

Answers to Practice 1:

Identify in each case whether the substance is a strong electrolyte (SE), weak electrolyte (WE), or non-electrolyte (NE).

| | | | | | |
|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|--------------------------------------|--|
| SE_ NaOH | SE_ Mg(OH) ₂ | WE_ HCN | NE_ H ₂ O ₂ | SE_ LiOH | WE_ H ₂ CO ₃ |
| WE_ H ₂ S | SE_ NH ₄ Cl | SE_ HCl | SE_ AgCl | SE_ H ₂ SO ₄ | SE_ Ba(OH) ₂ |
| SE_ Na ₂ SO ₄ | SE_ Ca(OH) ₂ | WE_ C ₅ H ₅ N | SE_ NaHCO ₃ | SE_ KMnO ₄ | SE_ Na ₂ S ₂ O ₈ |
| SE_ Na ₃ PO ₄ | WE_ HNO ₂ | WE_ HClO ₂ | SE_ LiNO ₂ | SE_ ZnCl ₂ | SE_ (NH ₄) ₂ HPO ₄ |
| SE_ KOH | SE_ HClO ₄ | SE_ CuSO ₄ | SE_ NaHSO ₄ | SE_ Na ₂ HPO ₄ | WE_ H ₃ BO ₃ |
| WE_ HF | SE_ HNO ₃ | WE_ NH ₃ | SE_ MgCO ₃ | SE_ FeCl ₃ | WE_ C ₂ H ₃ O ₂ H |
| SE_ HBr | WE_ H ₃ PO ₄ | SE_ PbCl ₂ | WE_ H ₂ SO ₃ | SE_ HI | WE_ CH ₃ NH ₂ |

Answers to Practice 2:

Below each substance, indicate what is *really* present. Be sure to indicate (s), (l), (g), or (aq).

[Note: Where H⁺ is indicated, H₃O⁺ is fine instead if you prefer. (Both are approximations.)]

| | | | | | |
|--|---|--|---|--|---|
| NaOH(aq) Na ⁺ (aq), OH ⁻ (aq) | Ca(OH) ₂ (s) Same – solid | HCN(aq) Same - WE | H ₂ O ₂ (aq) Same – WE | LiOH(aq) Li ⁺ (aq), OH ⁻ (aq) | H ₂ CO ₃ (aq) Same – WE |
| H ₂ S(aq) Same – WE | NH ₄ Cl(aq) NH ₄ ⁺ (aq), Cl ⁻ (aq) | HCl(aq) H ⁺ (aq), Cl ⁻ (aq) | AgCl(s) Same – solid | H ₂ SO ₄ (aq) H ⁺ (aq), HSO ₄ ⁻ (aq) | Ba(OH) ₂ (aq) Ba ²⁺ (aq), OH ⁻ (aq) |
| NaOH(s) Same – solid | Ca(OH) ₂ (aq) Ca ²⁺ (aq), OH ⁻ (aq) | C ₅ H ₅ N(aq) Same – WE | NaHCO ₃ (aq) Na ⁺ (aq), HCO ₃ ⁻ (aq) | KOH(s) Same – solid | HCN(g) Same – gas |
| H ₃ PO ₄ (s) Same – solid | HNO ₂ (aq) Same – WE | HClO ₂ (aq) Same – WE | LiNO ₂ Li ⁺ (aq), NO ₂ ⁻ (aq) | KMnO ₄ (aq) K ⁺ (aq), MnO ₄ ⁻ (aq) | HCl(g) Same – gas |
| KOH(aq) K ⁺ (aq), OH ⁻ (aq) | HClO ₄ (aq) H ⁺ (aq), ClO ₄ ⁻ (aq) | NaOH(s) Same – solid | NaHSO ₄ (aq) Na ⁺ (aq), HSO ₄ ⁻ (aq) | Na ₂ HPO ₄ (aq) Na ⁺ (aq), HPO ₄ ²⁻ (aq) | H ₃ BO ₃ (aq) Same – WE |
| HF(aq) Same – WE | HNO ₃ (aq) H ⁺ (aq), NO ₃ ⁻ (aq) | NH ₃ (aq) Same – WE | MgCO ₃ (aq) Mg ²⁺ (aq), CO ₃ ²⁻ (aq) | FeCl ₃ (aq) Fe ³⁺ (aq), Cl ⁻ (aq) | C ₂ H ₃ O ₂ H(aq) Same – WE |
| HBr(aq) H ⁺ (aq), Br ⁻ (aq) | H ₃ PO ₄ (aq) Same – WE | H ₂ S(g) Same – gas | H ₂ SO ₃ (aq) Same – WE | HI(aq) H ⁺ (aq), I ⁻ (aq) | CH ₃ NH ₂ (aq) Same – WE |