BA’ZI ORGANIK REAGENTLAR ASOSIDA XELAT HOSIL QILUVCHI SORBENTLAR VA ULARNING KOORDINATSION BIRIKMALARINING TERMIK TAVSIFI

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Jahon bozoridagi ion almashinuvchi smolalar orasida kuchli asosli anionitlar va kuchli kislotali kationitlar muhim rol o‘ynaydi [1]. Rangli va nodir metallarni murakkab aralashmalardan ajratish uchun ishlatilgan ionitlarga misollarni ko‘plab ishlarda [2-9] uchratish mumkin.

Maqolada mis va nikel ionlarining muqobil sorbsion material – Larix sibirica igna barglarida sorbsiyasi 200 ℃, 250 ℃, 400 ℃ haroratlarda o‘rganilgan. Sorbsiya izotermlari Langmyur, Freundlix, Temkin va Dubinin-Radushkevich modellari yordamida olingan va hisoblangan. Aniqlanishicha, Cu2+ va Ni2+ ionlarining sorbsiya jarayonlari Lengmyur modelida eng yaxshi tasvirlangan
[10; 113–120-b.].

Ishning maqsadi

Melamin, formalin va limon, qahrabo kislotalari asosida olingan yangi sorbent va uning ayrim metallar bilan hosil qilgan metallokompleksining termik holatlarini o‘rganish.

Metodologiya

Hozirgi vaqtda qattiq jismlarning termik parchalanish kinetikasini o‘rganish keng tarqalgan fizik-kimyoviy metodlardan biri derivatografiya usuli hisoblanadi. Derivatografiya yordamida olib borilgan tadqiqotlarning mazmuni shundan iboratki, namunani doimiy dasturlashtiriladigan harorat ortishi jarayonida unda sodir bo‘ladigan o‘zgarishlar issiqlik chiqishi va massa o‘zgarishi egri chiziqlariga asosan belgilanadi. Derivatografiya usuli ikki turdagi tahlillarni o‘z ichiga oladi: differensial termal va termik og‘irlik tahlillari. Differensial termal tahlilning mohiyati namunadagi qizdirilganda sodir bo‘ladigan faza o‘zgarishlarini yoki o‘zgarishlarni, bu transformatsiyalar bilan birga keladigan issiqlik effektlariga ko‘ra o‘rganishdir.

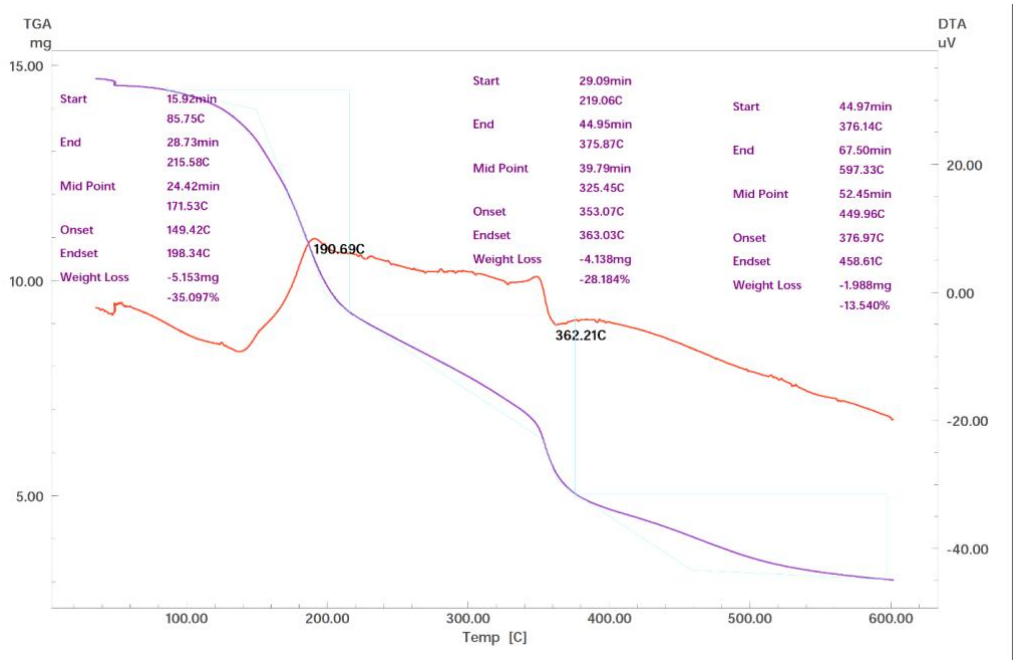
Differensial skanerlash kalorimetriya tahlili natijalariga ko‘ra MFL sorbentni qizdirish jarayonida birikmalar tuzilishining buzilishi natijasida massa o‘zgarishi bilan kuzatilgan turli ekzotermik va endotermik ta’sirlar tahlil qilindi.

Tadqiqot natijalari

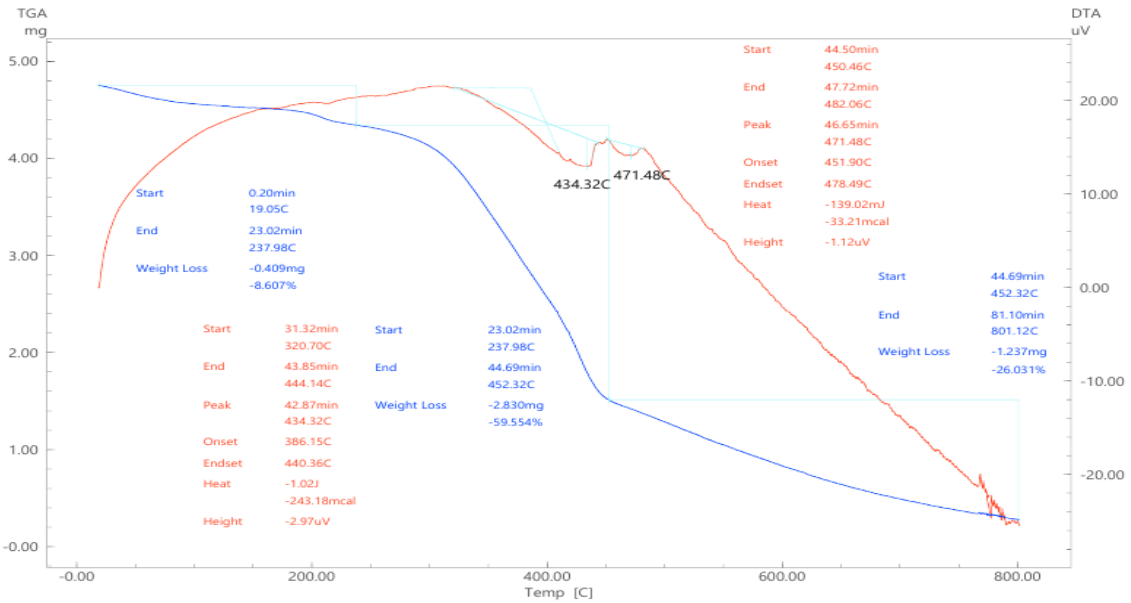
MFL sorbentning termik tahlili

MFL sorbentning grafiklarini o‘rganish (1-rasm) 85,75-458,61°C harorat oralig‘ida 190,69°C va 356.8°C ekzotermik hamda 142,6-362,21°C endotermik

pikni ko‘rsatadi. MFL sorbentning 171,53°C haroratda erishini ko‘rsatadi. Birinchi massa yo‘qotish harorat 85,75-198,34°C da -5,153 mg va bu 35,097 % ni tashkil qiladi. Ikkinchi massa yo‘qotish harorat 219,06-363,03°C oralig‘ida namuna massasining -4,138 mg pasayishi 28,184% ni tashkil etdi. Uchinchi massa yo‘qotish harorat 376,14-458,61°C oralig‘ida sodir bo‘ldi. Bunda umumiy massaning 1,988 mg i ya’ni 13,540% ni tashkil etadi. MFL sorbentning umumiy parchalanishi uchun 52,45 daq. vaqt talab etildi.



1-rasm. MFL Sorbentning termik tahlili grafigi

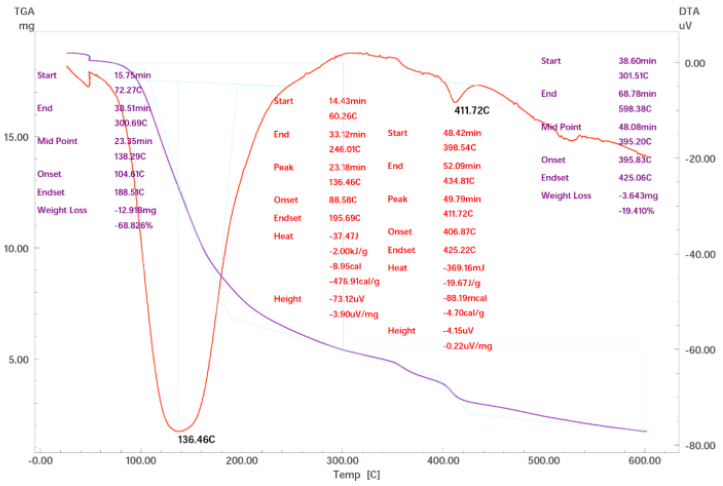


2-rasm. MFL sorbenting Cu(II) bilan hosil qilgan metallokompleksning termik tahlili grafigi

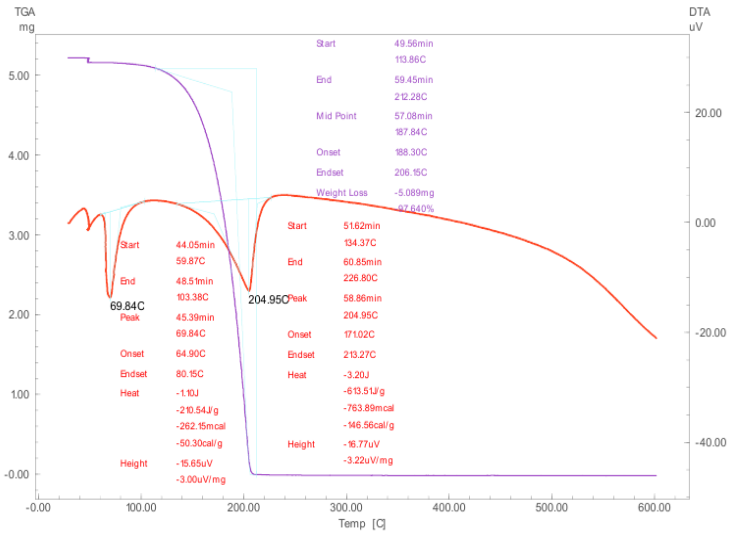
MFQ sorbentning termik tahlili

Differensial skanerlash kalorimetriya tahlili natijalariga ko‘ra, MFQ sorbentni qizdirish jarayonida birikmalar tuzilishining buzilishi natijasida massa o‘zgarishi bilan kuzatilgan turli ekzotermik va endotermik ta’sirlar tahlil qilindi.

MFQ sorbentning grafiklarini o‘rganish (3-rasm) 72,27-425,06 °C harorat oralig‘ida 136,46 °C va 411,752 °C ekzotermik hamda 195,69-425,22 °C endotermik pikni ko‘rsatadi. MFQ sorbentning 138,29 °C haroratda erishini ko‘rsatadi. Birinchi massa yo‘qotish harorat 72,27-158,58 °C da -12,918 mg va bu 68,826 % ni tashkil qiladi. Ikkinchi massa yo‘qotish harorat 301,51-425,06 °C oralig‘ida sodir bo‘ldi. Bunda umumiy massaning -3,643 mg i ya’ni 19,410 % ni tashkil etdi. MFQ sorbentning umumiy parchalanishi uchun 48,08 daq. vaqt talab etildi.



3-rasm. MFQ sorbentning termik tahlili grafigi



4-rasm. MFQ sorbenting Zn(II) bilan hosil qilgan metallokompleksning termik tahlili grafigi

MFQ sorbentning termik tahlili

Xulosa

MFL va MFQ sorbentlarning hosil qilgan metallokomplekslarining termik tahlili o‘rganildi. Tadqiqot natijalaridan olingan MFL va MFQ sorbentlarning termik barqarorligi MFQ < MFL qatorida ortib boradi.

Foydalanilgan adabiyotlar ro‘yxati:

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