

Bitumen geochemistry and producibility in the Upper Cretaceous Niobrara Formation shale oil play

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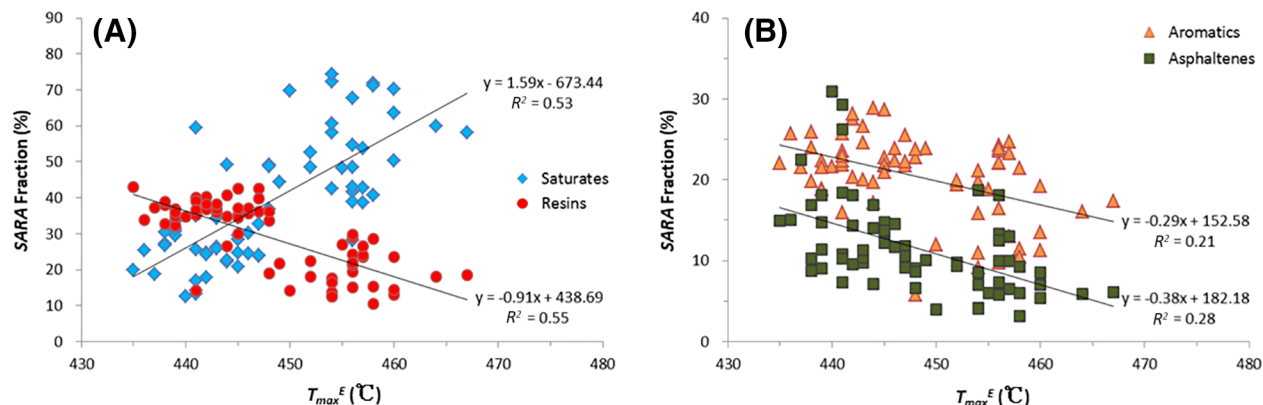


Figure S1. Cross plots of (A) saturates and resins fraction (%) versus the reading temperature at the maximum rate of petroleum generation by Rock-Eval 2 pyrolysis (T_{max}^E) ($^{\circ}\text{C}$), and (B) aromatics and asphaltenes fraction (%) versus T_{max}^E . The saturates, aromatics, resins, and asphaltenes (SARA) fractions were fractionated from C_{14+} bitumen extracted from the type II Niobrara source rocks (carbonate <70 wt. %). R^2 = coefficient of determination.

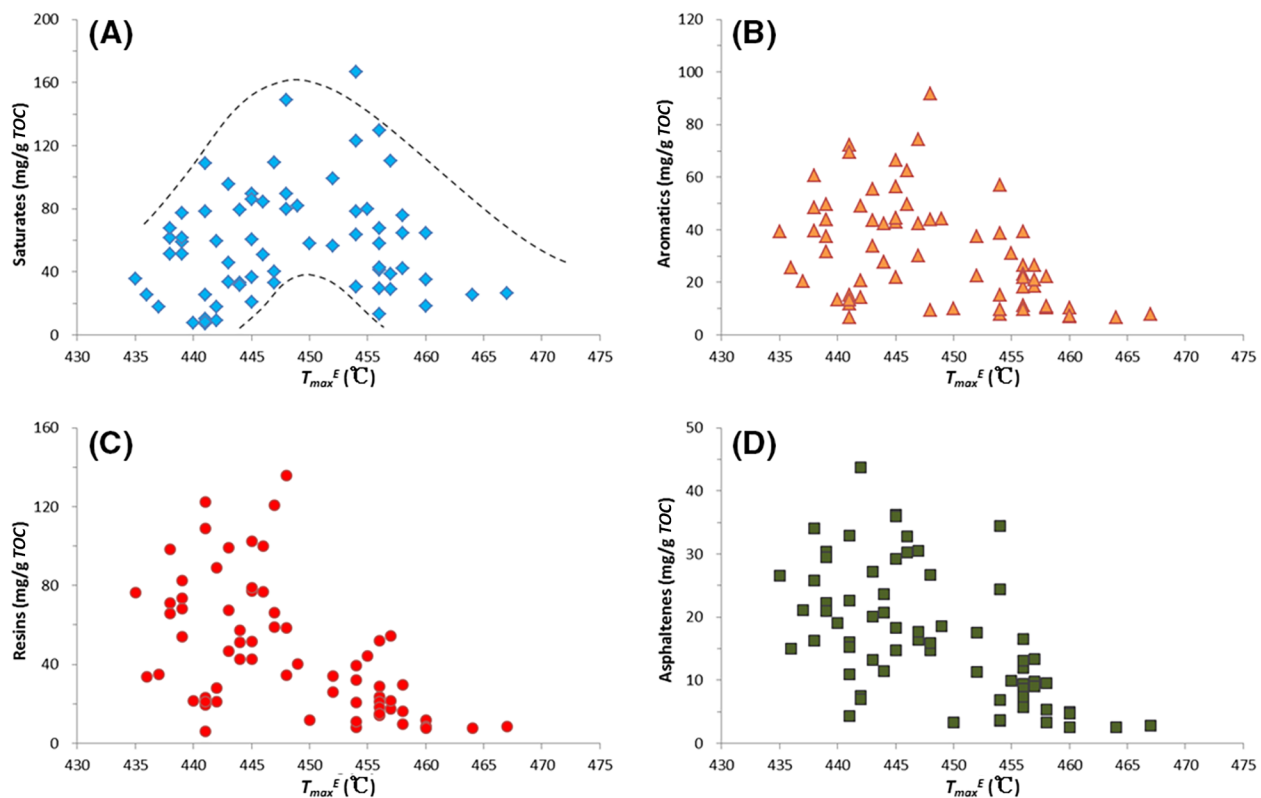


Figure S2. Plots of total organic carbon (TOC)-normalized (A) saturates, (B) aromatics, (C) resins, and (D) asphaltenes fractions versus the reading temperature at the maximum rate of petroleum generation by Rock-Eval 2 pyrolysis on solvent-extracted sample (T_{max}^E) of type II Niobrara source rocks (carbonate <70 wt. %). The dashed lines represent the evolution pathway of saturate hydrocarbons.