

SUPERPLASTIFIKATOR TA'SIRIDA YUQORI MUSTAHKAMLI BOG'LOVCHILAR OLISH

Ulug'bek Bekov Safarovich

“Qurulish materiallari va konstruksiyalari
texnologiyasi” kafedrası assistenti

Buxoro muhandislik-texnologiyasi instituti

Anatatsiya: *Sementning qotish vaqtining tezligi bir qator omillarga bog'liq. Ma'lumki, sement kukunining maydalik darajasining ortishi bilan solishtirma sirt yuzasining ortishi uning qotish vaqti tezlashadi. Ushbu tadqiqot ishida tabiiy sharoitda qotgan YuMB-100, ya'ni faqat portlandsement klinkeri va 3% gips toshidan tashkil topgan tarkiblari 28 sutkalik mustahkamligining mos ravishda 1 sutkada 20 dan to 23% gacha, 3 sutkada 53 dan to 58% gacha va 7 sutkada 68 dan to 77 % ga erishishi aniqlandi. Shuni ta'kidlash kerakki tarkibida 0,8% superplastifikator bo'lgan tarkib 28 sutkada mustahkalik bo'yicha eng yuqori ko'rsatkich – 56,3 MPani ko'rsatish bilan birga, qotish vaqtiga mos ravishda 1 sutkasida 28 sutkalik mustahkamligining 23 %i, 3 sutkasida 53%i va 7 sutkasida 68 %iga erishdi.*

Kalit so'zlari: *mustahkamlik, solishtirma sirt yuza, qotish vaqti, klinker, maydalik darajasi, sement, YuMB-100, superplastifikator, sement xamir, portlandsement klinkeri.*

Bugungi kunda dunyoda qurilish materiallari, buyumlari va konstruksiyalarini ishlab chiqarishda asosiy bog'lovchi material sifatida foydalaniladigan sementga bo'lgan ehtiyoj kuchaymoqda. Rivojlangan mamlakatlarda, jumladan AQSh, Germaniya, Yaponiya, Xitoy, Rossiya kabi mamlakatlarda sement ishlab chiqarish hajmlarini oshirish, ishlab chiqarishda sanoat chiqindilaridan foydalanish, sement sifatini pasaytirmagan holda uning tarkibidagi klinkeri miqdorini kamaytirish hisobiga ishlab chiqariladigan sement tan narxini arzonlashtirish, ularning samaradorligini oshirish muhim ahamiyatga ega bo'lmoqda. Shu bilan birga mavjud mahalliy xomashyo va sanoat chiqindilaridan foydalanib, ishlab chiqarishning energiya

tejamkor texnologiyalarini ishlab chiqishga alohida e'tibor berilmoqda.

Sementning qotish vaqtining tezligi bir qator omillarga bog'liq. Uning mineralogik tarkibi katta ahamiyatga ega, xususan uch kalsiyli alyuminatning miqdorini ortishi bu ko'rsatkichni tezlashishiga olib keladi. Ilmiy izlanishlarimizda foydalangan klinker tarkibidagi uch kalsiyli alyuminatning miqdori bir xil bo'lganligini hisobga olgan holda, kontrol namuna sifatida solishtirma sirt yuzasi 3200 sm^2/g bo'lgan portlandsementdan foydalanildi. YuMB ning solishtirma sirt yuzasi 5000; 5300 va 5500 sm^2/g teng qabul qilindi (1-jadval).

1-jadval

№	YuMB markasi	JK-02 superplastifikator miqdori, g	Solishtirma sirt yuzasi, sm^2/g	Normal quyuqlik, cm	Qotish davri,	
					soat-min boshlanishii	ohiri
1	PS-500	0	3200	25,6	1-32	3-50
2	YuMB-100	0,6	5000	19,6	0-25	1-30
3	YuMB-100	0,8		17,0	1-25	3-35
4	YuMB-100	1,0		16,3	1-30	4-35
5	YuMB(B)-55	0,6	5300	18,4	1-25	2-35
6	YuMB(B)-55	0,8		18,2	1-45	3-50
7	YuMB(B)-55	1,0		17,4	1-40	3-50
8	YuMB(B)-45	0,8	5500	19,5	3-30	5-30
9	YuMB(B)-45	1,0		18,0	3-30	5-35
10	YuMB(Sh)-55	0,6	5000	18,0	3-45	1-50
11	YuMB(Sh)-55	0,8		17,6	3-45	2-30
12	YuMB(Sh)-55	1,0		17,0	2-15	4-25
13	YuMB(Sh)-45	0,8		19,7	3-50	6-30
14	YuMB(Sh)-45	1,0		18,7	2-40	7-00
15	YuMB(B+Sh)-	0,8		19,0	1-45	2-30
16	YuMB(B+Sh)-	1,0		18,3	1-40	3-30

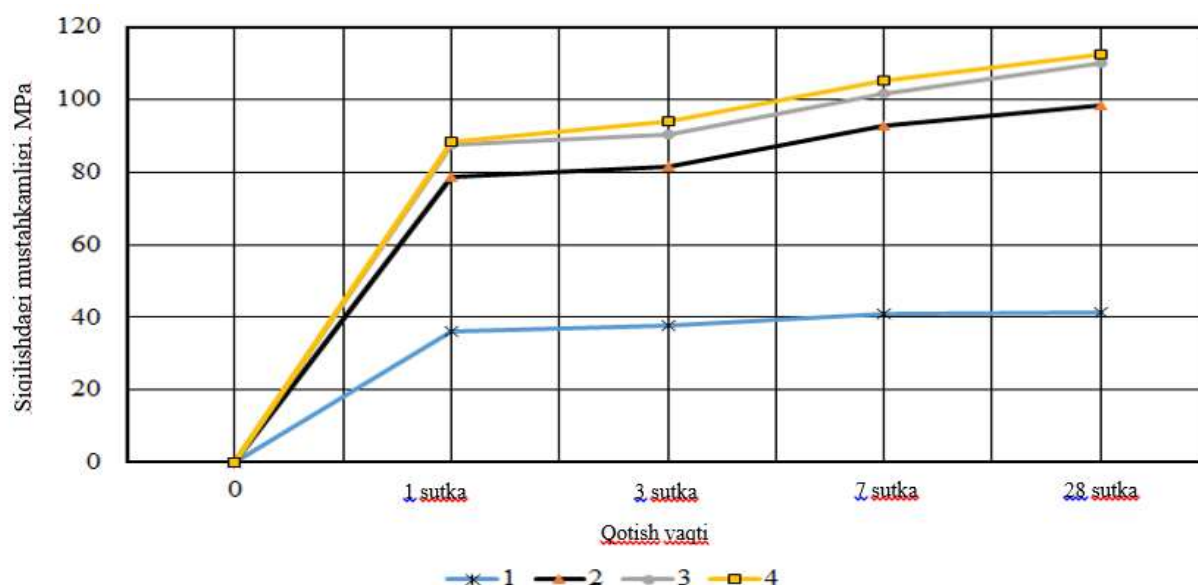
Ma'lumki, sement kukunining maydalik darajasining ortishi bilan solishtirma sirt yuzasining ortishi uning qotish vaqti tezlashadi. Shuningdek sement xamiri tarkibidagi

suv miqdorining ortishi bilan uning qotish vaqti uzayadi, suv miqdorining kamayishi esa qotish vaqtini tezlashadi (1-jadval). Buni superplastifikatorning sement-suvli xamiridagi qattiq zarralari orasida ta'sir qiluvchi tortishish kuchlarini pasaytirishi bilan tushuntirish mumkin. Superplastifikator sement zarralari yuzasida adsorbsion qatlam hosil qilib, elektrostatik itarish kuchini hosil qilish bilan birga va tizimning yopishqoqligini pasaytiradi.

Tabiiy sharoitda qotgan YuMB-100, ya'ni faqat portlandsement klinkeri va 3% gips toshidan tashkil topgan tarkiblari 28 sutkalik mustahkamligining mos ravishda 1 sutkada 20 dan to 23% gacha, 3 sutkada 53 dan to 58% gacha va 7 sutkada 68 dan to 77 % ga erishishi aniqlandi. Shuni ta'kidlash kerakki tarkibida 0,8% superplastifikator bo'lgan tarkib 28 sutkada mustahkalik bo'yicha eng yuqori ko'rsatkich – 56,3 MPani ko'rsatish bilan birga, qotish vaqtiga mos ravishda 1 sutkasida 28 sutkalik mustahkamligining 23 %i, 3 sutkasida 53%i va 7 sutkasida 68 %iga erishdi.

Ana shu tarkiblardagi YuMBlarga issiq-nam ishlovi berib qotirish natijalariga ko'ra quyidagilarni ta'kidlashimiz mumkin:

Issiq- nam ishlovi YuMBning mustahkamligiga ijobiy ta'sir qilishi aniqlandi. Issiq- nam ishlovi berib qotirilgan YuMB-100 ning hamma namunalari 28 sutkadan keyin tabiiy sharoitda qotgan namunalarning mustahkamligiga nisbatan deyarli 2 barobargacha yuqori mustahkamlikka erishdi. Issiq-nam ishlovi berilganidan keyin sinalganida 28 sutkalik mustahkamligiga nisbatan 77% mustahkamlikka erishishi aniqlandi (1-rasm).



1-rasm. Issiq-nam ishlov berilgan YuMB-100 ning vaqt bo'yicha mustahkamligining o'zgarishi. Tarkiblarning tartib raqami 1 – jadval bo'yicha.

Foydalanilgan adabiyotlar

1. Bekov U. S., Raximov F. F. Spektralnyy analiz kremniyorganicheskix soedineniy na osnove fenola //Universum: ximiya i biologiya. – 2021. – №. 5-2 (83). – S. 27-30.
2. Bekov U. S. Kvantovo-ximicheskie raschëty zaryadov oligoetilentriëtoksisilana-kak osnova ustoychivosti promejutochnogo i perexodnogo sostoyaniy //Universum: ximiya i biologiya. – 2020. – №. 11-1 (77). – S. 78-80. URL: <https://7universum.com/ru/nature/archive/item/10846>
3. Raximov F. F., Bekov U. S. Kvantovo-ximicheskie raschëty zaryadov kremniorganicheskix soedineniy-kak osnova ustoychivosti promejutochnogo i perexodnogo sostoyaniy //Universum: ximiya i biologiya. – 2022. – №. 5-2 (95). – S. 47-50. URL: <https://7universum.com/ru/nature/archive/item/13614>
4. Bekov U. S. O vnedrenii bezotxodnyx texnologiy v kojevenno-mexovoy promyshlennosti //Universum: texnicheskie nauki. – 2020. – №. 6-3 (75). – S. 9-11.
5. Bekov U., Qodirov J. Gidrofobnye svoystva plastiçirovannogo gipsa poluchenono s ispolzovaniem organicheskogo polimera na osnove fenolformalgida

- //Zamonaviy dunyoda tabiiy fanlar: Nazariy va amaliy izlanishlar. – 2022. – T. 1. – №. 25. – S. 23-26. <https://doi.org/10.5281/zenodo.7344600>
6. Bekov U. S. Fluorescentnye reaktsii niobiya i tantala s organicheskimi reagentami //Universum: ximiya i biologiya. – 2020. – №. 5 (71). – S. 47-49. URL: <http://7universum.com/ru/nature/archive/item/9350>
7. Bekov, U. S. Vliyanie sposobov pererabotki i vnesnix faktorov na svoystva dispersno-napolnennykh polimerov / U. S. Bekov // Sovremennyye materialy, tekhnika i tekhnologiya : Materialy 3-y Mejdunarodnoy nauchno-prakticheskoy konferentsii, Kursk, 27 dekabrya 2013 goda / Otvetstvennyy redaktor Goroxov A.A.. – Kursk: Zakrytoe aktsionernoe obshchestvo "Universitetskaya kniga", 2013. – S. 88-90. – EDN SBFUXR.
8. Bekov, U. S. Izuchenie tekhnologicheskix i fiziko - mexanicheskix svoystv polimernyx kompozitsionnykh materialov, poluchennykh na osnove poliolefinov i otkhodov neftegazovoy promyshlennosti / U. S. Bekov // Innovatsii v stroitelstve glazami molodykh spetsialistov : Sbornik nauchnykh trudov Mejdunarodnoy nauchno-tekhnicheskoy konferentsii, Kursk, 05–06 dekabrya 2014 goda / Otvetstvennyy redaktor: Gladyshekin A.O.. – Kursk: Zakrytoe aktsionernoe obshchestvo "Universitetskaya kniga", 2014. – S. 62-65. – EDN TGAMSJ.
9. Safarovich B. U. et al. Using sunlight to improve concrete quality //Science and pedagogy in the modern world: problems and solutions. – 2023. – t. 1. – №. 1.
10. Fatoev I. I., Bekov U. S. Fiziko-ximicheskaya stoykost i mexanicheskie svoystva komponentov s reaktsionnosposobnymi napolnitelyami v jidkix agressivnykh sredax //Teoreticheskie znaniya–v prakticheskie dela [Tekst]: Sbornik nauchnykh statey. – S. 111.
11. Safarovich B. U., Khaidarovich K. Z. Type of creep deformations of cellular concrete obtained by a non-autoclave method at low stresses //Horizon: Journal of Humanity and Artificial Intelligence. – 2023. – T. 2. – №. 4. – S. 81-85.

12. Bekov U. S., Xaydarovich Q. J. Fiziko-mexanicheskaya xarakteristika uplotniteley, poluchennykh v rezultate pererabotki vtorichnogo betona i jelezobetona //Pedagogs jurnali. – 2023. – T. 31. – №. 2. – S. 51-56.
13. Bekov U. S., Xaydarovich Q. J. Fiziko-mexanicheskie svoystva plastiçirovannogo gipsa poluchenogo na osnove fenolformalgida //Principal issues of scientific research and modern education. – 2022. – T. 1. – №. 8. <https://woconferences.com/index.php/pisrme/article/view/379>
14. Bekov U. S. Issledovanie otnositelnykh deformatsiy neavtoklavnogo yacheistogo betona v usloviyax chistogo sdviga. – 2023.
15. Zayniev X. M., Bekov U. S. Izuchenie silovykh sootnosheniy pri almaznoy glujenke. – 2023.
16. Muhiddinovich Z. K., Safarovich B. U. Study of force dependences in diamond ironing. – 2023.