

جامعة الانبار

كلية : الصيدلة

قسم : الكيمياء الصيدلانية

اسم المادة باللغة العربية: الكيمياء العضوية

اسم المادة باللغة الإنكليزية **Inorganic Chemistry lab**

المرحلة: الثالثة

التدريسي: د. سمر عدنان احمد

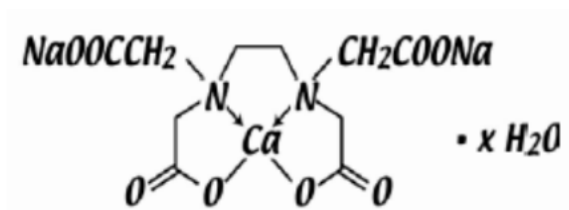
عنوان المحاضرة باللغة العربية: تجربة تعيين عسرة الماء

عنوان المحاضرة باللغة الإنكليزية: **Determination of water hardness**

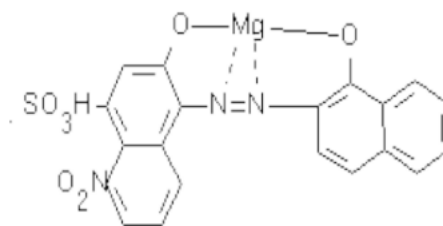
## Determination of water hardness

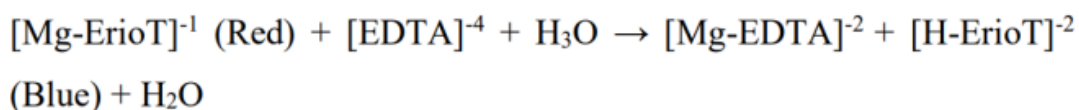
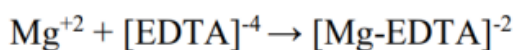
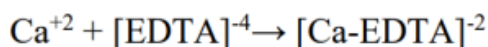
### Introduction

The determination of water hardness is a useful test that provides a measure of quality of water for households and industrial uses. Water hardness was defined as the measure of the capacity of the water to precipitate soap. Hard water is not a health hazard. Hard water does cause soap scum, clog pipes and boilers. Soap scum is formed when calcium ion binds with the soap. This causes an insoluble compound that precipitates out producing the scum. Calcium disodium editate structure.



### Magnesium-Eriochrome Black T complex



**Chemical equation:****Prcedure**

Take 50 ml of tap water ( hard water) then add 5 ml of M/20 MgSO<sub>4</sub> and 10 ml of strong ammonia ammonium chloride solution, and titrate with M/20 of disodium editate using Eriochrome Black T as indicator (color changes from red to blue at the end point).

**Calculation**

Calculate the amount of CaCl<sub>2</sub> in the water sample. From the volume of M/20 disodium editate required subtract the volume of M/20 of MgSO<sub>4</sub> added, each ml of the remainder is equivalent to 0.01095g of CaCL<sub>2</sub>.6H<sub>2</sub>O.