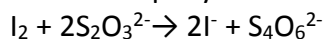


Question #50419, Chemistry, Other

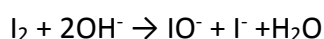
IN DETERMINATION H₂S IN CRUDE OIL WITH BORAX EXTRACTION THEN TITRATION WITH IODINE AND BACK TITRATE THIOSULPHATE, WHY I CHOOSE BORAX? WHY WE DONT CHOOSE ANOTHER BASE FOR EXAMPLE KOH OR NaOH?

Explanation:

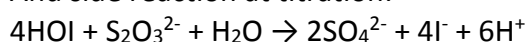
Iodometric methods are based on the use of standard sodium thiosulfate titration for iodine liberated by reaction of oxidant with determined excess of potassium iodide (in the case of substitution-titration) or for iodine remaining in excess in the slow reacting reducing agent with **determined fixed** volume of standard iodine solution (in the case of back-titration). I₂ in a neutral medium rapidly oxidizes S₂O₃²⁻ ions according to the stoichiometrical reaction:



In the titration of iodine with sodium thiosulphate most favorable neutral or weakly acidic medium. The high acidity of the solution leads to the decomposition of thiosulfate in strong basic medium iodometric determination also should not be performed due to the disproportionation reaction of iodine:



And side reaction at titration:



which brings distortion in the results. KOH and NaOH are strong bases. Since the concentration of H₂S unknown beforehand – you need excess of base, and after extraction of all sulfide there still could be strong basic medium.

Sodium borate (borax, also known as tetraborate, or disodium tetraborate) is used in chemical laboratories to make buffers, borate buffers usually have pH = 8, enough to extract but not to the iodine disproportionation. In addition, excess of borax pH increases very slightly and does not react with iodine or thiosulfate.

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