



# Synthetic Crudes

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A Growing Opportunity



# Syncrude – Definition

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- Synthetic crude typically refers to crude that has been created from full or partial upgrading of oilsands or very heavy crude
- Canadian synthetic crude originates from oilsands upgrading and is usually referred to, for the purposes of US export, as “oilsands derived crude”
- The term “syncrude” is used by the Canadian industry specifically for product from the Syncrude upgrader
- Oilsands derived crudes come in a wide variety of differing properties



# General Types of Oilsands Crudes

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- Fully upgraded crudes, generally without bottoms
- Partially upgraded crudes with or without bottoms
- Synbits – bitumen diluted with synthetic crude



# “Premium Synthetics”

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- Fully hydrotreated bottomless crudes
  - Syncrude Sweet Blend (SSB or SYN)
  - Suncor A and C streams (OSA, OSC)
  - Husky Synthetic Blend (HSB)
  - Newgrade Premium Synthetic (NSA)
  - Premium Albian Synthetic (PAS)
  - Shell Sweet Blend (SSX)
- Each commodity has different concentrations of sulphur, nitrogen & aromatics, due to differing ore bodies and differing hydroprocessing severities
- Differing distillation profiles



# Fully Hydrotreated Heavy Crudes

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- Crudes with bottoms
  - Albian Heavy Synthetic (AHS)
    - AHS is a blend of hydrotreated upgrader streams and conventional heavy crude



# Partially upgraded crudes

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- At this time only Suncor is producing these partially hydrotreated crudes
- Typically, only the naphtha cut might be hydrotreated in these crudes
- Transportation logistics become difficult for crudes containing cracked stocks that are not fully hydrotreated



# Partially upgraded crudes

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- Bottomless crudes
  - Coker sour blend – OSE, OCC, OSS
  - Virgin sour blend - OSH
  - Virgin distillate - OSJ
- Crudes with bottoms
  - Mined bitumen diluted with OSH - OSB
  - Mined bitumen diluted with OSE - OSU
- Suncor's distillation cuts can be virgin product (residual olefins from extraction solvent), cracked product (high percent olefins), or hydrotreated product
- This means olefins present may be spread across distillation profile or confined to one or two distillation cuts



# Synbits

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- Synbits are bitumens (980 – 1030 kg/m<sup>3</sup> density) that are diluted with a light synthetic crude to meet pipeline viscosity and density limits
- Currently only the Suncor A stream is available for use as a synbit diluent
- Mackay River (PetroCanada MKH) and Christina Lake (Encana CSB) are both synbits
- Borealis Heavy will begin shipping soon as a synbit



# Synbits

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- Synbits will have less of a dumbbell distillation curve than heavy crude diluted with condensate
- Oilsands synbits have a very high resid level
- Conventional heavies are “dilbits”, bitumen diluted with condensate
- Some producers have considered using OSA to replace some of the condensate as a diluent in currently available heavies to produce “syndilbits”



# New Athabasca Oilsands Projects

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- New projects on the board will cover the range of available products from synbits to fully upgraded “oilsands derived crude”
- Both insitu and mining products could be marketed as synbits in the future