Percent Yield Worksheet

1a) $20.0\ g\ HBrO_3 \times \frac{1\ mol\ HBrO_3}{128.9\ g\ HBrO_3} \times \frac{3\ mol\ Br_2}{1\ mol\ HBrO_3} \times \frac{159.8\ g\ Br_2}{1\ mol\ Br_2} = \boxed{74.4\ g\ Br_2}$

b) Percent yield $= \frac{47.3\ g\ Br_2}{74.4\ g\ Br_2} \times 100\% = \boxed{63.6\%\ of\ Br_2}$

2a) $35.0\ g\ Ba(NO_3)_2 \times \frac{1\ mol\ Ba(NO_3)_2}{261.3\ g} \times \frac{1\ mol\ BaSO_4}{1\ mol\ Ba(NO_3)_2} \times \frac{233.4\ g\ BaSO_4}{1\ mol\ BaSO_4} = \boxed{31.3\ g\ BaSO_4}$

b) % yield $= \frac{29.8\ g\ BaSO_4}{31.3\ g\ BaSO_4} \times 100\% = \boxed{95.2\%\ of\ BaSO_4}$

3. $1.63\ kg \times \frac{1000\ g}{1\ kg} = 1630\ g\ C_6H_{12}O_6 \times \frac{1\ mol\ C_6H_{12}O_6}{180.0\ g} \times \frac{2\ mol\ C_2H_5OH}{1\ mol\ C_6H_{12}O_6} \times \frac{46.0\ g}{1\ mol}$

$833\ g\ C_2H_5OH$

% yield $= \frac{223\ g}{833\ g} \times 100\% = \boxed{26.8\%\ of\ ethyl\ alcohol}$

4. $CaCO_3(s) \longrightarrow CaO(s) + CO_2(g)$

$12.4\ g\ CaCO_3 \times \frac{1\ mol}{100.1\ g} \times \frac{1\ mol\ CaO}{1\ mol\ CaCO_3} \times \frac{56.1\ g\ CaO}{1\ mol\ CaO} = 6.95\ g\ CaO.$

$0.924 = \frac{x}{6.95\ g} \longrightarrow 0.924 \times 6.95\ g = \boxed{6.42\ g\ CaO}$

5. $12.8\ g\ C_6H_6 \times \frac{1\ mol\ C_6H_6}{78.0\ g\ C_6H_6} \times \frac{1\ mol}{1\ mol} \times \frac{123.0\ g}{1\ mol\ C_6H_5NO_2} = 20.2\ g\ C_6H_5NO_2$

$0.70 = \frac{x}{20.2\ g} \longrightarrow 0.70 \times 20.2 = \boxed{14.1\ g\ C_6H_5NO_2}$

$\rightarrow \boxed{14\ g\ C_6H_5NO_2}$

6. a) $8.60\,g\ C_7H_8 \times \frac{1\,mol\ C_7H_8}{92.0\,g} \times \frac{1\,mol}{1\,mol} \times \frac{160.1\,g\ KC_7H_5O_2}{1\,mol\ KC_7H_5O_2} = \boxed{15.0\ g\ KC_7H_5O_2}$

b). $0.700 = \frac{X}{15.0\,g} \rightarrow 0.700 \times 15.0\,g = \boxed{10.5\,g\ KC_7H_5O_2}$

c) $x(0.600) = \left(\frac{13.4\,g}{X}\right)x \rightarrow X = \frac{13.4\,g}{0.600}$

$22.3\,g\ KC_7H_5O_2 \times \frac{1\,mol}{160.1\,g} \times \frac{1\,mol}{1\,mol} \times \frac{92.0\,g}{1\,mol\ C_7H_8} = \boxed{12.8\,g\ C_7H_8}$