

## **Diamondoid Concentrations in the Characterisation of Condensates and Crude Oil Samples from 'Eye, Ola and Ade' Fields in the Northern Depobelt, Niger delta**

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### **Abstract**

Organic geochemical analysis was performed on condensates and crude oil samples collected from different wells and different fields at various depth within the northern depobelt, Niger Delta. This study explores their characterization using diamondoid concentrations and to determine the depth of the oil and gas window as well as the level of maturity in the fields.

The depth of oil window was shown to be between 2089 to 3886 m, followed by intense oil cracking in some of the samples analyzed. The diamondoid concentration was insensitive to the maturity level of the crude oil and condensates samples as the vitrinite reflection values of samples analyzed was less than 1.1 ( $R_o < 1.1$ ). This indicates that the cracking of the crude oil was not due to over maturity. However, the diamondoid concentration also indicates mixed oils from normal maturity to highly cracked source in some of the wells. Therefore, it can be deduced that the condensates are possibly due to evaporative fractionation of the crude oil and not due to over maturity. A more comprehensive analysis of samples from other wells will give more succinct deductions.