

Success 24/7: The 3 Mole Conversions

$$1 \text{ mol} = 6.02 \times 10^{23} \text{ atoms, mlc, fu}$$

Use this conversion when asked about the number of particles present. Pay close attention to what the particle is. And remember, molecules and formula units are made up of atoms! You may need to do an additional step with this.

$\text{Al}_2(\text{SO}_4)_3$ is a _____ with _____ atoms.

$$1 \text{ mol} = \text{_____ g}$$

You must calculate the molar mass of the element/compound with the conversion factor. Use it ANYTIME you see "g" (or any unit of mass) as your given or want.

$$1 \text{ mol} = 22.4 \text{ L of gas at STP}$$

This is for gas ONLY under certain conditions.

STP means:

Standard Temperature and Pressure

$$T = 0^\circ\text{C} \ \& \ P = 1 \text{ atm}$$

If L (or any unit for volume) is given or want, AND it is a gas @ STP, use $1 \text{ mol} = 22.4 \text{ L}$.

Practice:

How many molecules are present in 3.2 mol of water?

The mass of a sample of bromine is 12.6 g. How many moles are present?

For an experiment (to be conducted at STP), you will need 6.2 moles of argon gas. How many liters will you need to obtain?

How many grams are present in 2.5×10^4 moles of ammonium phosphate, $(\text{NH}_4)_3\text{PO}_4$?

You are given 9.30×10^{24} moles of $\text{Ca}(\text{OH})_2$. How many atoms are present?