Question:

Write the approximate net reaction between carbonate ion and water in a system that is exposed to atmospheric carbon dioxide. Is the resulting water mildly acidic or mildly alkaline? Explain why the production of bicarbonate ion from carbonate ion does not inhibit its production from carbon dioxide, and vice-versa.

Solution:

 $CO_3^{2-} + CO_2 + H_2O = 2HCO_3^{-};$

The resulting water is mildly acidic.

Bicarbonate ions do not inhibit the production of carbonate ions because this reaction is the product of many reactions that are all occurring at various completion levels, therefor the concentrations of the intermediates very throughout the process.

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