

“NOORGANIK BIRIKMALARNING MUHIM SINFLARI” MAVZUSINI O’QITISHDA TEXNOLOGIK USULLARDAN FOYDALANISH

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Osiyo Xalqaro Universiteti o’qituvchisi

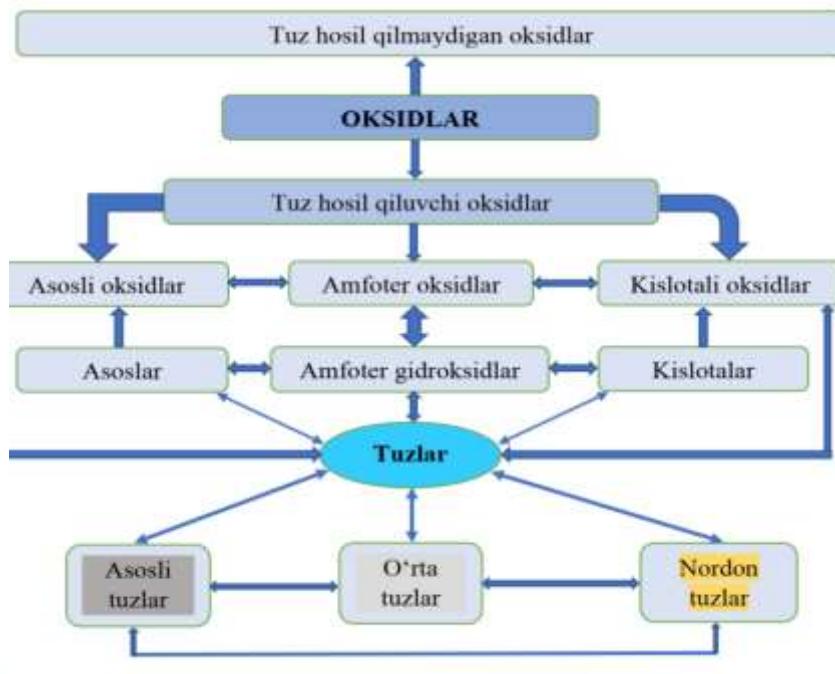
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Annotatsiya: Maqolada oliv o‘quv yurti talabalariga, kimyo kursida olgan bilimlarini mustaxkamlab, anorganik birikmalarning sinflari orasidagi o‘zaro bog‘lanishni hamda ular asosida masalalar yechish texnologiyasi yoritilgan.

Kalit so’zlar: oksid, kislota, asos, tuz, tuz hosil qilmaydigan oksidlar, asosli oksidlar, kislotali oksidlar, amfoter oksidlar, indefrent (befarq) oksidlar, asoslar, kislotalar, amfoterlar, tuzlar, o‘rta tuzlar, nordon tuzlar, asosli tuzlar, oksi tuzlar, kompleks tuzlar.

O’quvchilar 1-bosqichda kimyo kursida “Anorganik birikmalarning muhim sinflari” va ular asosida bog‘lanish mavzularida olgan bilimlarini yodga olib takrorlaydi. Demak, o’qituvchilar oldindan tayyorlab qo’yilgan tezkor savollarni talabalarga berib, ularni bilimlari to’g’risada umumiy xulosaga keladi va dars reja asosida yoritib beradi. Dastlab, oksidlar, asoslar, kislotalar va tuzlarning ta’rifi, sinflanishi, nomeklaturasi, olinishi, tabiatda tarqalishi, fizik-kimyoviy xossalari, sanoat, qishloq va xalq xo’jaligidagi ahamiyatini yoritib, tushuntirib beradi.

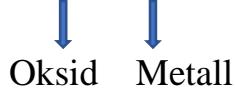
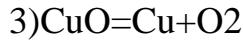
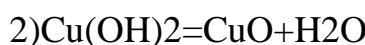
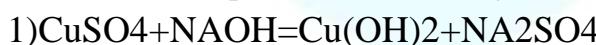
Anorganik birikmalarning sinflari (turlari) orasidagi o‘zaro (genetik) bog‘lanish



Ma'lumki anorganik birikmalar 4 guruhga bo'linadi va ular o'rtaida genetik bog'lanishlar bor. Quyidagi sxema bo'yicha boradigan reaksiyalarni doskada yozib ularni elektron-balans, ion-elektron va matematik usullar bilan tenglashtirish lozim.

- a) $\text{CuSO}_4 \rightarrow \text{Cu}(\text{OH})_2 \rightarrow \text{CuO} \rightarrow \text{Cu}$;
- b) $\text{Fe} \rightarrow \text{FeCl}_2 \rightarrow \text{Fe}(\text{NO}_3)_2 \rightarrow \text{Fe}(\text{OH})_2 \rightarrow \text{FeO} \rightarrow \text{Fe}$;
- d) $\text{Fe} \rightarrow \text{FeCl}_3 \rightarrow \text{Fe}(\text{OH})_3 \rightarrow \text{Fe}_2\text{O}_3 \rightarrow \text{Fe} \rightarrow \text{FeSO}_4$;
- e) $\text{P} \rightarrow \text{P}_2\text{O}_5 \rightarrow \text{H}_3\text{PO}_4 \rightarrow \text{Ca}_3(\text{PO}_4)_2$;
- f) $\text{S} \rightarrow \text{SO}_2 \rightarrow \text{SO}_3 \rightarrow \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4$;
- g) $\text{C} \rightarrow \text{CO}_2 \rightarrow \text{CaCO}_3 \rightarrow \text{CaO} \rightarrow \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{HCO}_3)_2$;
- h) $\text{CaCO}_3 \rightarrow \text{Ca}(\text{HCO}_3)_2 \rightarrow \text{CaCO}_3 \rightarrow \text{CO}_2 \rightarrow \text{CaCO}_3$;
- i) $\text{Na} \rightarrow \text{NaH} \rightarrow \text{NaOH} \rightarrow \text{NaNO}_3$;
- j) $(\text{CuOH})_2 \text{CO}_3 \rightarrow \text{CuO} \rightarrow \text{CuSO}_4 \rightarrow \text{Cu}(\text{OH})_2 \rightarrow \text{CuO} \rightarrow \text{Cu}$

Masalan misol tariqasida a bandni bajarsak:



E'tibor bergen bo'lsak noorganik birikmalar o'rtaida ya'ni tuzdan asos ,asosdan oksid va metal holdagi element ham xosil qilsa bo'ladi.

"Diqqat qil" o'yini orqali tezkor noorganik birikmalar o'rtaсидаги kimyoviy xossalarni o'rGANISH Uchun :Doskada quyidagi tenglamalar yozib qo'yiladi.

1. $*\text{Zn}(\text{NO}_3)_2 \longrightarrow *\text{ZnO} + *\text{NO}_2 \uparrow + *\text{O}_2 \uparrow$
2. $*\text{Au} + *\text{HNO}_3 \text{ (kons)} = *\text{AuNO}_3 + *\text{NO}_2 \uparrow + *\text{H}_2\text{O}$
3. $*\text{H}_2\text{SO}_4 \text{ (kons)} + *\text{S} = *\text{SO}_2 \uparrow + *\text{H}_2\text{O}$
4. $*\text{Na}_2\text{CO}_3 + *\text{CaCO}_3 + *\text{SiO}_2 = *\text{Na}_2\text{SiO}_3 \cdot *\text{CaSiO}_3 \cdot *\text{SiO}_2 + *\text{CO}_2 \uparrow$
5. $*\text{Cr}(\text{OH})_3 + *\text{H}_2\text{SO}_4 = *\text{Cr}_2(\text{SO}_4)_3 + *\text{H}_2\text{O}$

O'yin qoidalari: o'qituvchi har bir komandan navbat bilan bir talabani doskaga chaqiradi. Yulduzcha o'miga shunday son yozingki, natijada to'g'ri tenglik hosil bo'lsin. Hammasini yozib bo'lgandan keyin tenglamalarni diqqat bilan tekshirish talab qilinadi. So'ngra o'ng tomonini yopib qo'yib chap tomonini yozish va aksincha talab qilinadi. Undan keyin esa butunlay tenglamani yopib qo'yib, uni yozish talab qilinadi. Topshiriqni to'g'ri bajarsa 5 ball. to'g'ri bajarolmasa 2 ball, tartibni buzganlardan 1 ball ayrıladı.

Foydalanilgan adabiyotlar ro'yxati

1. Tuyg'unovna, S. S. (2023). DORIVOR NA'MATAKNING FOYDALI XUSUSIYATLARI VA TIBBIYOTDA QO'LLANILISHI. TA'LIM VA RIVOJLANISH TAHЛИLI ONLAYN ILMIY JURNALI, 3(9), 11-13.
2. Shukurova, S. (2023). DORIVOR ACHCHIQ BODOM URUG'INING SHIFOBAXSHLIGI, DORI TAYYORLASH USULLARI. Центральноазиатский журнал образования и инноваций, 2(10 Part 3), 116-120.
3. Tuyg'unovna, S. S. (2023). USEFUL PROPERTIES OF THE MEDICINAL PRODUCT AND USE IN MEDICINE. Gospodarka i Innowacje., 40, 179-181.
4. Shukurova, S. (2023). DORIVOR O'SIMLIK LARNING KIMYOVIY TARKIBI VA TASNIFI. Центральноазиатский журнал образования и инноваций, 2(11), 5-10.
5. Tuyg'unovna, S. S. (2023). CHEMICAL COMPOSITION OF MEDICINAL PLANTS AND CLASSIFICATION. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(11), 33-35.
6. Shukurova, S. (2023). KIYIKO'T VA YALPIZDAN FOYDALANISH USULLARI. Центральноазиатский журнал образования и инноваций, 2(12), 171-177.
7. Shukurova, S. (2024). TARKIBIDA GLIKOZIDLAR BO'LGAN DORIVOR O'SIMLIK LAR. Центральноазиатский журнал образования и инноваций, 3(1), 217-222.
8. Tuygunovna, S. S. (2023). Ways to Use Mint and Peppermint. EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY, 3(12), 20-23.
9. Tuygunovna, S. S. (2023). Medicinal Plants Containing Glycosides. EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY, 3(12), 24-27.
10. Mukhriddin, T. (2023). XENOBIOTICS AND THEIR TYPES. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(10), 14-17.
11. Mukhriddin, T. (2023). A LARGE-SCALE ANALYSIS OF RARE PLANTS DISTRIBUTED IN THE NUROTA RESIDUE MOUNTAINS. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(12), 111-1
12. Muxriddin, T. (2023). KSENOBIOTIKLAR VA ULARNING TURLARI. TA'LIM VA RIVOJLANISH TAHЛИLI ONLAYN ILMIY JURNALI, 3(11), 220-223.
13. Mukhriddin, T. (2023). DEMOGRAPHIC INDICATORS OF XENOPOPULATIONS AND XENOPOPULATION. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(11), 69-71.
14. Тешаев, М. (2023). ЦЕНОПОПУЛЯЦИЯЛарнинг демографик кўрсаткичлари ва ценопопуляция. TA'LIM VA RIVOJLANISH TAHЛИLI ONLAYN ILMIY JURNALI, 3(9), 134-140.

15. Rahimova, G. (2024). G'O'ZA SHAKLLANISHI. Центральноазиатский журнал образования и инноваций, 3(1), 212-216.
16. Yomgirovna, R. G. (2023). SCIENTIFIC ASPECTS AND EFFICACY OF BENTONITE USE IN AGRICULTURE. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(11), 116-120.
17. Rahimova, G. (2023). SHO'RLANGAN TUPROQLAR SHAROITIDA G'O'ZANING MORFOLOGIK BELGILARI VA RIVOJLANISHIGA BENTONITNING TA'SIRI. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 2, Выпуск 12, cc. 141–145). Zenodo.
18. Yomgirovna, R. G. (2023). FORMATION OF COTTON CROP ELEMENTS. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(12), 113-115.
19. Yomgirovna, R. G. (2023). EFFECT OF SEED ENCAPSULATION ON COTTON YIELD. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(12), 42-44.
20. Rahimova, G. (2023). MAKTABLARDA BIOLOGIYA FANINI O'QITISHDA ZAMONAVIY INTERFAOL METODLARDAN FOYDALANISH. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 2, Выпуск 10, cc. 103–109). Zenodo.
21. Yomgirovna, R. G. (2023). AGROBIOLOGICAL PROPERTIES OF BENTONITE IN AGRICULTURE. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 3(9), 126-130.
22. Yomgirovna, R. G. (2023). AGROBIOLOGICAL PROPERTIES OF BENTONITE IN AGRICULTURE. Gospodarka i Innowacje., 40, 179-183.
23. Rahimova, G. (2023). QISHLOQ XO'JALIGIDA BENTONITDAN FOYDALANISHNING ILMIY JIHATLARI VA SAMARADORLIGI. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 2, Выпуск 11, cc. 189–196). Zenodo.
24. Ostonova, G. (2023). ICHKI SEKRETSIYA BEZLARI FIZIOLOGIYASI. Центральноазиатский журнал образования и инноваций, 2(10 Part 3), 110-115.
25. Rashidovna, O. G. (2023). PHYSIOLOGY OF THE ENDOCRINE GLANDS. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(11),
26. Ostonova, G. (2023). TURLI XIL STRESS OMILLARDAN GARMSEL OMILINING G 'O 'ZA BARG SATHIGA TA'SIRI. Центральноазиатский журнал образования и инноваций, 2(11 Part 2), 107-111.

27. Rashidovna, O. G. (2023). EFFECT OF SOILS WITH DIFFERENT LEVELS OF SALINITY ON COTTON GERMINATION IN FIELD CONDITIONS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 116-119.
28. Rashidovna, O. G. (2023). THE EFFECT OF THE HARMSEL FACTOR ON THE LEVEL OF COTTON LEAVES FROM VARIOUS STRESSORS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 105-107.
29. Ostonova, G. (2023). DALA SHAROITIDA TURLI DARAJADA SHO 'RLANGAN TUPROQLARNING G 'O 'ZA UNUVCHANLIGIGA TA'SIRI. *Центральноазиатский журнал образования и инноваций*, 2(12), 206-211.
30. Ostonova, G. (2024). TURLI DARAJADA SHO 'RLANGAN TUPROQLARNING G 'O 'ZANING O'SISH VA RIVOJLANISH DINAMIKASIGA TA'SIRI. *Центральноазиатский журнал образования и инноваций*, 3(1 Part 2), 73-80.
31. Akbar, A. (2023). DORI MODDALARINING KVANT KIMYOVII HISOBBLASHLARI VA ELEKTRONLARINING TABIATI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(11), 100-104.
32. Azamat ogli, A. A. (2023). PIRATSETAM MONOSULAFAT TUZILISHINI VA ELEKTRONLARINI KVANT KIMYOVII USULDA ORGANISH. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(12), 286-288.
33. Azamat o'g'li, A. A. (2023). KANAKUNJUT O 'SIMLIGINING DORIVOR XUSUSIYATLARI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(5), 200-202.
34. Azamat ogli, A. A. (2023). The Effect of Using Interactive Methods in Teaching Chemistry to School Students on Educational Efficiency. *Central Asian Journal of Medical and Natural Science*, 4(5), 771-774.
35. Azamat o'g'li, A. A. (2023). QUANTUM CHEMICAL CALCULATIONS AND ELECTRON NATURE OF DRUG SUBSTANCES. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(11), 64-68.
36. Azamat ogli, A. A., & Shahribonu, B. (2023). BOIKIMYO FANIDA CHEM OFFICE DASTURLARIDAN FOYDALANISH. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(3), 272-274.
37. Azamat o'g'li, A. A. (2023). ROLLI O 'YINLARNI KIMYO FANI MASHG 'ULOTLARINING SIFATIGA TA'SIRI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(9), 131-133.

38. Azamat ogli, A. A. (2023). VANADIY (IV) IONI BILAN HOSIL QILINGAN MODDALARNING XOSSALARINI ORGANISH. *TA'LIM VA RIVOJLANISH TAHЛИLI ONLAYN ILMIY JURNALI*, 3(10), 305-308.
39. Azamat ogli, A. A. (2023). STUDYING THE STRUCTURE AND ELECTRONS OF PIRACETAM MONOSULFATE BY QUANTUM CHEMICAL METHOD. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 108-110.
40. Rashitova, S. (2023). BENTONIT GIL KUKUNINI SORBSION XOSSASINI KIMYOVIY USULDA FAOLASHTIRISH. *Центральноазиатский журнал образования и инноваций*, 2(10 Part 3), 98-102.
41. Shukhrat, R. S. (2023). PROCUREMENT OF SORBENTS WITH HIGH SORPTION PROPERTIES AND WASTEWATER TREATMENT ON THEIR BASIS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 75-76.
42. Boltayeva, S. (2023). PREPARATION OF EMULSIONS FROM OIL EXTRACTS AND EVALUATION OF QUALITY INDICATORS. *В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION* (T.2 Выпуск 10, сс. 93-97).
43. Boltayeva Shahribonu Ahmad qizi. MEDICINAL PROPERTIES OF CLOVE PLANT AND MEDICINE PREPARATION METHODS. (2023) Laboratorium Wiedzy Artur Borcuch (182-185)
44. Boltayeva Shahribonu Ahmad qizi. Tirnoqgul o'simligining dorivorlik xususiyatlari va dori tayyorlash usullari. *Analytical Journal of Education and Development*. (14-17)
45. Boltayeva, S. (2023). PREPARATION OF EMULSIONS FROM OIL EXTRACTS AND EVALUATION OF QUALITY INDICATORS. *Центральноазиатский журнал образования и инноваций*, 2(10 Part 3), 93-97.
46. Boltayeva, S. (2023). GIDROLIZLANGAN POLIAKRILONITRILNING EPIXLORGIDRIN BILAN O'ZARO TA'SIRI JARAYONINI O'GANISH, OLINGAN BIRIKMALARNING TUZILISHINI ANIQLASH. *Центральноазиатский журнал образования и инноваций*, 2(11), 71-76.
47. Boltayeva, S. (2023). O'ZARO BOG'LANGAN POLIMERLAR ASOSIDA YANGI GIDROGELLAR SINTEZI, VA NATIJALARINI O'GANISH. *Центральноазиатский журнал образования и инноваций*, 2(12), 146-151.
48. Boltayeva, S. (2024). KIMYO FANINI O 'QITISHDA INNOVATSION TA'LIM TEKNOLOGIYALARDAN FOYDALANISHNING AFZALLIKLARI. *Центральноазиатский журнал образования и инноваций*, 3(1 Part 2), 69-72.
49. Azamat ogli, A. A., & Shahribonu, B. (2023). BOIKIMYO FANIDA CHEM OFFICE DASTURLARIDAN FOYDALANISH. *TA'LIM VA RIVOJLANISH TAHЛИLI ONLAYN ILMIY JURNALI*, 3(3), 272-274.

50. Sh, B. (2023). PREPARATION OF EMULSIONS FROM OIL EXTRACTS AND EVALUATION OF QUALITY INDICATORS. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 3(6), 215-218.
51. Bakhshullayevich, T. B., & Shaxina, S. (2022). Classification of Enzymes. *EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY*, 2(5), 37-39.
52. Toxirov, B. B., Tagaeva, M. B., & Shukurova, S. (2023). Obtaining stabilized enzymes and their application in the food industry. *Science and Education*, 4(4), 529–537. Retrieved from <https://openscience.uz/index.php/sciedu/article/view/5560>
53. Tokhirovna, E. G. CLINICAL AND MORPHOLOGICAL ASPECTS OF THE COURSE OF ARTERIAL HYPERTENSION.
54. Yomgirovna, R. G. (2023). EFFECT OF SEED ENCAPSULATION ON COTTON YIELD. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 42-44.
55. Yomgirovna, R. G. (2023). FORMATION OF COTTON CROP ELEMENTS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 113-115.
56. Atoyeva, R. O., Xanjanova, M. P., Sharipova, S. M., Ostonova, G., & G'apurova, U. O. (2023). TURLI XIL STRESS OMILLARIDAN SHO 'RLANISHNI G 'O 'ZANING UNUVCHANLIGIGA TA'SIRINI LABARATORIYA SHAROITIDA O 'RGANISH. *Educational Research in Universal Sciences*, 2(4), 298-301.
57. Рашитова Ш.Ш. (2023). ПРИМЕНЕНИЕ АКТИВИРОВАННОГО СОРБЕНТА ДЛЯ ОЧИСТКИ СТОЧНЫХ ВОД . Новости образования: исследование в XXI веке, 2(16), 656–672
58. Рашитова, Ш. (2023). ИСПОЛЬЗОВАНИЕ АКТИВИРОВАННОГО СОРБЕНТА ДЛЯ ОЧИСТКИ СТОЧНЫХ ВОД. Центральноазиатский журнал образования и инноваций, 2(12), 135-140
59. Rashitova, S. (2023). USE OF INTERACTIVE METHODS IN CHEMISTRY. International Bulletin of Medical Sciences and Clinical Research, 3(10), 115-119.