**Molar Mass and the Mole**

**Molar Mass** (M) 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Avogadro’s number is special because 6.022 x 1023 atoms of an element has a mass in grams that is equal to its atomic mass.

Average atomic mass in u = Molar mass in g/mol

Ex. 1 Atomic mass Na = \_\_\_\_\_\_\_\_\_\_ Molar Mass of Na = \_\_\_\_\_\_\_\_\_\_

Ex. 2

1. Find the molar mass of NaCl:

You can use molar mass to write conversion factors for NaCl:

1. What is the mass of 2.56 mol NaCl?
2. How many mol are in a 35.2 g sample of NaCl?

Ex. 3 What is the mass of a 0.750 mol sample of CO2?

Ex. 4 What is the mass of 3.67 x 1024 formula units ofK2O?

**HW:** Q#32,33,37,40 pg 235 Q#41,42 pg 237 Q#51,52 pg 239 Q#61ab,62ab,63,64,66,67 pg 242

**Summary So Far**

|  |  |
| --- | --- |
| **Name (symbol)** | **Unit** |
| Particle Mass (M) | u |
| Avogadro’s Number (NA) | 6.022 x 1023 particles/mol |
| Number of particles (N) | atoms, ions, molecules, formula units |
| mole (n) | mol |
| mass (m) | g |
| Molar Mass (M) | g/mol |

Amount (n)
mol

# of particles (N)
atoms, ions, molecules, formula units

Mass (m)
grams

X M

÷ M

X NA

÷ NA

Equations: N = n x NA m = n x M