**The Mass of 1 mole (in grams)**

**Equal to the numerical value of the average \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (get from periodic table)**

 **1 mole of C atoms = 12.0 g**

 **1 mole of Mg atoms = 24.3 g**

 **1 mole of Cu atoms = 63.5 g**

**Find the molar mass of Br atoms (usually we round to the tenths place)**

1. **1 mole of Br atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **1 mole of Sn atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Molar Mass of Molecules and Compounds**

**Mass in grams of 1 mole equal numerically to the sum of the atomic masses**

 **1 mole of CaCl2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **1 mole Ca \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **2 moles Cl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **1 mole of N2O4 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Find!**

**A.Molar Mass of K2O = ? Grams/mole**

**B. Molar Mass of antacid Al(OH)3 = ? Grams/mole**

**Real Life Example**

 **Prozac, C17H18F3NO, is a widely used antidepressant that inhibits the uptake of serotonin by the brain. Find its molar mass.**

**Calculations with Molar Mass**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Grams Moles**

**Converting Moles and Grams**

**Aluminum is often used for the structure of light-weight bicycle frames. How many grams of Al are in 3.00 moles of Al?**  **3.00 moles Al ? g Al**

***1. Molar mass of Al* 1 mole Al = \_\_\_\_\_\_\_\_\_ g Al**

***2. Conversion factors for Al***

***3. Setup \_\_\_\_\_\_\_\_* x**

Answer = 81.0g Al

 1 mol Al

Apply your Knowledge

 **The artificial sweetener aspartame (Nutra-Sweet) formula C14H18N2O5 is used to sweeten diet foods, coffee and soft drinks. How many moles of aspartame are present in 225 g of aspartame?**

**Atoms, Molecule and Grams**

* **Since 6.02 X 1023 particles = \_\_\_\_\_\_\_\_\_\_ AND \_\_\_\_\_\_\_\_\_\_ = molar mass (grams)**
* **You can convert \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_ and then moles to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_! (Two step process)**
* **You \_\_\_\_\_\_\_\_\_\_\_\_\_ go directly from atoms to grams!!!! You \_\_\_\_\_\_\_\_\_ go thru \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
* **That’s like asking 2 dozen cookies weigh how many ounces if \_\_\_ cookie weighs \_\_\_\_\_\_\_\_\_\_\_\_? You have to convert to dozen first!**

**Calculations**

 ***molar mass Avogadro’s number***

**Grams Moles particles**

**Atoms/Molecules and Grams**

**How many atoms of Cu are present in 35.4 g of Cu?**

**How many atoms of K are present in 78.4 g of K?**

**What is the mass (in grams) of 1.20 X 1024 molecules of glucose (C6H12O6)?**

**How many atoms of O are present in 78.1 g of oxygen?**