

جامعة الانبار

كلية : الصيدلة

قسم : الكيمياء الصيدلانية

اسم المادة باللغة العربية: مختبر الكيمياء العضوية

اسم المادة باللغة الإنكليزية: **Inorganic Chemistry lab**

المرحلة: الثالثة

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عنوان المحاضرة باللغة العربية: تحضير ومعايرة محلول لوغول

عنوان المحاضرة باللغة الإنكليزية: **The preparation and assay of aqueous Iodine**

solution (Lugol's solution)

The preparation and assay of aqueous Iodine solution (Lugol's solution)

Introduction

It contains 5% w/v I_2 and 10% w/v KI, used in pre-operative treatment of thyrotoxicosis. Lugol's

Solution Iodine 50g

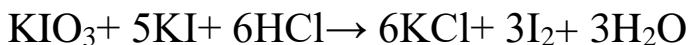
Potassium iodide 100g

Purified water. Sufficient to produce 1000 ml

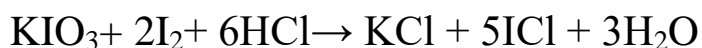
Dissolve the potassium iodide and the iodine in 100 ml of purified water and add sufficient purified water to produce 1000 ml.

Chemical Principle

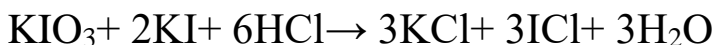
Potassium iodate is fairly strong oxidizing agent, it can react quantitatively with both iodide and iodine. If the concentration of hydrochloric acid doesnot exceed 1N the reaction between potassium iodate and potassium iodide stops when iodate is reduced to free iodine.



In the presence of concentrated HCl exceeding 4N, the iodine produced by the above reaction is further oxidized to iodine monochloride.



The reaction between Potassium iodate and potassium iodide in the presence of a high concentration of HCl (4N) is expressed by the following equation



Procedure

Dilute 25 ml with water to 100 ml.

Assay of Iodine

To 20 ml of the diluted solution add 10 ml of water and titrate with 0.1N Sodium thiosulphate. Each ml of 0.1N Sodium thiosulphate is equivalent to 0.01259g of iodine.

Assay of Potassium iodide

To 10 ml of diluted solution add 20 ml of water and 40 ml of HCl and titrate with 0.05M Potassium iodate until the dark brown

solution which is formed became pale brown, add 1 ml of amaranth solution and continue titration until the red color just changes to pale yellow. From the number of ml of 0.05M Potassium iodate subtract one quarter of the number of ml of 0.1 N Sodium thiosulfate required in the assay for iodine. Each ml of the reminder is equivalent to 0.0166g of KI.