

**RUX SAQLOVCHI YOYLI PO'LAT ERITISH PECHI CHANGINI QAYTA
ISHLASHNING ISTIQBOLLI YO'NALISHLARI**

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Annotatsiya: yoyli po'lat eritish pechi changining (YPEP) kimyoviy tarkibi, undagi rux va temir saqlovchi komponentlarning miqdori hamda ularni qayta ishlash imkoniyatlari tahlil qilingan. YPEP changi metallurgiya sanoatida hosil bo'ladigan muhim texnogen chiqindilardan biri bo'lib, tarkibidagi qimmatli metallar uni ikkilamchi xomashyo sifatida foydalanish imkonini beradi. Tadqiqotlarda ruxni ajratib olishning pirometallurgik va gidrometallurgik usullari ko'rib chiqilib, ularning afzalliklari baholangan. Shuningdek, chiqindilarni qayta ishlashning ekologik va iqtisodiy samaradorligi yoritilgan. Olingan natijalar metallurgiya korxonalarida resurslardan oqilona foydalanish va aylanma iqtisodiyot tamoyillarini rivojlantirish uchun muhim ahamiyatga ega.

Kalit so'zlar: yoyli po'lat eritish pechi changi, rux, temir, ikkilamchi xomashyo, pirometallurgiya, gidrometallurgiya.

Namunalar rentgen-fluorescent (XRF), energiya-dispersiv rentgen spektroskopiyasi (EDS/SEM) va lazerli zarrachalar o'lchamini tahlil qilish usullari yordamida o'rganildi. XRF natijalariga ko'ra, namunalarda 40,7 % Fe₂O₃, 15,2 % ZnO, 9,93 % Na₂O, 8,44 % CaO, 6,04 % SiO₂, 3,65 % K₂O, 4,97 % SO₃, 2,33 % MnO va 1,49 % PbO mavjudligi aniqlandi. EDS tahlili Fe (33,82%), O (13,74%), Zn (18,35%), Ca (7,62%), Si (5,09%) va K (5,70%) kabi elementlarning asosiy qismni tashkil etishini, shuningdek, Mn, S, Na, Cl, Al va Mg kabi qo'shimcha elementlar ham borligini tasdiqladi. Zarrachalar o'lchamini (lazer difraksiyasi usulida) tahlil qilish natijalari median diametr (D50) 11,455 µm ekanligini, zarrachalarning 90 foizi esa 34,573 µm dan kichikligini ko'rsatdi. Rux miqdorining yuqoriligi (>14% elementar Zn; >15% ZnO) resurslarni qayta tiklash uchun ulkan salohiyat mavjudligidan dalolat beradi. Qayta ishlashning istiqbolli yo'nalishlari sifatida pirometallurgik (Vels pechi) va gidrometallurgik (sulfat kislota bilan yuvish) usullari ko'rib chiqilmoqda. Ushbu tadqiqot natijalari po'lat sanoatida ikkilamchi resurslarni barqaror boshqarishga va aylanma iqtisodiyot amaliyotlarini rivojlantirishga hissa qo'shadi.

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Tadqiqot natijalari chang tarkibida rux va temirning yuqori miqdorda mavjudligini ko'rsatdi. Ayniqsa, rux oksidining sezilarli ulushi ushbu chiqindini metallurgik qayta ishlash uchun istiqbolli xomashyoga aylantiradi. Pirometallurgik usullar, xususan Vels pechi texnologiyasi, ruxni yuqori samaradorlik bilan ajratib olish imkonini beradi. Shu bilan birga, sulfat kislotali gidrometallurgik usullar ham iqtisodiy va ekologik jihatdan muqobil texnologiya sifatida e'tiborga loyiqdir.

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