
Registration Seminar

Seminar Title	: VALUE ADDED PRODUCTS FROM STEEL INDUSTRY WASTES
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Venue	: New Seminar Hall, Chemical Engineering Department
Date and Time	: 27 Feb 2025 (4.00 PM)
Abstract	: Growing industrialization is causing to pile up the industrial waste. Due to environmental concern as well as from an economic point of view they are recycled & reused. The present study concerns the value-added products from industrial waste. The solid waste from steel industries is put into many use such as slag in cement and refractories, scrap in blast furnace, fly ash in roads, ammonium in fertilizers etc. for present study we studied coke dust and coal chemical solid sludge to investigate some value-added product. The High carbon content (~83%), low ash content (~13%) makes it a very good carbon source. Firstly, it is investigated to form alkali treated activated carbon (CDBAC) and its adsorption ability is studied using methylene blue solution which is a textile industry-based pollutant. The batch adsorption was studied by varying concentration, pH, agitation rate, temperature, dose amount etc. Its high adsorbing capacity, 388.9 mg/g at 300C, 125 RPM & at neutral pH and high removal rate 95.5% in just 100 minutes proves its efficient use as adsorbent. In column study at a bed height of 4.5 cm it shows an adsorbing capacity 238.6 mg/g and a high break through time of 220 minutes and high regeneration ability makes it excellent choice as adsorbent. Its thermodynamic study shows a spontaneous adsorption with exothermic nature. After regeneration it can be used for gasification. Apart as an excellent adsorbent, the coke dust after alkali treatment to form AC will be investigated as anode materials for supercapacitors and to be used in energy storage devices. A good conductive nature of the CDBAC can be utilized for the above study. The Coal chemical sludge contains many organic components such as tar, benzol, BTX etc. So, Co gasification of coal chemical sludge and coke dust is to be investigated to produce value-added products. Keyword: Activated Carbon, waste treatment, coke dust, coal chemical sludge, value-added products, supercapacitors, energy storage devices, co-gasification. Apart as an excellent adsorbent, the coke dust after alkali treatment to form AC will be investigated as anode materials for supercapacitors and to be used in energy storage devices. A good conductive nature of the CDBAC can be utilized for the above study. The Coal chemical sludge contains many organic components such as tar, benzol, BTX etc. So, Co gasification of coal chemical sludge and coke dust is to be investigated to produce value-added products.