

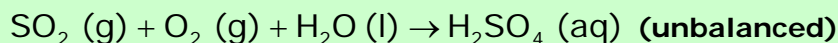
Exam: CHEMICAL CALCULUS

1. Batxilergoa

Name:

Group:

- 1 Part of the SO_2 that is introduced into the atmosphere by combustion of sulfur-containing compounds ends up being converted to sulfuric acid. The net reaction is:



How much H_2SO_4 (in grams and moles) can be formed from 5 mol of SO_2 , 64 g of O_2 , and an unlimited quantity of water?

Atomic weights: S=32; H=1; O=16

- 2 Solid lithium hydroxide (LiOH) is used in space vehicles to remove exhaled carbon dioxide. The lithium hydroxide reacts with gaseous carbon dioxide to form solid lithium carbonate and liquid water.

How much carbon dioxide

- in moles,
- grams and
- volume at $P=800$ mmHg and $T=20$ °C

can be absorbed by 100 grams of lithium hydroxide?

Atomic weights: Li=6.94; O=16; H=1; C=12.01

$$R = 0.082 \frac{\text{atm}\cdot\text{L}}{\text{K}\cdot\text{mol}}$$

- 3 Calculate the concentration in g/L of the resulting solution when we add 320 mL of a NaOH solution 1.4 M to 400 mL of a NaOH solution 64 g/L.

Atomic weights: Na=23; O=16; H=1

- 4 When octane, C_8H_{18} , a component of gasoline, burns
- a) How many moles of O_2 are needed to burn 1.5 mol of octane?
- b) How many grams of O_2 are needed to burn 1.5 mol of octane?

Atomic weights: O=16; H=1; C=12