



SELCUK UNIVERSITY  
FACULTY OF TECHNOLOGY

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Konya/TURKEY

## ABSTRACTS BOOK

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# **International Conference on Engineering Technologies**

**3<sup>th</sup> International Conference, ICENTE  
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**Abstracts**

**Editors**

**Ismail SARITAS  
Mehmet CUNKAS  
Fatih BASCIFTCI**

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# INVESTIGATION OF TOXIC METAL ADSORPTION PROPERTIES SILICA GEL SUPPORTED CALIX 4 ARENE DINITRO DERIVATIVE

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## ABSTRACT

Given the technological importance of toxic metals, their impact on environmental pollution and all creatures, it is necessary to remove or recycle them from wastewaters. Therefore, in recent years, interest in chemical separation techniques, synthesis and design of new chemicals for metal ions has increased greatly. To date, various methods have been developed on the removal of toxic metals from their environment. Among many methods, the adsorption process is widely used due to economical and easy. It is known that many natural and synthetic materials are used as adsorbents. One of the advantages of the technology is the widespread production of synthetic adsorbents used for toxic metal removal. As a synthetic adsorbent, supramolecular compounds are widely used for the removal of toxic substances from the aqueous medium due to their adsorption abilities. Among these studies, "calixarene" compounds, which have attracted the attention of many researchers and are regarded as the third generation in supramolecular chemistry after cyclodextrins and crown ethers, have been widely used as adsorbents or ligands in recent years. In this study, first the p-tert-butylcalix[4]arene dinitro derivative was synthesized and then this compound was immobilized on silica gel to obtain polymeric material and the polymeric material (DNC[4]GBS) was used as an adsorbent for the removal of toxic metals such as lead, copper, iron, and aluminum from the aqueous medium. Their % adsorption values were found 99%, 65%, 83% and 95% respectively.

**KEYWORDS** - Adsorption, Calix[4]arene, Toxic Metals.