

1 ☐ Chemical Compounds

Ionic compounds - made up of ionic bonds

Example: Salt

2 ☐ Properties of Ionic compounds

- Contain ions (charged atoms)
- Metals & nonmetals
- Brittle
- Crystal lattice
- High melting points

3 ☐ Ionic Compounds (cont'd)

- Usually solid at room temp.
- Most soluble in water
- When dissolved in  $H_2O$  - conduct electricity Ex: NaCl, MgO

4 ☐ Covalent Compounds

- Covalent bonds -share electrons
- Formed by independent particles (molecules)
- Not conductors in  $H_2O$
- Low melting points
- Would sugar or salt dissolve in oil?

5 ☐ Guided Practice

Use periodic table to decide if these compounds are covalent or ionic:

$CO_2$ :             $CaCl_2$ :

$SO_2$ :            KI:

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6 ☐ Acids

- Form  $H^+$  ions when dissolved in  $H_2O$ .
- $H^+$  bond with  $H_2O$  to form  $H_3O^+$  (hydronium ions)
- Sour taste
- Corrosive (destroys materials)

7 ☐ Acids (cont'd)

- React w/ some metals to form  $H$  gas
- Conduct electricity in  $H_2O$
- Detection (by indicators)
- Litmus paper turns red (some natural)

8 ☐ Acids Cont'd

- Strong acids: all molecules break apart in  $H_2O$  (Ex: sulfuric, nitric, hydrochloric acid)
- Weak: Few molecules “””” (Ex: citric, acetic, carbonic acid)

9 ☐ Bases

- # of  $OH^-$  ions in  $H_2O$
- Properties: bitter taste
- Slippery, conduct electricity in  $H_2O$ , corrosive
- Turns litmus paper blue

10 ☐ Bases (cont'd)

- Strong: all molecules break down in water to form  $OH^-$
- Weak: few molecules “ “ “ “

11 ☐ Indicators

- Change colors to show acid, base, or exact pH
- Ex: Litmus paper, universal indicator, phenolphthalein, natural dyes

12 ☐ pH

- % hydronium ions ( $H_3O^+$ ) in solutions

- Scale 1-14, 7 neutral
- 7 = acid - 7 = base
- Stronger acids closer to 1
- Stronger bases closer to 14

### 13 ☐ Salts

- Acids and bases *neutralize* each other
- Form salt and H<sub>2</sub>O
- Salt: ionic compound made of --ion from base and +ion from acid