WORKSHEET ON BASIC STOICHIOMETRY

Part A. Convert the following number of moles into their corresponding mass in grams.

i. 0.436 moles of ammonium chloride

ii. 2.36 moles of lead (II) oxide

iii. 0.50 moles of calcium nitrate

Part B. Convert the following masses into their corresponding number of moles.

i. 23.5 g of sodium chloride

ii. 0.778 g of sodium cyanide

iii. 79.9 g of potassium permanganate

Part C. Convert the following number of moles into their corresponding number of particles.

i. 0.0455 moles of hydrochloric acid

ii. 1.2 moles of glucose

iii. 0.32 moles of sodium bicarbonate

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Answers

Part A. Convert the following number of moles into their corresponding mass in grams.

i. 0.436 moles of ammonium chloride

0.436 mol NH_4Cl x (53.49 g NH_4Cl/1 mol NH_4Cl) = 23.32 g NH_4Cl

ii. 2.36 moles of lead (II) oxide

2.36 mol PbI_2 x (461.01 g PbI_2/1 mol PbI_2) = 1088 g PbI_2

iii. 0.50 moles of calcium nitrate

0.5 mol $Ca(NO_3)_2$x (164.01 g $Ca(NO_3)_2$/1 mol $Ca(NO_3)_2$) = 81 g $Ca(NO_3)_2$

Part B. Convert the following masses into their corresponding number of moles.

i. 23.5 g of sodium chloride

23.5 g NaCl x (1 mol NaCl/58.44 g NaCl) = 0.4 mol NaCl

ii. 0.778 g of sodium cyanide

0.778 g NaCNx (1 mol NaCN/49 g NaCN) = 0.016 mol NaCN

iii. 79.9 g of potassium permanganate

79.9 g $KMnO_4$x (1 mol $KMnO_4$/158.03 g $KMnO_4$) = 0.506 mol $KMnO_4$

Part C. Convert the following number of moles into their corresponding number of particles.

i. 0.0455 moles of hydrochloric acid

0.0455 mol HCl x (6.022×10^{23} particles HCl/1 mol HCl) = 2.74×10^{22} particles HCl

ii. 1.2 moles of glucose

1.2 mol $C_6H_{12}O_6$x (6.022×10^{23} particles $C_6H_{12}O_6$/1 mol $C_6H_{12}O_6$) = 7.23 x 10^{23} particles $C_6H_{12}O_6$

iii. 0.32 moles of sodium bicarbonate

0.32 mol $NaHCO_3$x (6.022×10^{23} particles $NaHCO_3$/1 mol $NaHCO_3$) = 1.93 x 10^{23} particles $NaHCO_3$