جامعة الانبار

كلية : الصيدلة

قسم : الكيمياء الصيدلانية

اسم المادة باللغة العربية: الكيمياء العضوية

اسم المدة باللغة الإنكليزية**Inorganic Chemistry lab**

المرحلة: الثالثة

التدريسي: د. سمر عدنان احمد

عنوان المحاضرة باللغة العربية: تجربة تعيين كمية البوراكس

عنوان المحاضرة باللغة الإنكليزية: **Assay of Borax**

Assay of Borax $Na_2B_4O_7$. 10 H_2O

Introduction:

Borax is sodium tetra borate, Na2B4O7.10H2O. is either pure or contaminated with sodium carbonate and with free boric acid. M. wt 381.4g, Medicinally used as antiseptic.

Chemical equation and principle:

$Na_2B_4O_7.10H_2O + 2HCl \rightarrow 4H_3BO_3 + 2NaCl + 5H_2O$

$4H_3BO_3 + 4NaOH \rightarrow 4NaBO_2 + 8H_2O$

Titrate the Borax with 0.5N HCl using methyl red as indicator, boric acid is librated which is very weak acid and the indicator would not work. Mannitol is added to complex the boric acid which will increase the acidity so it can directly be titrated with NaOH. The solution should be boiled to remove CO_2 (in the precence of CO_2 the end point might be not sharp). Procedure: Weigh accurately 1 g of Borax, dissolve in 20 ml water, titrate with 0.5N HCl using 2 drops of methyl red as indicator, the color changesfrom yellow to pink. Record the volume required, (this volume required to convert Borax to boric acid) boil and cool the solution, add 5g of mannitol and

titrate with 1N sodium hydroxide using phenolphthalein as indicator.

Calculation:

Calculate weigh of Borax in the sample Each ml of 1N sodium hydroxide is equivalent to 0.09534g of $Na_2B_4O_7.10H_2O$