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بسم الله الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني



Salwa Akl



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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وبالرسالة صفحات لم ترد بالأصل



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Utilization of Polymers Grafted onto Montmorillonite Interlayers in Chemical Reactions

A THESIS

*Submitted in Partial Fulfillment for the Degree of Master of
Science (Chemistry)*

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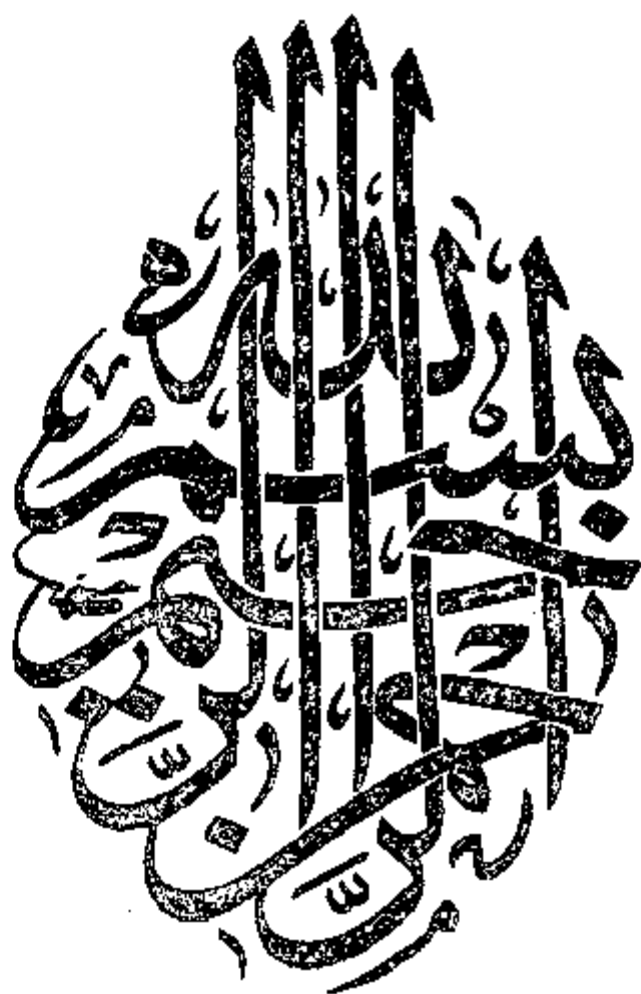
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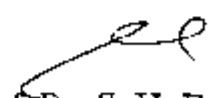
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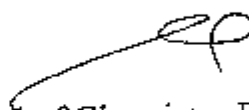
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SUMMARY

Summary

The present work is meant to be a part of ongoing studies on the preparation of polymer grafted onto MMT layers and the examination of the possibility of their application in various fields. The potential usefulness of these interesting materials has been subjected in present work for use as catalysts in the chemical reaction of nucleophilic substitutions. These novel polymeric organic-inorganic catalysts should exhibited the characteristic properties of the individual components through, including specific chemical interaction between the polymer and smectitic clay interlayer. Thus, the aim of this work was the preparation of potential useful materials which can provide the combination of the advantage of both organic and inorganic support. This combination of properties are necessary to be the useful range for most of the industrial chemical reactions.

The study of this work includes three main areas:-

1) preparation of polymer-clay catalysts.

polymer-clay catalysts have been prepared by grafting the polymer onto MMT interlayers through exchange of MMT cation with ammonium salt of polymers. Also, intercalation of ammonium salt of rubber onto MMT interlayer through exchange cation of MMT, then other polymers [chloromethylstyrene, hydroxyethylmethacrylate and oligo(oxyethelyne) monomethacrylate] were grafted on rubber.

2) characterization of polymer-clay materials.

Determination of the structural composition of the prepared polymer-clay materials has been studied by a wide variety of analytical techniques including elemental microanalysis, IR spectra and gravimetric analysis.

3) Application of polymer-clay materials in organic reactions:

The catalytic activities of polymers grafted onto MMT interlayers has been investigated in nucleophilic substitution of thiocyanate, cyanates and nitration in order to enhance and increase the efficiency of conventional chemical reactions. The effectiveness of these novel materials has been examined under the effect of several factors governing the rates of chosen chemical reaction, such as chemical composition of the polymer backbone, chemical nature of the active moiety, degree of loading, nature of solvent and temperature of reaction.