

الآية

قال تعالى :

سَأَلُونَكَ عَنِ الرُّوحِ ۖ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي
وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا)

صدق الله العظيم

سورة الإسراء, الآية(85)

Dedication

I dedicate this work to

My mother, father and

My husband, son and to

My brothers and sisters.

Acknowledgment

I am thankful to Almighty Allah the Most Gracious, and the Most Merciful for giving me the strength and health to complete this work.

Special appreciation goes to my supervisor Dr. Mohammed Sulieman Ali Eltoum for his supervision, encouragement, constant support and his valuable constructive comments and suggestions throughout this research.

My thanks are extended to all teachers and technical staff at chemistry department- Sudan University of Science and Technology and King Fahad University of Petroleum and Minerals in K.S.A and my friends for their help and support.

Abstract

CuO is a potential candidate for magnetic storage devices, solar energy transfer, sensors, and super capacitors and especially it acts as a good catalyst in some of the chemical reactions.

In this research copper oxide (CuO) nanoparticles were prepared by sol gel method. In this method $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ was used as precursor obtained CuO nanoparticles were further supported by alumina to produce copper oxide support on alumina catalyst, the copper oxide nanoparticle and the catalyst were characterized using different analytical techniques such as titrimetric method, x-ray diffraction (XRD), Scanning Electron Microscope (SEM) and the catalyst was applied in the synthesis of tetraethylorthosilicate (TEOS). The obtained results indicated the formation of copper oxide nanoparticles and copper oxide supported in alumina catalyst in high quality, also the catalyst increased the rate of formation of tetraethyl orthosilicate (TEOS).

المستخلص

اوكسيد النحاس له تطبيقات مميزة في مجال الأجهزة المغناطيسية ونقل الطاقة الشمسية واجهزه الاستشعار والمكثفات الفائقة، كما انها تعتبر حفاز جيد لبعض التفاعلات الكيميائية.

في هذا البحث تم تحضير اوكسيد النحاس بطريقة الصول-جل حيث تم استخدامكلوريد النحاس ثنائي الماء كمادة أولية. أوكسيد النحاس الناتج تم تدعيمة على أوكسيد الألمنيوم لأنتاج حفاز أوكسيد النحاس المدعم بالألومنا.تم تشخيص أوكسيد النحاس الناتج والحفاز بأستخدام تقنيات تحليلية مختلفة هي المعايرة والأشعة السينية التفريرية والمجهر الألكترونى الماسح كما تم تطبيق حفاز أوكسيد النحاس المدعم بالألومنا فى تحضير رباعى ايثيل السلكون. أشارت النتائج المتحصل عليها الى تكون أوكسيد النحاس النانوى وكذلك الحفاز بكميه كبيره كما ان استخدام الحفاز زاد معدل سرعة تكون رباعى ايثيل السلكون.

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