



Figure 10. The Residual Plots for COD Removal

5. Conclusion

MAP precipitation as a pre-treatment process was used to achieve high ammonia removal from raw leachate collected from sanitary landfill. The removal of ammonia at Mg:NH₄:PO₄ ratio of 1: 1: 0.55 varied between 37-44%. The best ammonia removal efficiency ratio was achieved by 90.63% at Mg:NH₄:PO₄ ratio of 4: 1: 2.2. No significant removal of COD was observed during MAP precipitation. For this reason, a biological process should be applied to remove COD. In the experiments, the highest COD removal efficiency was 39.64%.

When applying the MAP precipitation method, attention should be paid to the TDS and PO₄-P parameters that can remain in the effluent at high concentrations due to the use of chemicals.

It was seen that the different levels of Mg and PO₄ have significant effects on the ammonia and COD removal from the results of statistical analysis. The experiments of Ammonia removal have been described with the linear regression models. The data was very close to the fitted regression line in ammonia removal (91.63%). On the contrary to the data was not close to the fitted regression line in COD removal (56.73%). In this case, it can be said that the linear regression model is not suitable for the COD removal data.

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