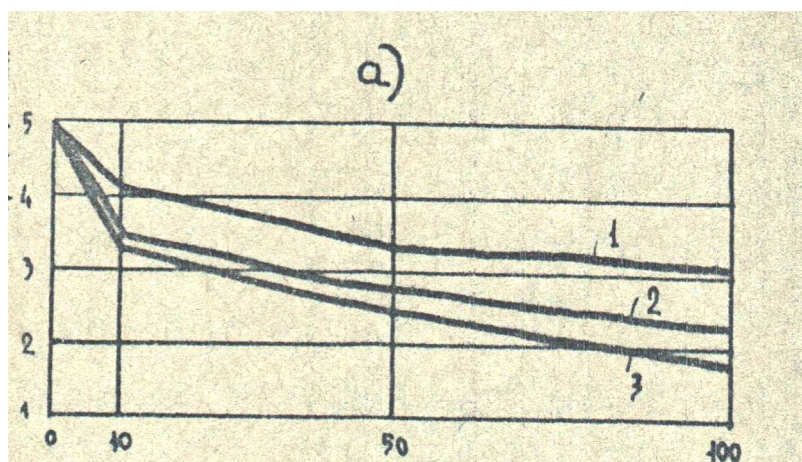
Kesmasi 5x5 sm va prizma shaklida keramzitobeton ($\gamma=1000 \text{ kg/m}^3$, suv singishi -29,1%) va og'ir beton ($\gamma=2400 \text{ kg/m}^3$, suv singishi -4,9%) namunalari balandligi 25 sm bo'lgan 4 tomondan namlik o'tkazuvchan kompozision bilan izolyasiya qilingan va kapillyar-g'ovakli materiallarning namlik o'tkazuvchanligini aniqlash uchun asbobga joylashtirildi [1,2,3].

Tajriba davomida havoning harorat va namlik ko'rsatkichlari doimiy ravishda ushlab turilgan va gigrograf va termograf samopiseslar ($\text{harorat} = 20 \pm 2^\circ\text{S}$, $\text{f} = 60 \pm 5\%$) tomonidan nazorat qilindi.

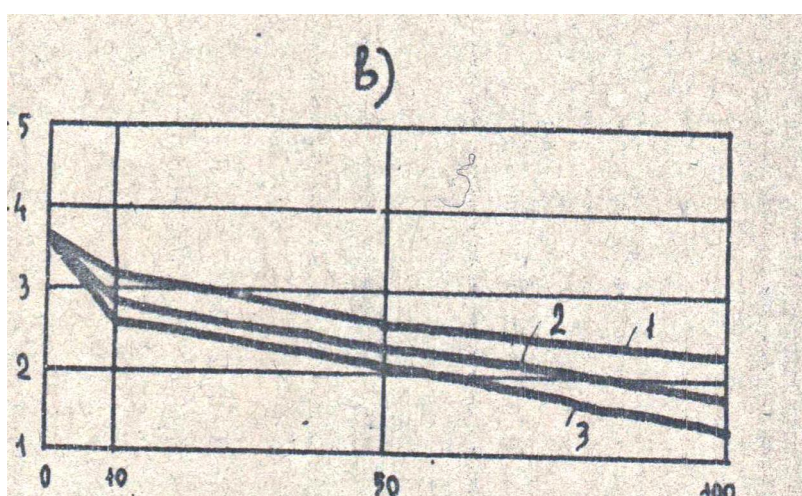
Vaqt birligidagi vazn yo'qotish doimiy bo'lgunga qadar namunalar vaqti-vaqti bilan tortildi. Bu namunada namlik harakatining stasionar holati o'rnatilganligini ko'rsatdi [4,5].

Tajribalarning birinchi seriyasida namunalar suv bilan namlanganda o'rganildi. Ikkinchi, uchinchi va to'rtinchi tajriba seriyalarida bir xil materiallarning namunalari turli konsentrasiyali (10%, 50%, 100% to'yingan) KCl, NaCl va MgCl_2 tuzlari eritmalari bilan namlangan, holatda bo'lgan

Suyuqlik oqimining zichligi V ($\text{kg/m}^2 \text{ kun}$) namunalar orqali stasionar rejim boshlanganidan keyin aniqlanadi (1,2-rasm). Bug'lanish jarayoni barqarorlashgandan so'ng va suyuqlik oqimining tezligi yetarlicha ishonchli aniqlangandan so'ng, namuna idishdan chiqariladi va 5 ta teng qismga bo'linadi. Har bir qismning namligi pechda doimiy og'irlikda quritish yo'li bilan aniqlanadi [6,7,8].



1 rasm Eritma konsentrasiyasi, tuyinganlik % oqim zichligi $\text{kg m}^2/\text{kunlik}$



2 rasm Eritma konsentrasiyasi, tuyinganlik %

1,2 rasm. Og'ir beton va keramzitobetonda turli konsentrasiyadagi tuzlar eritmaları bilan namlanganda suyuqlik oqimining zichligi o'zgaradi.

1 - KCl eritmasi, 2 – NaCl eritmaci, 3 – MgCl_2 eritmasi

Namunalar kesimi bo'yicha tuzning taqsimlanishi ham aniqlanadi.

Suyuqlik oqimlarining zichligi o'rganilayotgan materiallardagi eritmalar konsentrasiyasi ortishi bilan kamayib borishi aniqlandi. Ko'rinishidan, bu eritmalarining zichligi va sirt tarangligining o'zgarishi, ularning konsentrasiyasining o'zgarishi bilan bog'liq. Keramzitobeton namunalaridagi oqim zichligi og'ir betonga nisbatan pastroqdir, bu og'ir betonda yupqa kapillyarlarning ustunligi bilan izohlanadi [9,10,11].

Turli tuzlarning betonga ta'siri natijalarini solishtirganda, eng yuqori suyuqlik zichligi KCl eritmasi bilan namlanganda, eng past MgCl_2 eritmasi bilan namlanganda kuzatiladi, degan xulosaga kelish mumkin, bu eruvchanlikning turli darajasi, suvdagi tuzlar va oxir-oqibat, eritmalarining turli xil yopishqoqligi bilan izohlanadi. (eruvchanligi KCl-301 g/l, NaCl-317 g/l, MgCl_2 -473 g/l =20°S haroratda) [12,13,14].

Tadqiqotlar shuni ko'rsatadiki, betonda tuz eritmaları ta'sirida suyuqlik oqimining zichligi o'zgaradi:

- keramzitobeton uchun 3,6 dan 1,4,10-2 kg / m^2 gacha
- Eritmaning konsentrasiyasiga qarab 5,0 dan 1,8,10-2 kg / m^2 gacha bo'lgan og'ir beton uchun

[15,16,17].

Yuqoridagi ma'lumotlardan ko'rinib turibdiki, og'ir betondan tayyorlangan namunalarning sho'rliги keramzitobetondan ko'ra ko'proq va dastlabki eritmaning konsentrasiyasiga to'g'ridan-to'g'ri proporsionaldir. Tuzning eng katta miqdori namunalar va eritmalar orasidagi birlashtirilgan sohasida kuzatiladi.

Og'ir beton namunalari uchun bug'lanish zonasida tuzlarning biroz ko'payishi kuzatiladi. Bu, og'ir betonda suv bug'langanda kristallanadigan tuz eritmalarining yanada intensiv harakati bilan bog'liq. Og'ir betonda tuzning taqsimlanishi keramzitobetonga qaraganda bir xil bo'ladi. Bu keramzitobetonning kattaroq g'ovakli tuzilishi bilan bog'liq bo'lib, unda tuz og'ir betonga qaraganda past tezlikda harakat qiladi [18,19,20].

Shuni ta'kidlash mumkinki, namlik miqdori materialda tuz mavjudligiga bog'liq. Tuz kesma bo'ylab bir tekis taqsimlangan og'ir betonda namlikning keskin pasayishi kuzatiladigan keramzitobetondan farqli o'laroq, namlik egri chiziqlari ham yumshoqroq bo'ladi. Namunalardagi namlik miqdori bug'lanish zonasida suyuqlik bilan birlashtirilgan chegarasidan masofa bilan kamayadi.

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