Selective Ring Opening of Poly Aromatic Hydrocarbon over metal-loaded zeolite catalyst.

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Today, heavy oil is looked to as a future energy source . However, its processing is not easy due to its characteristic high content of heavy molecules, multi-ring aromatics and asphaltenes as well as high sulfur content. The selective ring opening (SRO) of poly aromatic molecules is a promising pathway for heavy residue upgrading and it has been studied by many researchers. SRO still presents a challenge due to a complex chemistry, product selectivities, operation conditions, distribution and composition of the final products, and catalytic system.
In this study, we used bi-functional catalyst (metallic and acidic function) for the ring opening. An acidic function needs for hydrogenation and then a Metallic function helps to open the aromatic ring. A naphthalene was selected as a model compound of multi-ring aromatics, and its ring opening has been investigated using the sulfited NiW/HY catalyst in different reaction condition at 623 , 648, 673K and 3, 4, 5 MPa(H2).