

Studi pendahuluan pembuatan sensor gas ammonia dari komposit hibrida zeolit ZSM-5/sodalite menggunakan metode impedansi Preliminary study of making ammonia gas sensor from hybrid composite zeolite ZSM-5/sodalite using impedance method/ Resta Juliansyah

Resta Juliansyah, author

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Abstrak

[ABSTRAK

Hibrida zeolit ZSM-5 dan SOD telah berhasil dibuat di atas permukaan glassy carbon. Pertama?tama zeolit ZSM-5 disintesis dari koloid gel ZSM-5 dengan menggunakan dua jenis template atau yang dikenal dengan sintesis double template dan metode hidrotermal. Selanjutnya zeolit SOD dilapisi di atas permukaan ZSM-5 dengan menggunakan metode seeding menggunakan koloid gel seed dan larutan prekursor. Hasil XRD menunjukkan bahwa zeolit yang dihasilkan merupakan zeolit ZSM-5 dan SOD. Diperkuat dengan hasil SEM dan EDS yang memperlihatkan rasio Si/Al pada ZSM-5 sebesar 2,5 dan pada SOD sebesar 1,3. Untuk melihat pengaruh gas amonia terhadap hibrida zeolit dihitung menggunakan alat impedance analyzer yang dapat dilihat pada frekuensi sebesar 20 Hz ? 20 kHz didapat rentang deteksi dari 0 ppm ? 100 ppm serta dihitung hubungan antara konsentrasi dengan perubahan nilai impedansi pada frekuensi 100 Hz dan diperoleh nilai r2 sebesar 0,9376.

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ABSTRACT

Hybrid zeolite ZSM-5 and SOD have been successfully fabricated on the surface of glassy carbon. First,zeolite ZSM-5 synthesized from colloidal gels ZSM-5 by using two types of templates, known as double-template synthesis and hydrothermal method. Furthermore, SOD zeolite coated on the surface of ZSM-5 by using a seeding method using seed and colloidal gel precursor solution. XRD results showed that zeolite ZSM-5 and SOD has been obtained. Reinforced with SEM and EDS results showing the ratio of Si / Al in the ZSM-5 at 2.5 and the SOD of 1.3. To see the effect of the hybrid zeolite ammonia gas is calculated using the impedance analyzer tool which can be seen at a frequency of 20 Hz until 20 kHz obtained the detection range of 0 ppm until 100 ppm and calculated the relation between the concentration of the change in value of the impedance at a frequency of 100 Hz and obtained values of r2 of 0.9376., Hybrid zeolite ZSM-5 and SOD have been successfully fabricated on the surface of glassy carbon. First,zeolite ZSM-5 synthesized from colloidal gels ZSM-5 by using two types of templates, known as double-template synthesis and

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