Page 324 in Pearson Chemistry Text:



or NaHCO3

Fill in the data table provided on the next page.

or NaHCO3.



Fill in the data table:

|  |  |  |  |
| --- | --- | --- | --- |
|  | H2O (l) | NaCl (s) | NaHCO3 (s) |
| Atoms of each element in formula |  |  |  |
| Mass (g) |  |  |  |
| Molar Mass (g/mol) |  |  |  |
| Moles of compound |  |  |  |
| Moles of each element | HO | NaCl | NaHCO |
| Atoms of each element | HO | NaCl | NaHCO |

Answers for Data Table when using Baking Soda:

|  |  |  |  |
| --- | --- | --- | --- |
|  | H2O (l) | NaCl (s) | NaHCO3 (s) |
| Atoms of each element in formula | 2 H and 1 O | 1 Na and 1 Cl | 1 Na, 1 H, 1 C, 3 O |
| Mass (g) | 4.30 g | 5.09 g | 9.68 g |
| Molar Mass (g/mol) | H 2 x 1.0 g/molO 1 x 16.0 g/mol**18.0 g/mol** | Na 1 x 23.0 g/molCl 1 x 35.5 g/mol**58.5 g/mol** | Na 1 x 23.0 g/molH 1 x 1.0 g/molC 1 x 12.0 g/molO 3 x 16.0 g/mol**84.0 g/mol** |
| Moles of compound | 4.30 g / 18.0 g/mol**0.239 mol** | 5.09 g / 58.5 g/mol**0.0870 mol** | 9.68 g / 84.0 g/mol**0.115 mol** |
| Moles of each element | H 0.239 mol x 2**0.478 mol**O 0.239 mol x 1**0.239 mol** | Na 0.0870 mol x 1**0.0870 mol**Cl 0.0870 mol x 1**0.0870 mol** | Na 0.115 mol x 1**0.115 mol**H 0.115 mol x 1**0.115 mol**C 0.115 mol x 1**0.115 mol**O 0.115 mol x 3**0.346 mol** |
| Atoms of each element | H 0.478 mol x NA**2.88 x 1023** O 0.239 mol x NA**1.44 x 1023** | Na 0.0870 mol x NA**5.24 x 1022** Cl 0.0870 mol x NA**5.24 x 1022** | Na 0.115 mol x NA**6.92 x 1022**H 0.115 mol x NA**6.92 x 1022**C 0.115 mol x NA**6.92 x 1022**O 0.346 mol x NA**2.08 x 1023**  |

4. Water contains the greatest number of moles of the three compounds.

5. Water contains the greatest number of atoms of the three compounds.

When using Calcium Carbonate:

|  |  |  |  |
| --- | --- | --- | --- |
|  | H2O (l) | NaCl (s) | CaCO3  |
| Atoms of each element in formula | 2 H and 1 O | 1 Na and 1 Cl | 1 Ca, 1 C, 3 O |
| Mass (g) | 4.30 g | 5.09 g | 9.68 g |
| Molar Mass (g/mol) | H 2 x 1.0 g/molO 1 x 16.0 g/mol**18.0 g/mol** | Na 1 x 23.0 g/molCl 1 x 35.5 g/mol**58.5 g/mol** | Ca 1 x 40.1 g/molC 1 x 12.0 g/molO 3 x 16.0 g/mol**100.1 g/mol** |
| Moles of compound | 4.30 g / 18.0 g/mol**0.239 mol** | 5.09 g / 58.5 g/mol**0.0870 mol** | 9.68 g / 100.1 g/mol**0.0967 mol** |
| Moles of each element | H 0.239 mol x 2**0.478 mol**O 0.239 mol x 1**0.239 mol** | Na 0.0870 mol x 1**0.0870 mol**Cl 0.0870 mol x 1**0.0870 mol** | Ca 0.0967 mol x 1**0.0967 mol**C 0.0967 mol x 1**0.0967 mol**O 0.0967 mol x 3**0.2907 mol** |
| Atoms of each element | H 0.478 mol x NA**2.88 x 1023** O 0.239 mol x NA**1.44 x 1023**  | Na 0.0870 mol x NA**5.24 x 1022** Cl 0.0870 mol x NA**5.24 x 1022**  | Ca 0.0967 mol x NA**5.82 x 1022** C 0.0967 mol x NA**5.82 x 1022** O 0.290 mol x NA**1.75 x 1023** |