4.5 Net ionic equations – No driving force for reaction = no reaction

Subject: Chemical reactions, net ionic equations

Description: Two chemicals are mixed together resulting in no reaction.

Materials:
0.1 M Sodium hydroxide, NaOH‡
0.1 M Potassium acetate (KCH_3CO_2)‡
2 100 mL beakers
1 250 mL beaker

‡ Sodium hydroxide is located in the cabinet under the hood. 0.1 M Potassium acetate is located in the solutions cabinet.

Procedure:
1. Pour the individual solutions into labeled 100 mL beakers.
2. Pour both beaker solutions into the 250 mL beaker.
3. Observe that no reaction takes place.

Discussion:

$NaOH(aq) + KCH_3CO_2(aq) \rightarrow Na(CH_3CO_2)(aq) + KOH(aq)$

~~$Na^+(aq)$~~ + ~~$OH^-(aq)$~~ + ~~$K^+(aq)$~~ + ~~$CH_3CO_2^-(aq)$~~ →

~~Na^+~~ + ~~$CH_3CO2^-(aq)$~~ + ~~$K^+(aq)$~~ + ~~$OH^-(aq)$~~

All ions are soluble and are spectator ions. Therefore no reaction takes place.

Safety: None

Disposal: Check that the solution is between pH 2 and 12. It can be flushed down the drain with water.

References:
1. Prof. Botch