

dersdeo

öğrenmenin en kolay yolu o!

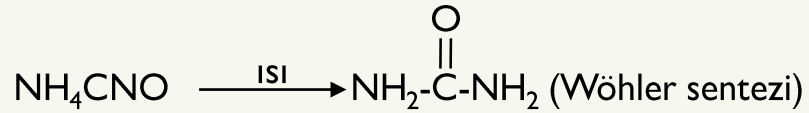
KİMYA

BİLEŞİKLER

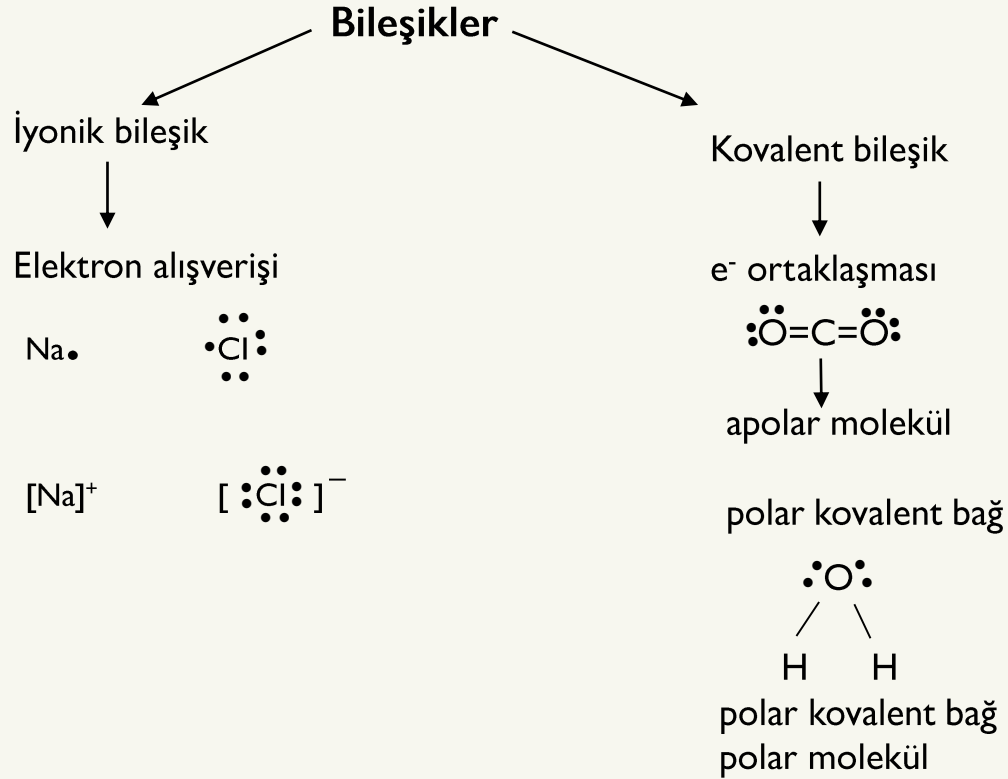
Bileşikler

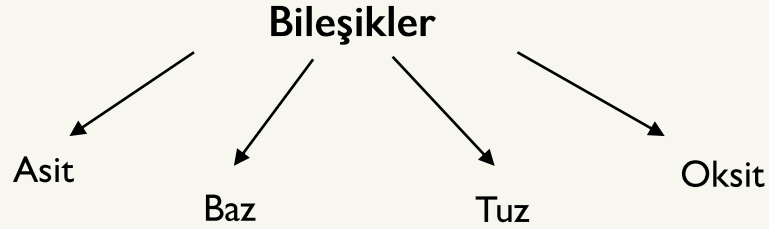
İnorganik
 NH_3 , CO_2

Organik
(en az C,H içermelidir.)
 $\text{C}_2\text{H}_5\text{OH}$, CH_3OH
 C_4H_{10} , CH_3COOH

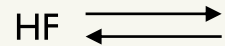
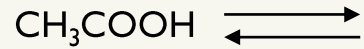
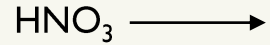
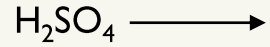
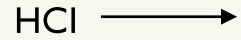


* Organik kelimesini ilk kez Berzelius kullandı.





Asit: Suda çözüldüğünde ortama H^+ iyonu (H_3O^+) veren maddelerdir. (Arrhenius tanımı)



7A
F
Cl
Br
I



çap ↑

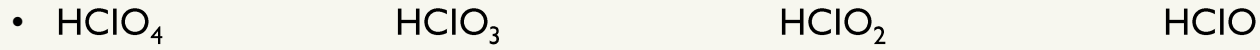
asidik
kuvvet ↑

NOT:

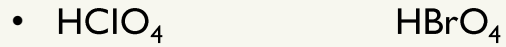
- COOH ya da $\text{C} \begin{smallmatrix} \text{O} \\ || \end{smallmatrix} \text{OH}$ grupları organik asit grubudur.

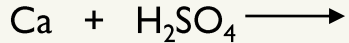
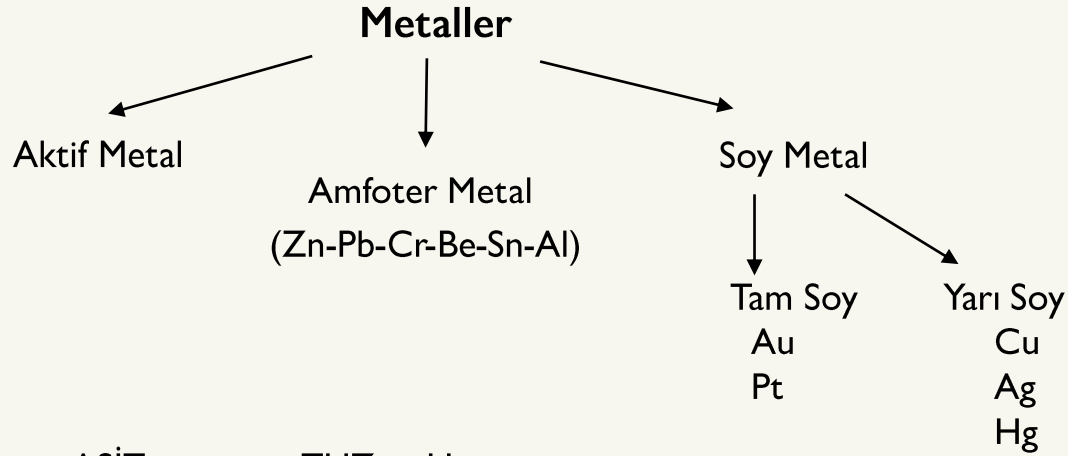
HCOOH
CH₃COOH

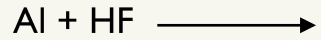
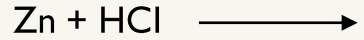
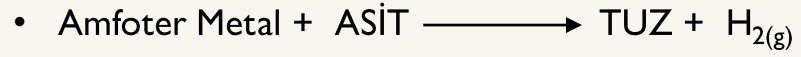
NOT: Organik asitlerde C sayısı ↑ asidik kuvvet ↓



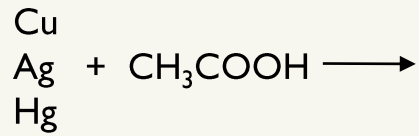
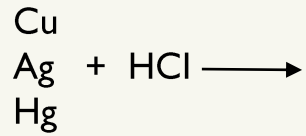
NOT: Aynı tür atomlardan oluşan oksijenli asitlerde, oksijen atom sayısı $\uparrow$ asidik kuvvet $\uparrow$

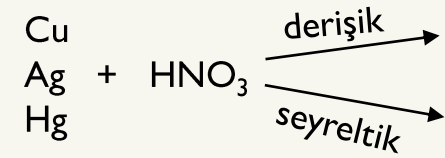
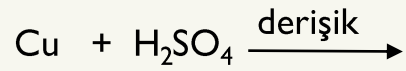
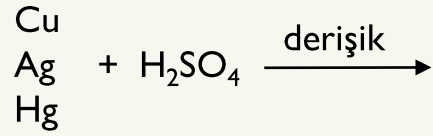






- Soy Metal $\longrightarrow$ Au, Pt (kral suyu)
 $\searrow$ Cu, Ag, Hg





- $\text{pH} < 7$
- Turnusol kağıdını kırmızıya boyarlar.
- Sulu çözeltileri elektrik akımını iletir.

Baz: Suda çözüldüğünde ortama OH^- iyonu veren maddelerdir. (Arrhenius tanımı)

IA
Li
Na
K
Rb
Cs
Fr



çap ↑

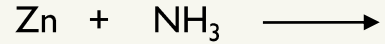
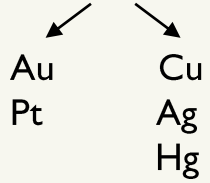
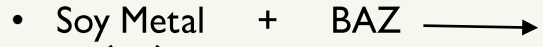
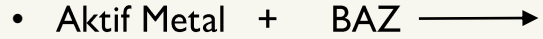
bazik özellik ↑

$\text{NaOH} \longrightarrow$

$\text{KOH} \longrightarrow$

NH_3

AgOH



HCl $\longrightarrow$ TD =

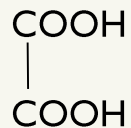
H₂SO₄ $\longrightarrow$ TD =

C₂H₅COOH $\longrightarrow$ TD =

NaOH $\longrightarrow$

Mg(OH)₂ $\longrightarrow$

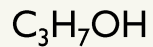
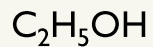
NH₃ $\longrightarrow$



* Al₂(SO₄)₃
 $\downarrow$
TD =

* MgCl₂
 $\downarrow$
TD =

NOT: Tesir değeriğinin kuvvetle ilişkisi yoktur.



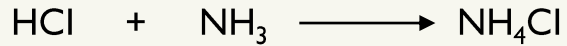
- $\text{pH} > 7$
- Turnusol kağıdını maviye çevirirler.
- Tatları acıdır.
- NaOH
 KOH
- NH_3

Tuzlar

I) Asidik Tuz



- Turnusol kağıdını kırmızıya boyarlar.



NOT: Tüm asit-baz tepkimelerinde H_2O açığa çıkmaz.

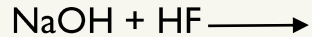
2) Bazik Tuz

Kuvvetli baz + Zayıf asit $\longrightarrow$ Bazik tuz



pH>7

- (s), (aq) iletir.
- Turnusol kağıdını maviye çevirirler.



3) Nötr Tuz

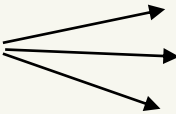
Kuvvetli baz + Kuvvetli asit $\longrightarrow$ Nötr tuz



pH = 7

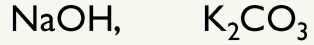
- (s), (aq) iletir.
- Turnusol kağıdının rengini değiştirmez.



- Zayıf asit + Zayıf baz 
- $K_a \uparrow$ asidik kuvvet $\uparrow$
- $K_b \uparrow$ bazik kuvvet $\uparrow$

Oksitler

Elementlerin oksijenle yapmış oldukları bileşiklerdir.



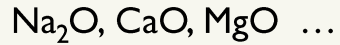
Oksit olabilme şartları

1) 2 cins atom içermelidir.

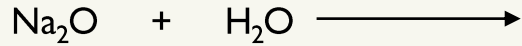
2) Oksijen (-) değerlik almalıdır.

I) Bazik Oksit

Metallerin oksijenle yapmış oldukları bileşiklerdir.

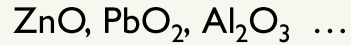
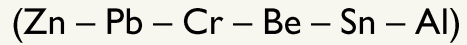


- Asit ve suda çözünürler.



2) Amfoter Oksit

Amfoter metallerin oksijenle yapmış oldukları bileşiklerdir.



- Asit ve bazda çözünürler.
- Suda çözünmezler.

3) Nötr Oksit

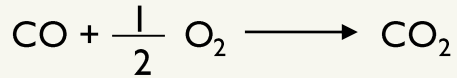
Ametallerin oksijence fakir olan bileşikleridir.



Oksijen sayısı (I) olmalıdır.

CO, NO, N₂O, H₂O

- Asit, baz ve suda çözünmezler.
- Yanabilirler.



4) Asidik Oksit

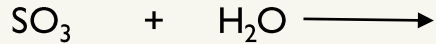
Ametallerin oksijence zengin olan bileşikleridir.



oksijen sayısı en az (2) olmalıdır.

CO_2 , SO_3 , N_2O_5 , Cl_2O_7

- Suda ve bazda çözünürler.



Bazı Elementlerin Sembolleri

ELEMENT	SEMBOL	ELEMENT	SEMBOL	ELEMENT	SEMBOL
Hidrojen	H	Silisyum	Si	Çinko	Zn
Helyum	He	Fosfor	P	Brom	Br
Lityum	Li	Kükürt	S	Kripton	Kr
Berilyum	Be	Klor	Cl	Gümüş	Ag
Bor	B	Argon	Ar	Kadmiyum	Cd
Karbon	C	Potasyum	K	Kalay	Sn
Azot	N	Kalsiyum	Ca	İyot	I
Oksijen	O	Krom	Cr	Ksenon	Xe
Flüor	F	Mangan	Mn	Platin	Pt
Neon	Ne	Demir	Fe	Altın	Au
Sodyum	Na	Kobalt	Co	Cıva	Hg
Magnezyum	Mg	Nikel	Ni	Kurşun	Pb
Alüminyum	Al	Bakır	Cu		

Bazı Anyon ve Katyonların Değerlikleri

KATYONLAR			ANYONLAR		
İyon ve kök adı	İyon veya kök formülü	Değerliği	İyon ve kök adı	İyon veya kök formülü	Değerliği
Hidrojen Potasyum Sodyum Gümüş Bakır(I) Cıva(I) Amonyum Hidronyum	H ⁺ K ⁺ Na ⁺ Ag ⁺ Cu ⁺ Hg ⁺ NH ₄ ⁺ H ₃ O ⁺	+I	Flüorür Klorür Bromür İyodür Klorat Bromat İyodat Nitrat Hidroksit Permanganat Bisülfat Bikarbonat	F ⁻ Cl ⁻ Br ⁻ I ⁻ ClO ₃ ⁻ BrO ₃ ⁻ IO ₃ ⁻ NO ₃ ⁻ OH ⁻ MnO ₄ ⁻ HSO ₄ ⁻ HCO ₃ ⁻	-I

KATYONLAR			ANYONLAR		
İyon ve kök adı	İyon veya kök formülü	Değerliği	İyon ve kök adı	İyon veya kök formülü	Değerliği
Kalsiyum Baryum Magnezyum Çinko Bakır(II) Cıva(II) Demir(II) Kurşun(II) Kalay(II)	Ca^{+2} Ba^{+2} Mg^{+2} Zn^{+2} Cu^{+2} Hg^{+2} Fe^{+2} Pb^{+2} Sn^{+2}	+2	Oksit Sülfür Sülfat Sülfat Karbonat Kromat Dikromat	O^{-2} S^{-2} SO_3^{-2} SO_4^{-2} CO_3^{-2} CrO_4^{-2} $\text{Cr}_2\text{O}_7^{-2}$	- 2

KATYONLAR			ANYONLAR		
İyon ve kök adı	İyon veya kök formülü	Değerliği	İyon ve kök adı	İyon veya kök formülü	Değerliği
Alüminyum Demir(III)	Al^{+3} Fe^{+3}	+3	Nitrür Fosfür Fosfat	N^{-3} P^{-3} PO_4^{-3}	-3

İyon ve kök adı	İyon veya kök formülü	Değerliği	İyon ve kök adı	İyon veya kök formülü	Değerliği
Kurşun(IV) Kalay(IV)	Pb^{+4} Sn^{+4}	+4	Ferrosiyanür	$[Fe(CN)_6]^{-4}$	-4

CH_3COO^- : Asetat

MnO_4^- : Permanganat

ClO_4^- : Perklorat

ClO_3^- : Klorat

ClO_2^- : Klorit

ClO^- : Hipoklorit

IO_3^- : İyodat

HCO_3^- : Bikarbonat

HSO_4^- : Bisülfat

NH_4^+ : Amonyum

SO_4^{2-} : Sülfat

SO_3^{2-} : Sülfite

CO_3^{2-} : Karbonat

CrO_4^{2-} : Kromat

$\text{Cr}_2\text{O}_7^{2-}$: Dikromat

$\text{C}_2\text{O}_4^{2-}$: Okzalat

MnO_4^- : Manganat

PO_4^{3-} : Fosfat

PO_3^{3-} : Fosfit

H_3O^+ : Hidronyum

Bileşiklerin Adlandırılması

I) METAL + AMETAL $\longrightarrow$ iyonik bileşik

adı düzgünce okunur. -ür eki getirilir.

NaCl

S $\longrightarrow$

MgO

O $\longrightarrow$

Al₂O₃

N $\longrightarrow$

CaBr₂

P $\longrightarrow$

C $\longrightarrow$

H $\longrightarrow$

Potasyum fosfür

Kalsiyum sülfür

2) AMETAL + AMETAL $\longrightarrow$ kovalent bileşik

mono: 1
di: 2
tri: 3
tetra: 4
penta: 5

hekza: 6
hepta: 7
okta: 8
nona: 9
deka: 10

un deka: 11
do deka: 12
tri deka: 13
tetra deka: 14
penta deka: 15

CO

P₂O₅

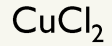
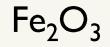
Cl₂O₇

SF₆

di azot penta oksit

karbon tetra bromür

3) Geçiş metallerinin oluşturduğu bileşiklerin adlandırılması ve yazılması:



- Demir III fosfat
- Kurşun II nitrür
- Lityum kromat
- Potasyum di kromat
- Amonyum nitrat

- CaSO_4
- CuSO_4
- $(\text{NH}_4)_2\text{CO}_3$
- MgC_2O_4
- KMnO_4

Bileşik Oksitler

FeO

Fe_2O_3

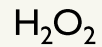
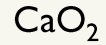
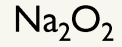
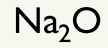
Fe_3O_4

PbO

PbO_2

Pb_3O_4

Peroksit $\longrightarrow$ (1A – 2A)



- NaO_2

- $\text{KAl}(\text{SO}_4)_2 \longrightarrow$ çift tuz
- $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$
- $\text{K}_4[\text{Fe}(\text{CN})_6] \longrightarrow$ kompleks tuz

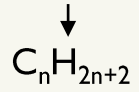
ÖRNEK

Altı çizili olan elementlerin yükseltgenme basamaklarını bulunuz.

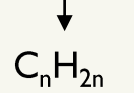
- $\text{Ca}\underline{\text{S}}\text{O}_4$
- $\text{K}_4[\underline{\text{Fe}}(\text{CN})_6]$
- $(\underline{\text{S}}\text{O}_4)^{-2}$
- $\text{K}\underline{\text{Mn}}\text{O}_4$
- $\text{H}\underline{\text{Cl}}\text{O}_4$
- $(\underline{\text{P}}\text{O}_4)^{-3}$

Alifatik Hidrokarbonlar

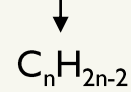
ALKAN



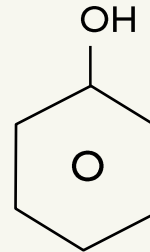
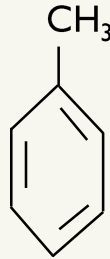
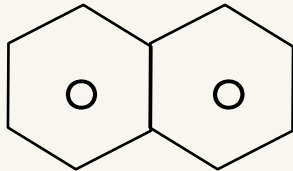
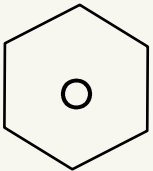
ALKEN

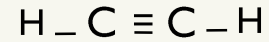
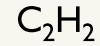
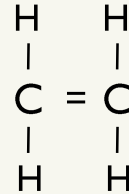
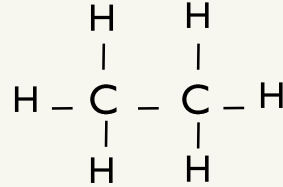
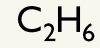
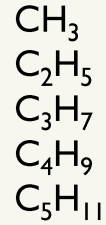
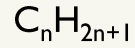
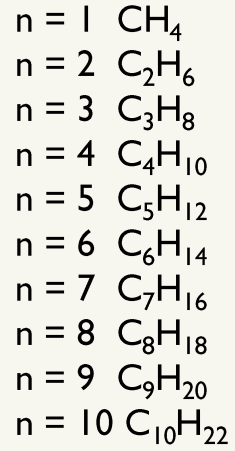
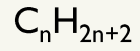


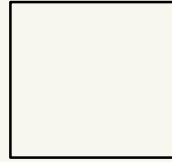
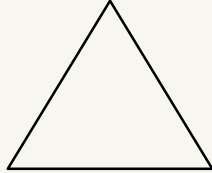
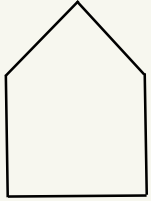
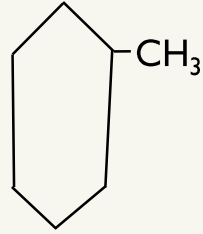
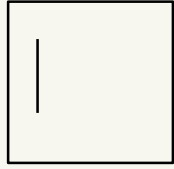
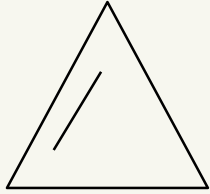
ALKİN



Aromatik Hidrokarbonlar



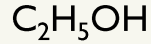
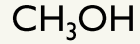




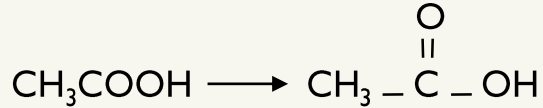
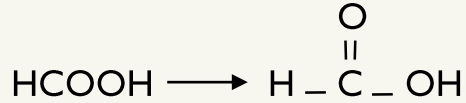
Yaygın Organik Bileşikler

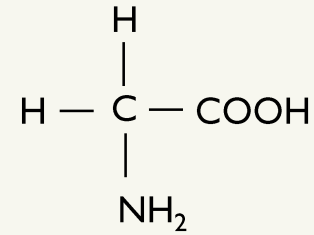
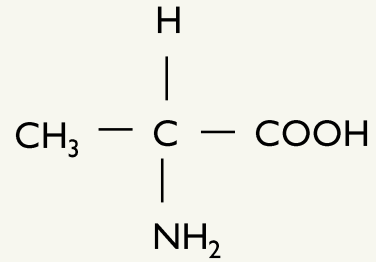
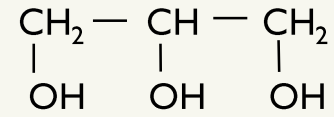
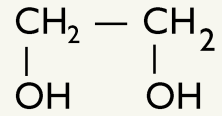
Alkoller: Yapısında bir veya birden fazla ($-\text{OH}$) grubu bulunduran organik bileşiklerdir.

- Mono alkollerin genel formülleri $\text{C}_n\text{H}_{2n+1}\text{OH}$ şeklindedir.



Karboksili Asitler: Yapısında ($-\text{C}(=\text{O})-\text{OH}$) grubu bulunduran organik bileşiklerdir.



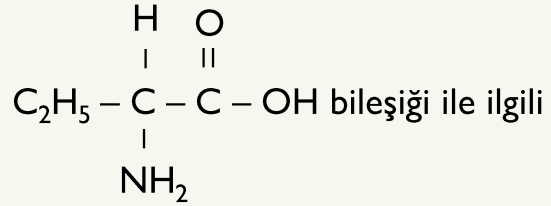


- $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{OH}$
- $\text{C}_2\text{H}_5 - \text{NH}_2$

Hidrofil →

Hidrofob →

ÖRNEK



- I. Aminoasittir.
 - II. Hidrofil ve hidroforb gruplar içerir.
 - III. Suda çözünür.
- yargılarından hangileri doğrudur?

ÖRNEK

Aşağıdaki tepkimeler gerçekleşir mi, gerçekleşmez mi?

