

## **O 5. REMOVAL OF DIMETHYL PHTHALATE BY MACRONET ADSORBENT**

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**ABSTRACT:** The macroporous polymeric adsorbent, Purolite MN100, was used for the removal of dimethyl phthalate from aqueous solution. The effect of various experimental conditions such as adsorbent dose, initial solution pH, temperature, and contact time on the removal of dimethyl phthalate was tested. Sorption of dimethyl phthalate onto MN100 adsorbent obeyed the pseudo-second-order kinetic model and reached equilibrium in 300 minutes. Also, experimental data showed a good fit with Langmuir adsorption isotherm models and maximum sorption capacity ( $Q_0$ ) found as 463.37 mg/g-adsorbent. Moreover, the sorption of dimethyl phthalate is pH depended and it was decreased at alkaline pH. Additionally, the presence of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ , and  $\text{Mn}^{2+}$  has a relatively low effect on dimethyl phthalate removal. Furthermore, the thermodynamic parameters demonstrated that the adsorption of DMP onto polymeric adsorbent is endothermic and spontaneous. On top of that, the exhausted adsorbent can be regenerated with 96% ethanol.

**Keywords:** *Adsorption, Dimethyl phthalate, MN100, Phthalate esters, Water Treatment.*

**Acknowledgment:** This study has been supported by The Scientific and Technological Research Council of Turkey (TUBITAK-Program code: 2209). We would like to acknowledge Purolite Int. Co. for ion-exchange resin samples