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KALIY KOMBINATLARIDA TO‘SIQ KONSTRUKSIYALARNI HIMOYA QILISH

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A R T I C L E I N F O.

Kalit so‘zlar: konstruksiya, korroziya, bo‘yoq, harorat, namlik, korxona, polietilen, plyonka, tuzlar, lak, devor, himoya qoplama.

Annotatsiya

Maqolada kaliy kombinatlari to‘suvchi konstruksiyalarini himoya qilish uchun ko‘rilgan konstruktiv chora-tadbirlar va konstruksiya sirtini himoya qilish bo‘yicha ma’lumotlar berilgan.

Agressiv muhitda qurilish inshootlarini muddatidan oldin yo‘q bo‘lishini ko‘p jihatdan oldini olish mumkin. Avvalo, profilaktika choralari zarur - loyihalash va qurilishning yuqori sifatini ta’minlash, qurilish inshootlarini ishlatish qoidalariga rioya qilish, sanoat binolarida atrof-muhitning agressivligini kamaytirish va boshqalar.

Hozirgi vaqtda to‘g‘ridan-to‘g‘ri to‘siq konstruksiyalarining chidamliligi va ishlashini oshirishga qaratilgan ishlar quyidagi yo‘nalishlarda amalga oshirilmoqda.

- Agressiv muhitning xususiyatlariga muvofiq halokatli ta’sirlarga chidamliligini ta’minlaydigan o‘ziga xos tuzilishga ega bo‘lgan kimyoviy chidamli qurilish materiallarini izlash;
- Konstruktiv chora-tadbirlar bilan chidamlilikni oshirish;
- Sirtni himoya qilish vositalaridan foydalanish.

Dala tadqiqotlari shuni ko‘rsatdiki, so‘nggi 20-30 yil ichida kaliy kombinatlarining turli sanoat binolari devorlarini qurish uchun ishlatilgan oddiy g‘ishtlar uzoq vaqt davomida korroziy tuz muhiti harorat va namlik sharoitlariga bardosh bera olmaydi.

Yangi korxonalarni qurishda devor panellarini yengil agregatlarda qo‘llash, tabiiyki, kaliy zavodlarining agressiv muhitida ushbu panellar beton panellarining qarshiligi haqida savol tug‘dirdi.

Meshchanskiy N.A.ning fikricha, korroziyaga chidamliligini oshirish yuqori zichlikdagi beton yordamida amalga oshirilishi kerak [1,2]. Bu yo‘nalishda M.I.Subbotninning tadqiqotlari ham ma’lum. Tokareva L.G. zich materiallarni yaratish ustida ishlash, o‘tkazuvchanligi kuchayishi agressiv muhitda ularning qarshiligini ta’minlaydi.

A.K. Kisis o‘z ishida zich betonlar g‘ovakli materiallarga qaraganda xlorid tuzlari ta’siriga chidamliroq ekanligini ta’kidlaydi va kaliy korxonalarining bino va inshootlarini qurishda suvni past singdiruvchi zich betonlardan foydalanish kerakligini ta’kidlaydi , uning fikricha, materiallar namlik va korroziy tuzlarning ta’siridan qo‘shimcha himoyaga muhtoj. Bunday holda, muallif bo‘yoq va laklar bilan ishonchli va o‘z vaqtida himoya qilishni konstruksiyalarning mustahkamligini saqlashning radikal vositasi deb hisoblaydi [3,4,5].

Mualliflarning fikricha istiqbollar [3,4,5]-bu strukturalarning sirt qatlamidagi teshiklarni gidrofobik materiallar bilan to‘ldirishga asoslangan usul. Gidrofobik materiallar sifatida ishlatiladigan kremniy organik materiallar (GKK-94, GKK-10), kapillyarlarning so‘rilish jarayonini 3 marta sekinlashtiradi. Biroq, devorlarning ichki yuzalarini qayta ta’mirlashda sirt faol kremniyorganik birikmalaridan foydalanish istalgan natijani bermaydi, chunki. materialning bug‘ o‘tkazuvchanligi oshishi hisobiga gidrofobizasiya samaradorligi pasayadi [6,7,8].

Yuqori namlikda ba’zi mualliflar kremniyorganik birikmalari asosida bir qatlamdan tashkil topgan birlashtirilgan qoplamalarni, keyin uni bo‘yoq va laklar bilan qoplab qo‘llashni tavsiya qiladi. B.A.Lasskaya va M.G.Voronkovlar perxlorovinil bo‘yoqlarini GKK-94 suyuqligi bilan o‘zgartirishni tavsiya etadilar, bu esa avval toluolda eritilishi, so‘ngra perxlorovinil lak bilan aralashtirilishi kerak.

Yuqori namlik sharoitida ishlaydigan panjara ichidagi namlikning kirib kelishidan himoya qilish usullaridan biri panellarning ichki qismida zich sement yoki silikat beton (25-60 ml) qatlamidan foydalanish hisoblanadi [8,9,10].

XX asr oxirlarida qurilgan kaliy korxonalarida qurilish konstruksiyalarini korroziyadan himoya qilish bo‘yicha tavsiyalar, kengaytirilgan beton konstruksiyalarni boshqa tarmoqlarning agressiv sharoitida ishlatish tajribasini umumlashtirish va individual sinovlarga asoslanib, kengaytirilgan loy-beton panellardan, tashqi devorlarda 50 mm qalinlikdagi zich og‘ir betonning izolyasion qatlami mavjud bo‘lganda foydalanishga ruxsat beriladi.

Permyakov S.I. iqlim kamerasida va eksperimental pavilьonda bu tuzilmalarning har xil harorat va namlik sharoitida samaradorligini aniqlash maqsadida eksperimental tadqiqotlar olib borildi [11,12]. Shu bilan birga, 30,50 va 70 mm qalinlikdagi og‘ir betonning ichki qatlami bilan kengaytirilgan loy beton va ko‘pikli betondan yasalgan devor panellarining bo‘laklari o‘rganildi. Harorat-namlikni tekshirish rejimi devorlarda kondensasiyani ta’minlaydi.

Olingan eksperimental ma’lumotlar shuni ko‘rsatadiki, ichki havoning yuqori namligida bug‘ o‘tkazuvchanligiga yuqori qarshilikka ega bo‘lgan og‘ir beton qatlami tashqi devorlarning namligini oldini oladi. Shu bilan birga, devorning ichki yuzasida doimiy kondensasiya bilan bunday qatlam devorlarni tomchi-suyuq namlik bilan namlashdan kafolat bermaydi. Muallifning fikriga ko‘ra, bunday qatlamni bo‘yoq va laklar va plyonkalardan namlikka chidamli qoplamalar bilan birgalikda ishlatish uchun tavsiya etilishi mumkin.

Serejyechkina S.A. tomonidan olib borilgan izlanishlarda flotasiya va kimyo korxonalarining asosiy binolariga o‘rnatilgan zich og‘ir va yengil betonning ichki izolyasion qatlami 30-50 mm ga teng bo‘lgan zich tuzilishga ega bo‘lgan ikki qatlamli kengaytirilgan beton panellardan foydalanish imkoniyati o‘rganilgan. Ushbu dizayndagi eksperimental panellarning 3-5 yillik ekspluatasiyadan keyin olib borilgan dala tadqiqotlari ularning yaxshi holatda ekanligini ko‘rsatdi. Muallifning ta’kidlashicha, intensiv quritish panellarda tashqi tomondan ham, ichkaridan ham sodir bo‘ladi. Shu bilan birga, o‘rtacha og‘irlikdagi namlik 10% dan 5,5% gacha kamaydi [13,14,15].

Biroq, bu holda beton himoya qatlamining samaradorligi haqida bir ma’noda gapirish mumkin emas, chunki devorlarning ichki yuzasida bo‘yoq va lak perxlorvinil qoplamasi qo‘llanilgan. Shu sababli, bo‘yoq qoplamasining panellarning namlik rejimiga ta’siri darajasi noaniq bo‘lib qoldi.

Devor panellarini himoya qilish variantlaridan biri Sanoat Qurilish loyiha tomonidan ishlab chiqilgan profilli polietilen plitalardan foydalanish hisoblanadi. Bunday himoya bilan kengaytirilgan keramzibeton panellari qurilishi sanoat binolari markaziy ilmiy-tadqiqot instituti bilan birgalikda ishlab chiqilgan [16].

Biroq, polietilen izolyasiyasi panellarni ishlab chiqarish texnologiyasi va bo‘g‘inlarni loyihalashning sezilarli murakkabligi, shuningdek, konstruksiyalarni ishlab chiqarish yoki ishlatish jarayonida polietilenga zarar yetkazish ehtimoli tufayli hali keng qo‘llanilmaydi. Kaliy ishlab chiqarish sharoitida polietilenning qarish tezligi hali o‘rganilmagan.

Korroziyaga qarshi himoyaning barcha turlaridan hozirgi vaqtda 50% dan ortig‘i bo‘yoq va laklar bilan himoyalangan.

Sanoat qurilishida beton va temir-beton konstruksiyalar bo‘yoq qoplamalari bilan himoyalangan bo‘lib, ulardan foydalanish beton va temir-beton ilmiy-tadqiqot instituti tomonidan tuzilgan korroziyadan himoya qilish bo‘yicha tavsiyalar bilan tartibga solinadi.

Tuz ta’sirida bo‘yoq qoplamalari bilan o‘rab turgan tuzilmalarni himoya qilish va ularning yopiq inshootlarning chidamliligini oshirishda samaradorligi kam o‘rganilgan. Asosan, bo‘yoq va lak qoplamalaridan foydalanish bo‘yicha tadqiqotlar yuk ko‘taruvchi tuzilmalarga nisbatan olib borildi [17,18,19].

Shu bilan birga, devorlar uchun bo‘yoq va lak qoplamalaridan foydalanish to‘siq konstruksiyalar ishining o‘ziga xos xususiyatlarini hisobga olmasdan amalga oshiriladi.

Shuni ta’kidlash kerakki, hozirgi vaqtda kaliy korxonalarida tuzning agressiyasi sharoitida himoya qoplamalarini qo‘llash bo‘yicha yetarli tajriba kam. Bu sohada ma’lum bo‘lgan ishlar ko‘pincha tavsiflovchi xarakterga ega bo‘lib, ushbu chora-tadbirlarning yopiq inshootlarning chidamliligini oshirish va ularning namlik rejimini yaxshilash samaradorligini to‘liq tavsiflay olmaydi. Shu bilan birga, qoplamalarning o‘ziga xos xususiyatlari haqidagi savol noaniq bo‘lib qolmoqda (qoplama tizimi, qo‘llash usuli, qatlamlar soni va boshqalar).

Agressiv ta’sir ostida to‘siq konstruksiyalarning himoya qilishning mavjud usullarini tahlil qilish asosida, eng keng tarqalgan va samarali himoya bo‘yoq va lak qoplamalaridan foydalanish ekanligi aniqlandi. Himoya qoplamalarining samaradorligi ularni qo‘llash va ishlatish jarayonida texnologik talablarga rioya qilish bilan belgilanadi [20,21,22]. Biroq, tuz ta’siri ostida tuzilmalar bilan birgalikda bunday qoplamalarni ishlatishda tajriba hozircha yetarli emas.

Kaliy korxonalari devorlaridagi himoya qoplamalari tizimi bu holda yetarlicha asoslangan hisob-kitobsiz tayinlanadi. Shu bilan birga, ularning fizik-kimyoviy xususiyatlari, chidamliligi, ish sharoitlari va boshqalar yetarli darajada hisobga olinmaydi. Qoplamalarning namlik rejimiga ta’sirining tabiati va bu sharoitlarda devorlarning mustahkamligi ham yetarlicha o‘rganilmagan.

Shu munosabat bilan, kaliy korxonalariga xos bo‘lgan tuz agressiyasi sharoitida himoya bo‘yoq qoplamalari bilan o‘rab turgan tuzilmalarning birgalikdagi ishlashini o‘rganish va qoplamalarning namlik rejimiga va yopiq inshootlarning chidamliligiga ta’sirini baholash navbatdagi vazifa bo‘lib qolmoqda.

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