

Key Acids, Bases, Salts

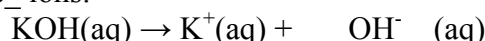
Definitions

The Swedish chemist Svante Arrhenius introduced the theory of ionization and used this theory to explain much about the behaviour of acids and bases.

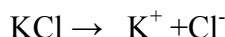
An Arrhenius acid is defined as any compound that ___dissociates___ in aqueous solution to form ___hydrogen___ ions.



An Arrhenius base is defined as any compound that ___dissociates___ in aqueous solution to form ___hydroxide___ ions.



Salts are compounds that ___dissociate___ in aqueous solution releasing ___neither H⁺ nor OH⁻___ ions.



Classifying compounds; using the Arrhenius definition, classify the following examples as acids, bases and salts

HBr hydrobromic acid

Mg(OH)₂ magnesium hydroxide

HCl hydrochloric acid

KNO₃ potassium nitrate

KC₂H₃O₂ potassium acetate

Ba(OH)₂ barium hydroxide

H₂SO₄ sulfuric acid

NaCl sodium chloride

CH₃COOH acetic acid

Al(OH)₃ aluminium hydroxide

Na₂SO₄ sodium sulfate

HNO₃ nitric acid

Writing ionic formulas

a) symbols

b elements

c cation

d anion

e charge

f subscript

g overall positive

h overall negative

i gives up / loses

j stable

k positive two

l gains

m stable

n negative one

o chloride

p Mg Cl₂

r subscript

s chloride

t subscript

Naming acids and bases

Since bases are ___ionic___ compounds, they are named in the usual way:

NH₄ OH – ammonium hydroxide

Al(OH)₃ – aluminium hydroxide

Binary acids consist of ___two___ elements, the first being ___hydrogen___.

Binary acids are named using the format: ___hydro___+(root word of second element)+IC acid

Ternary acids consist of ___three___ elements. Do not use a prefix. Simply change the ending of the polyatomic ion's name and add the word ___acid___. *-ate* ending becomes ___ic___ and *-ite* becomes ___ous___.

Now name the following acids:

HBr hydrobromic	H ₃ PO ₃ phosphorous
HNO ₃ nitric	HC ₂ H ₃ O ₂ acetic
HNO ₂ nitrous	H ₂ CO ₃ carbonic
HI hydroiodic	H ₂ SO ₃ sulfurous
	HF hydrofluoric

Complete the names of salts in these reactions

1. sodium hydroxide	reacts with	hydrochloric acid	to make	sodium chloride	Na Cl
2. sodium hydroxide		sulfuric acid		sodium sulfate	Na SO ₄
3. zinc oxide		sulfuric acid		zinc sulfate	Zn SO ₄
4. ammonia		hydrochloric acid		ammonium chloride	NH ₄ Cl

HOMEWORK

1. Give formulas of these acids, bases and salts

boron silicide	B ₄ Si	magnesium phosphide	Mg ₃ P ₂
sodium hydroxide	Na OH	zinc hydroxide	Zn (OH) ₂
iron(III)chloride	FeCl ₃	aluminium sulfide	Al ₂ S ₃
sulfuric acid	H ₂ SO ₄	sulfurous acid	H ₂ SO ₃

2. Quiz

- 1A
- 2C
- 3C
- 4B
- 5B

3. Grammar

- 1 which / that
- 2 which / that
- 3 whose / where
- 4 which / that
- 5 whose
- 6 who
- 7 Which
- 8 Who