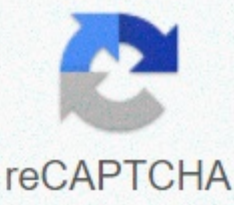




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Kclo4 strong or weak electrolyte

Question : What is KClO4 weak acid, weak base, acid salt, basic salt or neutral salt The questions asked on the site are exclusively generated by the user, Doubtnut has no ownership or control over the nature and content of these issues. Doubtnut is not responsible for any discrepancies regarding the duplicity of the content in relation to these matters. Similar questions asked by users In order to continue enjoying our website, please confirm your identity as a human. Thank you so much for your cooperation. ENCE 433 Dr. Alba Torrents ANALYSIS OF ECOLOGICAL ENGINEERING Autumn 1996 Homemade set # 3 SOLUTION 1. Hydrochloric acid is a strong acid completely ionized in a diluted aquatic solution. Self-ionization of water occurs to a very mild extent in clean water, and in the presence of H3O+ from HCl self-ionization of water is suppressed. This means that the reaction: 2 H2O H3O + OH-directed left, because the reaction between HCl and H2O produces and excess H3O + . So [H3O+] = contribution HCl + contribution from water self-ionization = 0.400 + <<< 0.0000001 0.400 Using Kw we can calculate [OH-]: 2. (a) Ammonium carbonate is the base salt. Its cation, NH4+, is weak acid with Ka = 5.7x10-10. Its anion is a weak base Since KB(CO3-2) > Ka (NH4+), ammonium carbonate solutions are basic. (b) Potassium perchlorate, KClO4, is neutral salt. Neither K+ nor ClO4- has a tendency to donate or accept protons in diluting aqueous solutions. The reaction between the strong KOH base and the strong acid HClO4 is produced by KClO4. (c) Potassium hydrogen sulfate (also called potassium bisulphate) is acid salt. Anion, HSO4-, is a moderately strong acid with Ka = 1.2 x 10-2. K+ isn't even acid, not base. (d) Barium oxide, BaO, is the basic salt. Alkaline earth metal oxides are basic. The reaction that occurs when BaO dissolves in water is BaO(s) + H2O Ba+2(aq) + 2 OH- (aq) (e) Anion HSO3- is an amfolite. From Ka > KB, the NaHSO3 solution is acidic. Methylammonium nitrate is acidic salt. His cation, CH3NH3+, is weak acid. Its anion, NO3-, has almost no tendency to accept protons in dilution solutions. 3. Species: H+, OH-, HNO2, NO2- MBE: 0.1 = [NO2-] + [HNO2] ENE: [H+] = [NO2-] + [OH-] PBE: [H+] = [NO2-] + [OH-] As we add acid we can assume [H+] >>> [OH-] then from PBE: [H+] = [NO2-] from MB : [HNO2] = 0.1 - [H+] In Ka [H+] 2 = 10-3.29 (0.1 - [H+]) [H+]2 + 10-3.29[H+] = 10-4.29 = 0 pH = 2.16 Assumption [H+] >>> [OH-] is OK as [OH-] = 10-11.84 SAMPLE PROBLEM 18.11 Predicting the relative acidity of salt solutions (a) potassium perchlorate, KClO4 (b) sodium benzoate, C6H5COONa (c) chromium trichloride, CrCl3 (d) sodium hydrogen sulfate, NaHSO4 SOLUTION: (a) The ions are K+ and ClO4-, which come from a strong base (KOH) and a strong acid (HClO4). The salt solution will be neutral. (b) Na+ comes from strong Base NaOH while C6H5COO- is an anion of weak organic acid. The salt solution will be basic. (c) Cr3+ is a small cation with a large + charge, so its hydrated shape will react with water to produce H3O+. Cl- comes from the strong acid HCl. Salt solution will be acidic. (d) Na+ comes from a strong base. HSO4- can react with water to form H3O+. The salt solution will be acidic. Previous Slide Next Slide Back to First Slide Show Graphic Version