contaminants tend to accumulate and can cause major reduction in efficiencies and operational problems. Two major problems represent a significant threat to an amine gas treating plant: corrosion and instability of operation, resulting in unscheduled upsets and outages. In this process, contaminant byproducts called Heat Stable Salts (HSS) are formed and gradually build up to beyond tolerable limits in the amine circulation loop. Amine plant operational problems, such as excessive foaming, corrosion and capacity reduction, are often attributed to the accumulation of amine heat stable salts. These heat stable salts lead to costly maintenance problems such as corrosions, frequent filter replacement, foaming in the absorber column, absorber tower plugging, heat exchanger fouling and a reduction in the amount of amine available for gas treatment, thereby reducing the unit's productivity. In order to prevent the HSS from building up beyond critical limits, amine plant operators have been making conscious attempts to control impurities, especially HSS. Several analytical methods have been used for low-level monitoring of HSS in various amine matrices.These methods inductively coupled plasma atomic emission spectroscopy (ICP-AES), UV-Vis spectrometry determination, fluorimetry, ionic chromatoghraphy (IC) and gas chromatography- mass spectroscopy(GC-MS).This method was applied to the determination of HSS in amine sweetening units.

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Application of N'-[(2-hydroxyphenyl)methylene]benzohydrazide for preparation of a new optical pH sensor

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Optodes have been actively investigated for their potential in practical uses, such as environmental analysis, clinical analysis, bio-technology and process control. Among all sensors, optical pH sensors have received the most attention because of the importance of pH measurement in various scientific research and practical applications [1]. Optodes are usually based on acid–base indicators, which can be adsorbed on the surface of support materials [2], chemically immobilized in an appropriate support [3] or physically entrapped in polymeric matrices [4]. Optical pH sensors are based on pH dependent change of the absorbance or luminescence of certain indicator molecules. In this study, we report an optical pH sensor based on immobilization of N'-[(2-hydroxyphenyl)methylene]benzohydrazide as a new pH reagent on an optically transparent triacetylcellulose membrane. The films were treated with a clear solution of a 10 ml N'-[(2-hydroxyphenyl)methylene]benzohydrazide (0.03 % m/m) in ethylene diamine for 2 min at room temperature. The optode was showed a decreasing absorbance at 385 nm with increasing pH. The membrane is useful for repetitive and reversible pH measurements in the pH range of 4–8.5. The response of the sensor is reversible with a response time 10 s and relative standard deviation < 1.52 % for seven measurements.

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Prediction of Anticonvulsant Activity of Some Benzylacetamide Analogues based on Autocorrelation Descriptors

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Epilepsy is a common neurological condition, affecting 0.5 to 1% of the population worldwide (45-100 million people) [1]. The search for antiepileptic compounds with a more selective activity and lower toxicity continues to be an area of investigation in medicinal chemistry. Quantitative structure–activity relationship research field has been widely developed because of its powerful ability to predict drug activity [2]. These are mathematical equations relating chemical structure to wide biological properties. A linear quantitative structure activity relationship model is obtained using Multiple Linear Regression (MLR) analysis as applied to a series of 49 α-substituted acetamido-N- enzylacetamides derivatives with anticonvulsant activity. For the selection of the best descriptors, the genetic algorithm (GA) method is utilized [3, 4]. AM1 Semiempirical quantum chemical calculation method was used to find the optimum 3D geometry of the studied molecules. Two types of molecular descriptors including the 2DAUTO and GETAWAY descriptors were used to derive a quantitative relation between the anticonvulsant activity and structural properties. From the results was derived that MATS6e is Moran autocorrelation of lag 6 / weighted by atomic Sanderson electronegativities, MATS5p is Moran autocorrelation of lag 5 / weighted by atomic polarizabilities and ATS6e is Broto-Moreau autocorrelation of lag 6 / weighted by atomic Sanderson electronegativities belongs to GETAWAY descriptors. H7v is H autocorrelation of lag 7 / weighted by atomic van der Waals volumes, HATS2u is leverage-weighted autocorrelation of lag 2 / unweighted and H5m is H autocorrelation of lag 5 / weighted by atomic masses belongs to GETAWAY descriptors. The high square of the correlation coefficient R^2 (0.900) showed the model was satisfactory. Moreover in order to confirm a predictive ability of the model, a validation test was performed. The results show close agreement between Predicted and experimental values, which demonstrates the reliability of the model.

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