

In situ observation of fouling behavior under thermal
cracking conditions: Hue, Saturation, Intensity
Image Analyses

Supporting Information

Cedric Laborde-Boutet, David Dinh, Fabian Bender, Miguel Medina, William C. McCaffrey*

University of Alberta, Department of Chemical and Materials Engineering, Edmonton, AB, T6G
2V4, Canada

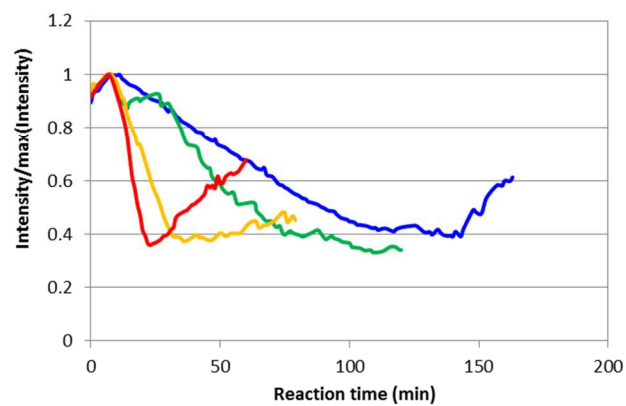


Figure S1. Normalized Brightness Intensity of the micrographs taken during thermal cracking reactions of Cerro Negro Crude with setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), 450 °C (red).

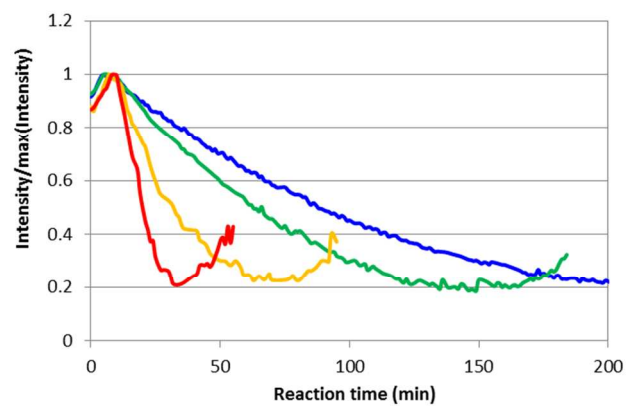


Figure S2. Normalized Brightness Intensity of the micrographs taken during thermal cracking reactions of Cold Lake Bitumen with setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), 450 °C (red).

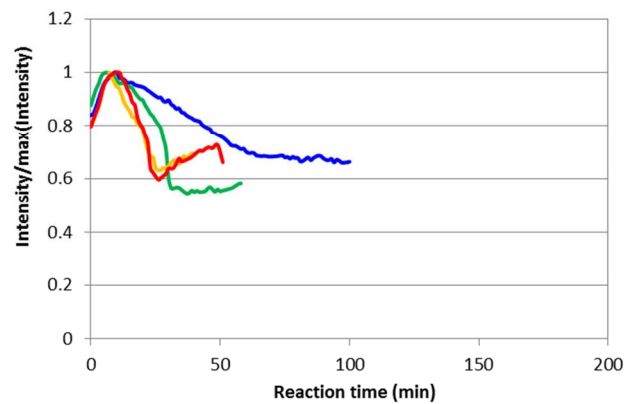


Figure S3. Normalized Brightness Intensity of the micrographs taken during thermal cracking reactions of Colombian VR with setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), 450 °C (red).

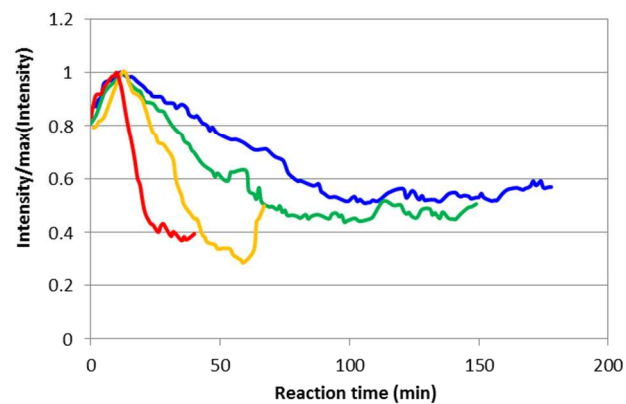


Figure S4. Normalized Brightness Intensity of the micrographs taken during thermal cracking reactions of Safaniya VR with setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), 450 °C (red).

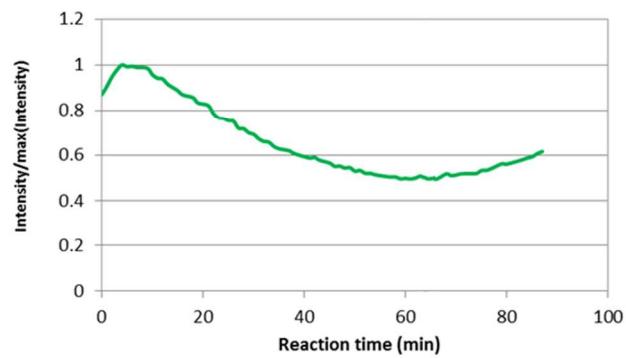


Figure S5. Normalized Brightness Intensity of the micrographs taken during thermal cracking reactions of Pentane-Extracted Asphaltenes with a setpoint temperature of 420 °C.

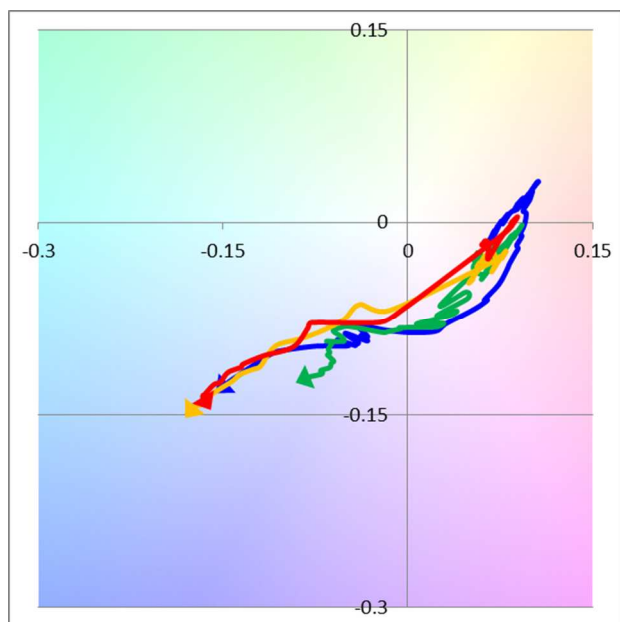


Figure S6. Hue and Saturation trajectories in thermal cracking reactions of Cerro Negro Crude at setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), and 450 °C (red).

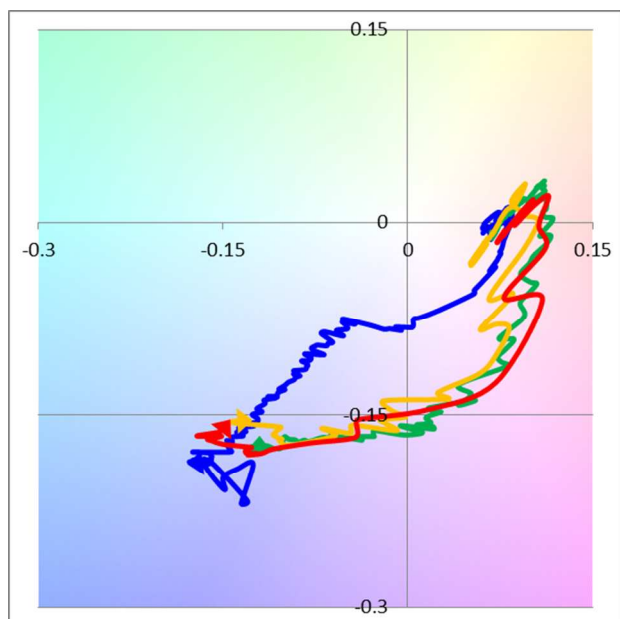


Figure S7. Hue and Saturation trajectories in thermal cracking reactions of Cold Lake Bitumen at setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), and 450 °C (red).

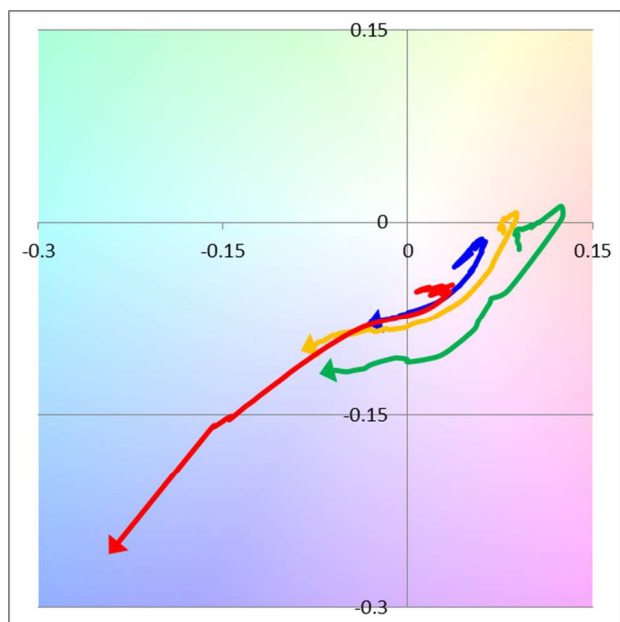


Figure S8. Hue and Saturation trajectories in thermal cracking reactions of Colombian VR at setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), and 450 °C (red).

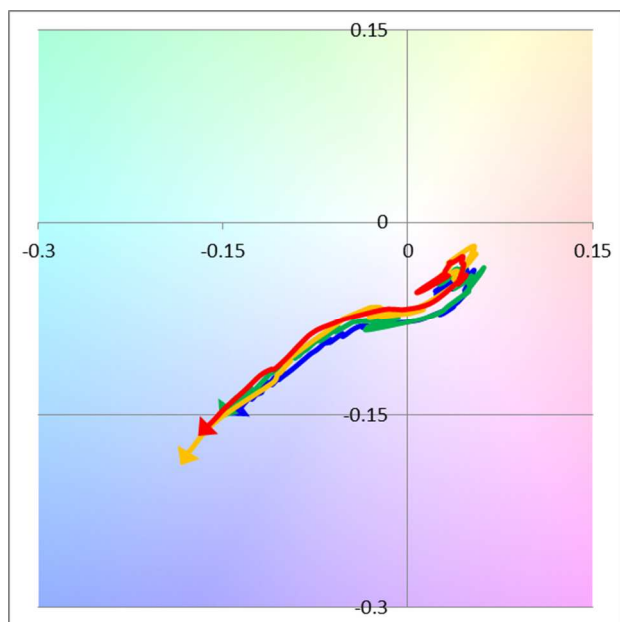


Figure S9. Hue and Saturation trajectories in thermal cracking reactions of Safaniya VR at setpoint temperatures of 410 °C (blue), 420 °C (green), 435 °C (orange), and 450 °C (red).

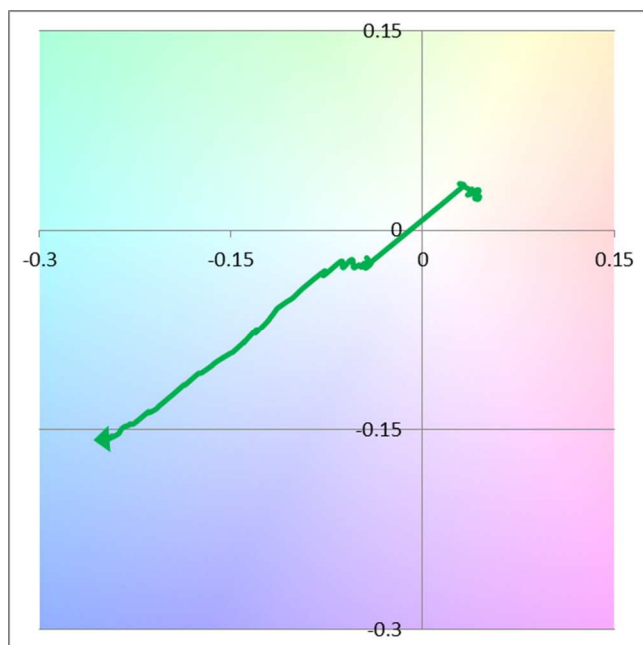


Figure S10. Hue and Saturation trajectory in thermal cracking reactions of Pentane-Extracted Asphaltenes at setpoint temperature of 420 °C.