

Analyses of various methods for removing pollutants from old lubricants showed that the acid–clay method had the highest environmental risk and the lowest cost. The acid treatment stage of the process can be carried out under atmospheric pressure to remove the acidic products, oxidized polar compounds, suspended particles, and additives in order to decrease these dangerous contaminants from this approach [31]. The acid–clay method differs from others in that it is easy to use, requires little upfront investment and little ongoing maintenance [27–29]. However, this approach has a number of drawbacks: it also generates a significant amount of pollutants, can't handle current multigrade oils, and is challenging to clean out asphaltic impurities [30]. He used phosphoric acid, sulphuric acid, methanoic acid, and acetic acid to treat used motor oil