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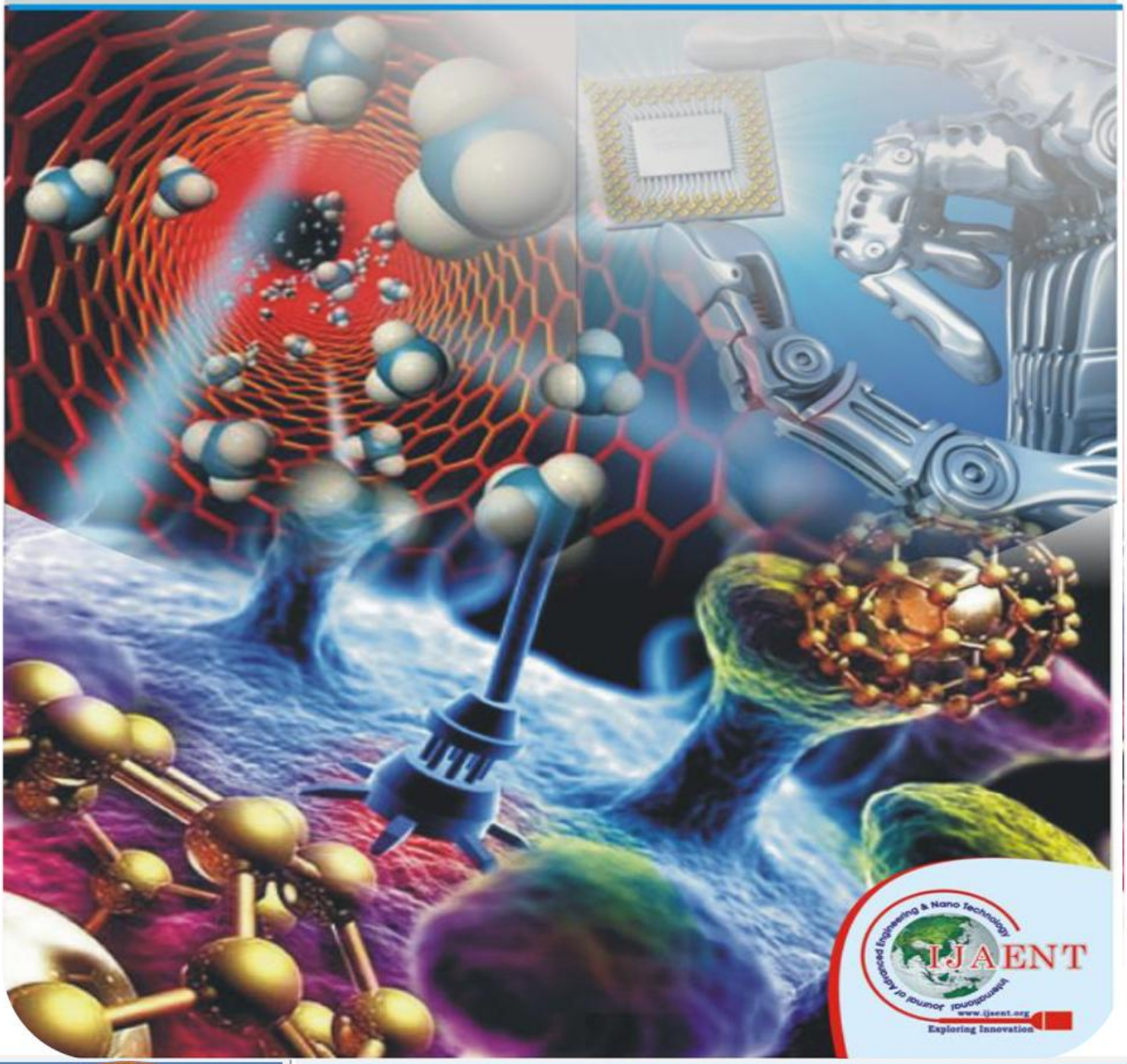

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1.	**Authors:** Jaya Bharti, Arshali Sasi, C. Sasi Kumar **Paper Title:** Promising Nature of MoO3 Nanostructures in Gas Sensing Applications – A Review	1-9

Abstract: Molybdenum trioxide (MoO3) is a transition metal oxide with a wide band gap. It is an n-type semiconductor material with an oxygen deficiency. MoO3 used as a sensing element for many of the reducing and oxidizing gases and proved to be a promising candidate for the same. Many literatures are available in this context; out of which some are explained in this article. This discussion covers the gas sensing response of different type of nanostructures of molybdenum trioxide and selectivity of particular structure toward the gas being sensed. It also includes the graphical representation of the variation of sensitivity/sensor response with the concentration of test gas. Lastly conclusions have been made on the basis of the discussion given in the following sections.

Keywords: Sensing mechanism, Gas sensing response of Molybdenum trioxide, MoO3 Nanostructures

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2.	**Authors:** Abdelzaher E. A. Mostafa, Waleed M.F. Tawhed, Mohamed R. Elshahat **Paper Title:** Developing New Design Criteria of Asphalt Pavement Mix Using Nano-Materials and Polymer-Materials	10-20

Abstract: In the context of the wide demand of high quality of bitumen, this research was initiated with the objective of enhancing the asphalt mix properties. Variable additives percentages of nanomaterial and polymer material were investigated, experimentally, in order to determine their effect on asphalt properties. Three nano materials (i.e. nano-silica, nano0kaolinite and nano-montmorlinit) and three polymer materials were considered (i.e. SBS, polypropylene, and polyethylene). Modified specimens (with 1, 3, 5, 7, and 9% of nano and polymer material) were prepared. Rheological properties tests were conducted (i.e. penetration, softening, flash point and viscosity). In addition, mechanical properties tests were carried out (i.e. Marshall, compression, and indirect tensile tests). Results were obtained and analyzed. They indicted that additives enhanced rheological and mechanical

properties of asphalt mix.

Keywords: Hot Asphalt Mix; Polymerized-Materials

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3.

Authors:	**B. A. Elsayed, M. A. Hegazy, H. M. H. Abd El-Bary, Ahmed A. Abdel Salam**
Paper Title:	**Evaluating Synthesized Schiff base as Corrosion Inhibitor on Carbon Steel in 0.5 M HCl and 0.5 M H_2SO_4**

Abstract: The inhibition effect of synthesized schiff base on the corrosion of carbon steel in (0.5 M HCl and 0.5 M H2SO4) was studied at different temperatures (25–55 ºC) by weight loss, electrochemical impedance spectroscopy (EIS) and potentiodynamic polarization methods. The carbon steel surface morphology was investigated by SEM. The obtained results showed that the prepared schiff base is excellent inhibitor in (0.5 M HCl and 0.5 M H_2SO_4) and the inhibition efficiency (η) increases with the inhibitor concentration, but it decreases with increasing temperature. The adsorption of inhibitor on the surface of carbon steel is mixed chemical and physical adsorption and found to obey the Langmuir adsorption isotherm equation. Thermodynamic parameters have been obtained by adsorption theory. Polarization curves showed that the synthesized inhibitor is mixed-type inhibitor in both hydrochloric acid and sulfuric acid. Data obtained from electrochemical impedance spectroscopy (EIS) studies were analyzed to model-inhibition process through appropriate equivalent circuit model. Potentiodynamic polarization studies have been shown that the inhibitor acts as a mixed type of inhibitor. Scanning electron microscope (SEM) confirmed the protection of the carbon steel surface by the inhibitor.

Keywords: (0.5 M HCl and 0.5 M H_2SO_4), (EIS), SEM., (25–55 ºC), (η), (EIS), Potentiodynamic, hydrochloric

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4.

Authors:	**Saurav Kumar, R.K. Pandey, Sanjeev Singh, Neha**
Paper Title:	**Effect of PVC Waste and Replacement in Construction of Flexible Pavement**

Abstract: Bituminous pavement concrete is composite material used in construction of road pavement, airport runway and parking. It contains bitumen and aggregate mixed together, laid in layers and compacted. The steady increment in highway traffic volume density and remarkable variation in daily and seasonal temperature causes rapid detoriation and failure of pavement surface and course. Looking into the pavement condition it is worth to think of some admixes to be used for modification in constituents and mixture which must satisfy strength and economical aspects. It is worth to note that increased use of PVC in society is raising serious environmental issues; I have tried to mix PVC waste with bitumen for preparation of pavements as a little solution for the environmental pollution. The bituminous concrete mixes prepared with defined volume of PVC and aggregate as per the codes of IRC were used to prepare samples for testing. The samples were tested for Marshall Properties like stability, flow volume, unit weight, air voids etc and the optimum PVC content for the choosed bitumen (80/100) were achieved.

Keywords: Bituminous, pavement, (80/100), PVC, Properties like stability, Looking, IRC, volume, modification

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