

CHITOSAN pH SENSOR

Inventors :

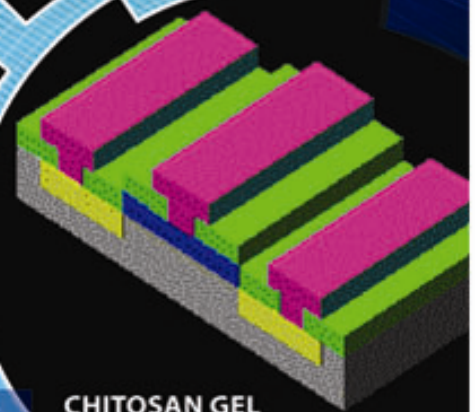
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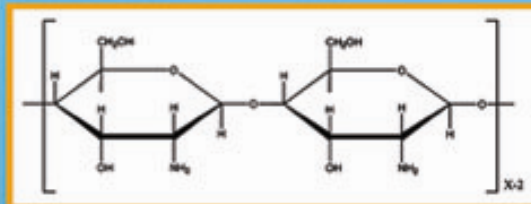
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INTRODUCTION

Chitosan is a natural biomaterial derived from the alkaline deacetylation of chitin that is present in many crustaceans, insects and mollusk shells. In this work, chitosan solution was deposited on silicon substrate using sol-gel deposition method to fabricate the thin film sensors in transistor form.



MOLECULAR STRUCTURE



- Has both hydroxyl and amino groups which enable the easily chemical modification to improve its electrical properties.
- Nucleophilic that causes it's amino groups readily react with biological components (eg. proteins, nucleic acids, and virus particles).

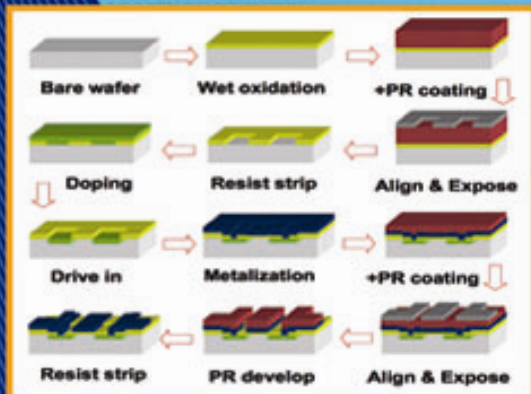
SOLUTION PREPARATION



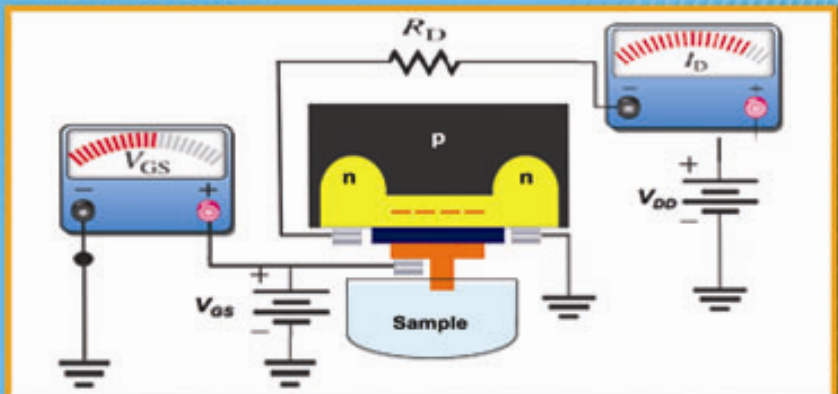
CHITOSAN GEL



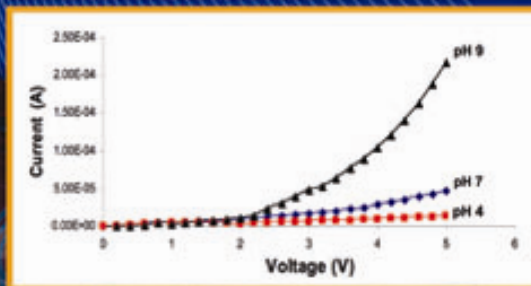
SENSOR FABRICATION



SENSOR OPERATION



I-V CHARACTERISTICS



NOVELTY

New pH sensing material from natural reproducible resource

POTENTIAL APPLICATIONS

- For agriculture: to measure the soil acidity
- For medical : to test pH of urine

COMERCIAL POTENTIAL

- Low cost sensor fabrication
- Portable to travel
- Reliable sensor
- Possible mass production

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