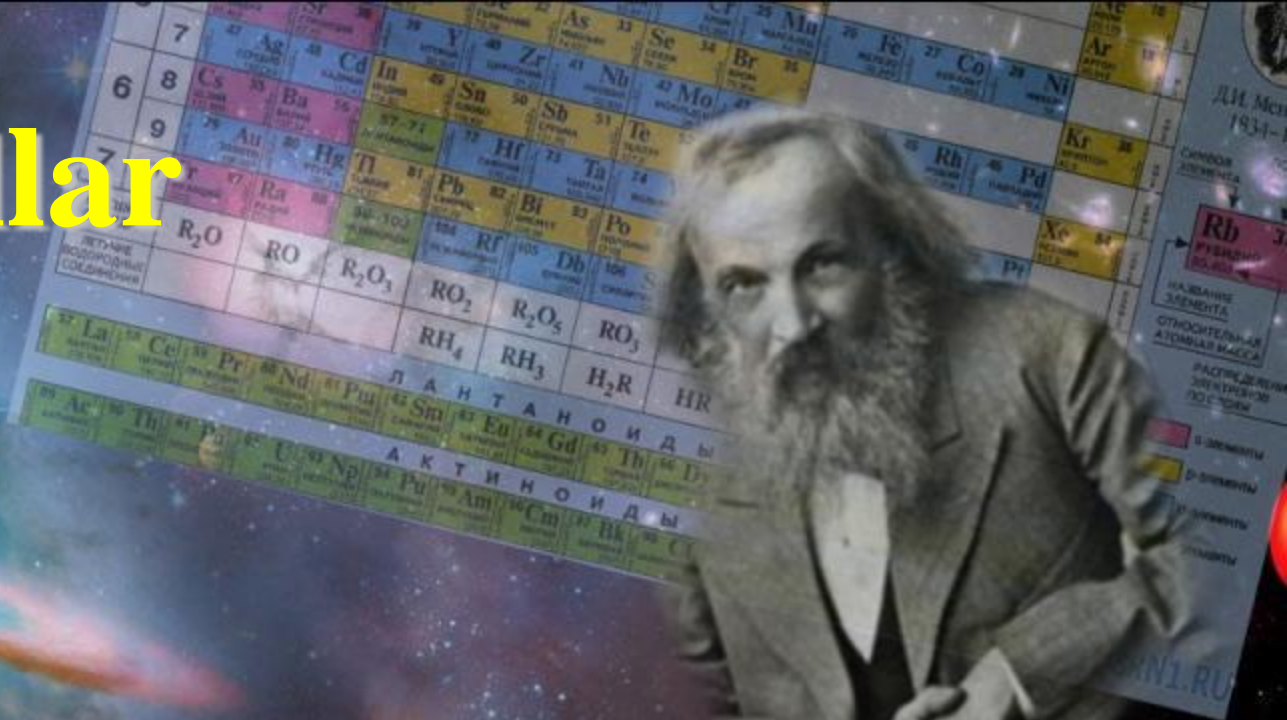


# Metallar



t.f.n. Komilov Q. O'.

# Metallar --

(lotinchada *metallum* – *kon ma'nosida*):

*bu metallik xosasi xarakteriga ega*

*Bo'lgan elementlar guruhidir. Yani yuqori Elektr va issiqlik o'tkazuvchanlik, qarshilikning musbat harorat koeffitsenti, yuqori egiluvchanlik va metallik yaltiroqligi.*



# Metallarning kimyoviy xossalari

*Hamma metallar asosan qaytaruvchilik xossasiga ega.*

*Metallar atomlari tashqi qavatidagi elektronlarni oson beradi (ba'zilar oxirigidan oldingi qavatdagi – d-elementlar), musbat zaryadlangan ionga aylanadi.*

*Metallar katta atomlariga ega va tashqi qavatida kamsonli elektronlar tutadi (1tadan - 3tagacha).*



## Cheklanishlar:

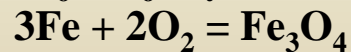
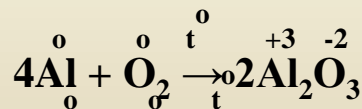
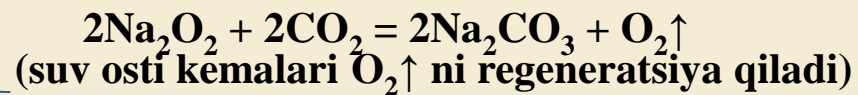
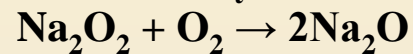
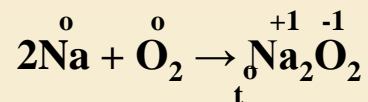
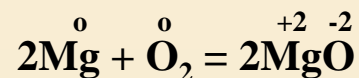
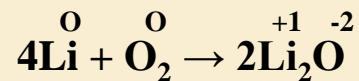
- Ge, Sn, Pb — 4 ta elektron;
- Sb, Bi — 5 ta elektron;
- Po — 6 ta elektron;



## Metallarni kislorod bilan o'zaro ta'siri



### Faol metallar

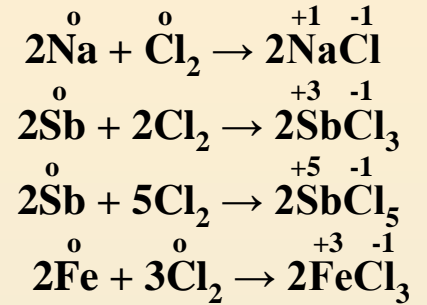


### Faolmas metallar

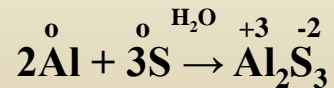
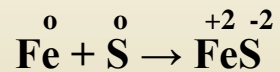
## Metallarni galogenlar bilan o'zaro ta'siri



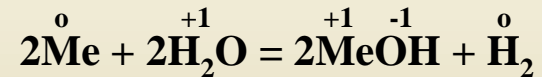
Osh tuzi



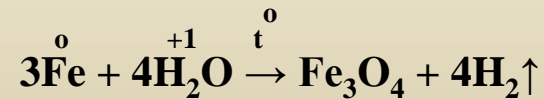
## Metallarni oltingugurt bilan o'zaro ta'siri



## Metallarni suv bilan o'zaro ta'siri

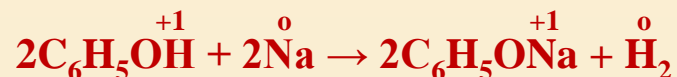
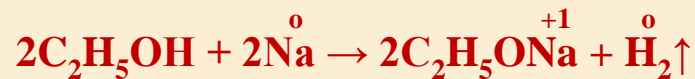
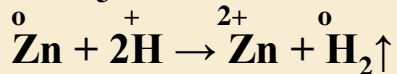
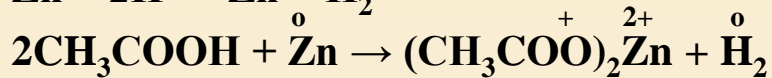
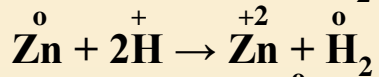
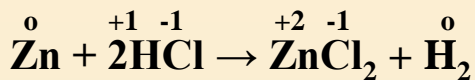


(Ishqoriy va ishqoriy –yer metallari)

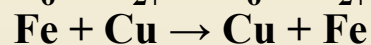
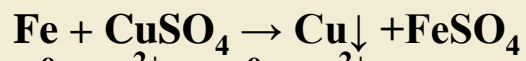


(faolmas metallar)

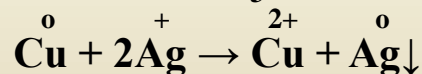
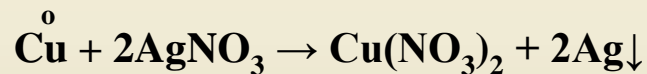
## Metallarni kislotalar bilan o'zaro ta'siri



## Metallarni tuzlar bilan o'zaro ta'siri

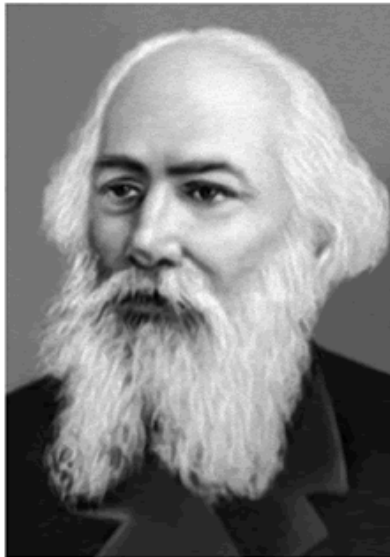


(oksidlanish – qaytarilish reaksiyalari)

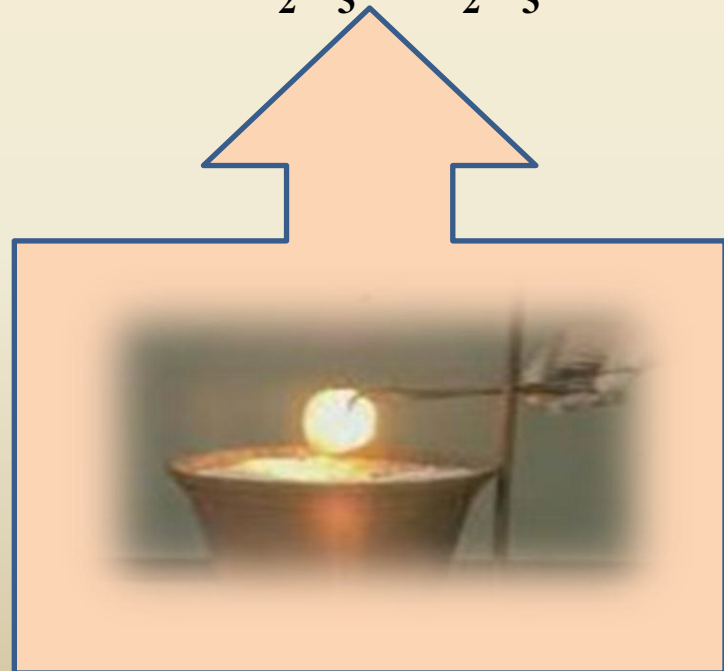
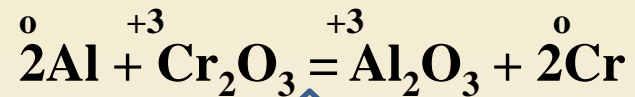


# Metallotermiya

**Ba'zi bir faol metallar – litiy, magniy, kaltsiy, alyuminiy – boshqa metallarni ularning oksidlaridan siqib chiqarish qobiliyatiga ega. Bu xossa ba'zi metallarni olishda va shu bilan birga termit aralashmalarini tayyorlashda ishlatiladi.**



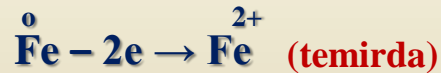
Николай Николаевич  
БЕКЕТОВ  
(1827-1911)





## Elektrokimyoviy korroziya

Metallarni korroziya muhitida paydo bo'ladigan gal'vanik element ta'siri ostida yemrilishi.



# Metallar korroziyasi

Atrof muhit ta'sirida metallarni va ularning qotishmalarini o'z-o'zidan yemrilishi.

(lotinchadan *corrosio* - yemrilish, yeyilish ma'nosini anglatadi)

## Kimyoviy korroziya

Metal; sirtini korrozion-faol muhit bilan o'zaro ta'sirlashishi, va fazalar chegarasida elektrokimyoviy jarayonlarni paydo bo'lishini kuzatilmasligi.





# Korroziyadan himoya

**Korroziyani kelib chiqish sababiga ko'ra, korroziyadan himoyalani turlari quyidagi turlari mavjud:**

- 1. Himoya qoplamalari.** Metallarni atrof muhitdan izzolytsiya qilish maqsadida unga turli himoya qoplamalari beriladi: laklar, bo'yoqlar, emallar.
- 2. Korroziyaga uchraydigan tashqi muhitga ishlov berish.** Korroziya jarayonini maksimal sekinlatish maqsadida atrof muhitga ingibitorlar chiqariladi (sepiladi).  
( $\text{Fe} + \text{H}_2\text{SO}_4 - \text{добавляют } \text{HNO}_3$ )
- 3. Elektrokimyoviy himoya – protektorli va katodli.** Protektorli himoyada – korroziyadan himoya qilinayotgan buyum, nisbatan elektroneytral metal (protektor) bo'lagi bilan bo'lanadi. Katodki himoya – elektrolitdagi (tuproqli suvdagi) himoya qilinayotgan konstriksiya, tashqi tok manbasi katodiga ulanadi.
  - 1. Boshqa metal qatlami bilan qoplanish** (Au, Ag, Cr, Ni, Zn. Sn- yoki Pb –yamash-payat qilish)
  - 2. Zanglamaydigan qotishmalarni ishlatilishi** (xrom, nikel, titan).

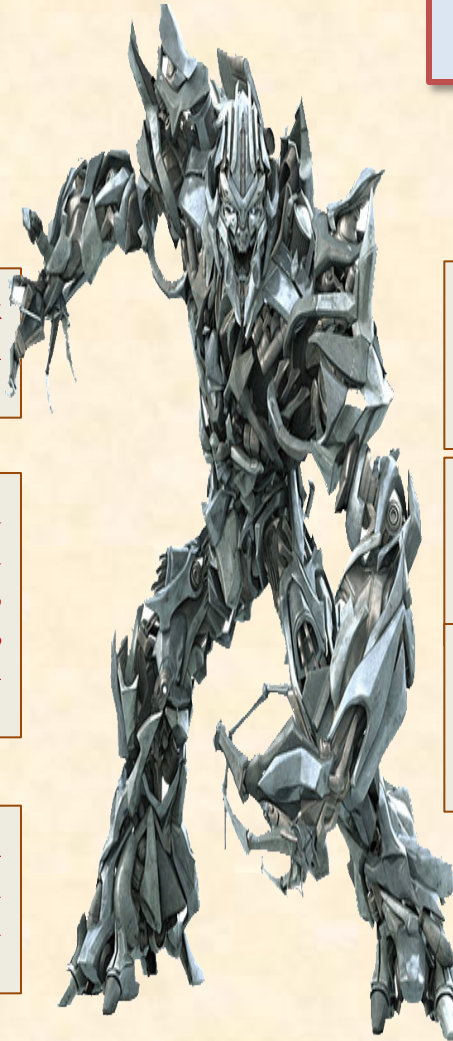
## Metallarni inson organizmi uchun foydaliligi va zarari

+

**Kaltsiy** – inson organizmining suyak xujayralari strukturasi asosidir. Inson uchun eng zarur bo'lgan mineral moddadir.

**Mis** - immun himoyani ta'minlashda muhim rol o'ynaydi, shu o'rinda nurlanishga qarshi va rakga qarshi, energiya almashinuvuda va qon aylanishida, terining himoya pigmenti melamin hosil bo'lishida ishtirok etadi.

**Temir** - hayot uchun, gemoglobin 90 qizil qon jismlar, mioglobin( muskullardagi qizil pigmentlar) va ba'zi fermentlar hosil bo'lishi uchun zarurdir.



—

**Kadmiy** – buyraklarda to'planadi va gipertoniya, immunitetni pasayishiga, aqlsizlanishga olib keladi. Tamaki tutunida, ichimlik suvida, ifloslangan havoda saqlanadi.

**Alyuminiy** – qarilik aqlsizlanishi, o'zaro reaksiyalarni, anemiyani buzilishiga, buyrak va jigar xastaliklariga olib keladi. Ovqat falgasi, idishlar, piva bankalari.

**Qo'rg'oshin** – miya faoliyatini buzilishi, rak kasallaklari, ayollarda farzandli bo'lmaslik funksiyalarini rivojlanishiga olib keladi. Havoning ifloslanishi – avtomobillardan chiqayotgan gazlar

Нельзя допустить, чтобы люди направляли на свое собственное уничтожение те силы природы, которые они сумели открыть и покорить.

Ф. Жолио-Кюри