Canadian Heavy Crude Compatibility/Stability Study
Project Proposal

CCQTA/COQA Meeting
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New Orleans
Heavy Crude Compatibility/Stability Study
Project Proposal

• Project Overview

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Project Overview

- Anytime two or more crudes are blended together some incompatibility and/or instability may occur.
- Light crude production Heavy Crude
- Incompatibility/instability can impact
  - Storage tanks, pipelines, desalter operation, process equipment fouling, process unit corrosion
- Impact of blending newer crudes (dilbits/synbits) with older conventional crudes should be better understood
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Project Objectives

Develop an understanding of:

– Upper limit of synbit/dilbit blending with conventional crudes at the refinery
– Identify list of stable/unstable crudes with Canadian heavies
– Determine blending sequences when processing multiple crudes
  • Incompatibility issues occur downstream of charge pumps! (i.e. desalters)
– Quantify impact of instability/incompatibility on transportation/desalting/refinery processing
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Proposed Task

• PHASE - I:
  – Selection of conventional crude oils and Canadian heavy crude for benchmarking
    ✦ *e.g.*, *benchmark conventional crude oils and typical Canadian heavy crude*

• PHASE - II:
  – Selection/determination of compatibility/stability methods
    ✦ *Wiehe’s compatibility model, Shell’s stability reserve, Separability Number (ASTM D 7601), other*
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Proposed Task

• PHASE - III:
  – Execution of compatibility/stability tests
    ☑ Sludge and Sediment formation (e.g., hot filtration)
    ☑ Fouling propensity (e.g., Alcor fouling test)
    ☑ Asphaltene Stability/compatibility tests (e.g., P-value, or SN/IN, etc)
    ☑ Asphaltene particle content (e.g., microscopy)
    ☑ Wax formation/separation (e.g., cold filter plugging)
    ☑ Compatibility spot tests (e.g, Shell method)
Heavy Crude Compatibility/Stability Study Outcome

Reporting and knowledge sharing with oil producers and refineries for acceptance of Canadian heavy crude / heavy synthetic blends

- If you are interested please contact:
  
  Andre Lemieux at secretary@ccqta.com, or
  
  Raman Narayanan at Raman.Narayanan@shell.com