**CHEM1405** 

2004-J-4

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• Calculate the pH of a solution that is 0.010 M in benzoic acid,  $C_6H_5COOH$ , and 0.010 M in C<sub>6</sub>H<sub>5</sub>CO<sub>2</sub>Na. The  $K_a$  of benzoic acid is  $6.4 \times 10^{-5}$  M.

Answer:

Would this solution make a good buffer system? Give reasons for your answer?

• The gases  $NO_2$  and  $N_2O_4$  are in equilibrium according to the following equation.

 $N_2O_4(g) \iff 2NO_2(g)$ 

 $\Delta H = +57 \text{ kJ mol}^{-1}$ 

In which direction will the reaction move when the following changes are made? The pressure is increased by decreasing the volume.

The temperature is increased.

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