

Name:

Section:

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5.3 HONORS CLASS WORKSHEET – STRONG AND WEAK ACIDS

1) strong and weak acids

Strong Acid:

Example: HCl Equation:

Weak Acid:

Example: acetic acid – HC₂H₃O₂ Equation:

2) strong and weak bases

Strong Base:

Example: NaOH Equation:

Weak Base:

Example: NH₃ Equation:

Example CO₃²⁻ Equation:

Bases which are insoluble or only slightly soluble in water are also classified as weak:

Eg Ca(OH)₂ Equation:

3) Neutralizing strong and weak acids

0.01 moles of a strong acid (HCl) will require moles of OH⁻ to neutralise it

0.01 moles of a weak acid (HC₂H₃O₂) will require moles of OH⁻ to neutralise it

Reason: Equation 1:

Equation 2:

.....

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4) Differences between strong and weak acids (and bases)

(i) Enthalpy of neutralization

All strong acids have the same enthalpy of neutralization:

Equation for neutralization of HCl/HNO₃:

..... $\Delta H =$

Equation for neutralization of HC₂H₃O₂:

1. $\Delta H =$

2. $\Delta H =$

Overall: $\Delta H =$

(ii) pH

0.100 mol/L HCl is 100% dissociated so H⁺ concentration = mol/L and pH =

0.100 mol/L HC₂H₃O₂ is 1% dissociated so H⁺ concentration = mol/L and pH =

0.100 mol/L NaOH is 100% dissociated so OH⁻ concentration = mol/L and pH =

0.100 mol/L NH₃ is 1% dissociated so OH⁻ concentration = mol/L and pH =

(iii) Conductivity

Which solution will have the higher conductivity: 0.1 mol/L HCl or 0.1 mol/L HC₂H₃O₂? Why?

(iv) Reactivity

Complete the following equations:

(a) MgO + 2HCl →

(b) MgO + HC₂H₃O₂ →

Which reaction will be faster, and why?