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Separation and preconcentration through Nano clay Ni/NiO nanocomposite new sorbent

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Editorial Note

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EDITORIAL NOTE

The pollution caused by fossil fuels is a growing source of environmental concern these days. Apart from fuel elements, sulphur plays an important role among fuel pollutants and appears to be a major source of contamination in the atmosphere. Since 2006, most developed countries have imposed sulphur levels for gasoline of less than 30 ppm. As a result of their adsorption by various components of soils and sediments, molecules containing S form SOx contaminants, which are the primary cause of acid rain. As these organic molecules migrate in the direction of ground water, irrigation, and drainage, their migration can be slowed. Furthermore, S-contaminants contaminate automobile catalysts, preventing them from removing the majority of gas pollutants emitted during combustion. To restrict the content of sulphur and nitrogen in petroleum products, tighter regulation has been introduced all over the world. As a result, the creation of new technologies for the removal of S and N is needed.

Furthermore, new approaches for more successful desulfurization may become more important in the near future as a result of rapid climate change. As a result, it is essential to reduce the amount of commercial diesel or gasoline used. To avoid SOx pollution and catalyst deactivation, sulfur-containing compounds such as thiophene, benzothiophene (BT), dibenzothiophene (DBT), and 4,6-dimethyldibenzothiophene (DMDBT) must be reduced to extremely low levels. Various methods such as hydrodesulfurization, oxidation, and adsorption were used to achieve this low sulphur level. Adsorption has been hailed as one of the most cost-effective methods, especially for ultralow sulphur material, because it can operate under normal conditions. Clay-based sorbents, in addition to the typical adsorbents used in SPE, have a peculiar polarity, pore-size distribution, and high surface areas, making them potentially useful materials for the adsorption of environmental contaminants.

Hence, Intercalated clays can be used as selective sorbents for organic pollutants because of their significant function in the transport and preservation of organic compounds in the soil. The sorbent should be inexpensive and have adsorption properties that are unique to a particular material.

Clay minerals are low-cost adsorbents with large surface areas and