

Update on the “Quick Reference Card”

Presented to the Crude Oil Quality Association

Houston, TX
October 22, 2009

Objectives

- To produce a one-page reference document detailing the typical injected qualities of various key western Canadian crudes
- To collect and compile data pertaining to US receipt crude quality, and to summarize this data in similar reference documents
- To compare and correlate injected and receipt qualities for various key western Canadian crudes
- To consider recommendations for reducing the number of crudes

Methodology – Canadian Card

- All data taken from Crudemonitor.ca and the 2008 Enbridge Crude Characteristics Booklet
- 2008 Crudemonitor.ca density and sulfur averages compared to those listed by Enbridge and found to be consistent. In all possible cases, Crudemonitor.ca data was used to calculate averages
- Date ranges selected to best represent the current quality characteristics

Methodology – US Reference Cards

- COQA members asked to provide receipt quality data
 - Online forms or excel data dump
- Data sorted according to US PADDs
 - Maintain anonymity for data providers
- Data screened for outliers, tabulated, and resulting averages reported on appropriate reference card

Current Progress

- Canadian Quick Reference Card prepared; includes API, sulfur, TAN, RVP, viscosity, and distillation profile
 - Version 0.52 available to the COQA effective immediately
- More data required for US quick reference cards
 - Data provided thus far are insufficient for averaging purposes; these data are represented on the US cards with (✓)

Canadian Quick Reference Card

- Grade categories assigned by CQI
- Enbridge crude names, acronyms consistent with both Crudemonitor.ca and Enbridge
- Crudemonitor.ca data used for density, sulphur, MCR, TAN, and yield profile (except where noted); Enbridge data used for viscosity at 60°F and RVP
- Date range chosen to accurately represent “current quality” (“2008” is Enbridge only data)

Canadian Quick Reference Card

For most recent draft of the Canadian Quick Reference Card, click [here](#)

or visit <http://www.coqa-inc.org>

US Reference Card, PADD I

	Grade	Name/ Generic Acronym	API (deg)	Sulphur (wt%)	TAN (mgKOH/g)	MCR (wt%)	Viscosity at 15°C/ 60°F (cSt)	RVP (kPa)
CONVENTIONAL PRODUCTION	Condensate	Condensate Blend	CRW					
	Light Sweet	Mixed Blend Sweet	SW (MSW)	✓	✓		✓	✓
	Light Sour	Light Sour Blend	LSB					
	Light Sour	Edmonton Low Sour	SLE					
	Medium Sour	Midale Blend	M (MSM)	✓	✓			
	Medium Sour	Mixed Blend Sour	SO (MSO)	✓	✓		✓	✓
	Medium Sour	Edmonton High Sour	SHE					
	Heavy Sour	Bow River	BR (BRN)	✓	✓		✓	✓
	Heavy Sour	Fosterton	F	✓	✓		✓	✓
	Heavy Sour	Lloydminster Blend	LLB	✓	✓		✓	✓
	Heavy Sour	Lloydminster Kerrobert	LLK	✓	✓		✓	✓
BITUMEN BLENDS	Dilsynbit	Albian Heavy Synthetic	AHS					
	Dilbit	Cold Lake	CL	✓	✓		✓	✓
	Dilbit	Black Rock Seal Heavy	SH					
	Dilbit	Smiley Coleville Heavy	SC	✓	✓		✓	✓
	Dilbit	Wabasca Heavy	WH					
	Dilbit	Western Canadian Blend	WCB	✓	✓			
	Dilbit	Western Canadian Select	WCS	✓	✓		✓	✓
SYNTHETICS	Heavy Low Resid	Suncor - Cracked C	OCC					
	Heavy Low Resid	Suncor - OSH	OSH					
	Heavy Low Resid	Suncor Synthetic Sour	OSS					
	Light Synthetic	Husky Synthetic Blend	HSB	✓	✓		✓	✓
	Light Synthetic	Premium Albian Synthetic	PAS					
	Light Synthetic	Premium Newgrade Synthetic	NSA	✓	✓		✓	✓
	Light Synthetic	Suncor - A	OSA	✓	✓		✓	✓
	Light Synthetic	Syncrude	SYN	✓	✓		✓	✓

US Reference Card, PADD II

	Grade	Name/ Generic Acronym	API (deg)	Sulphur (wt%)	TAN (mgKOH/g)	MCR (wt%)	Viscosity at 15°C/ 60°F (cSt)	RVP (kPa)
CONVENTIONAL PRODUCTION	Condensate	Condensate Blend	CRW					
	Light Sweet	Mixed Blend Sweet	SW (MSW)	✓	✓	✓		
	Light Sour	Light Sour Blend	LSB					
	Light Sour	Edmonton Low Sour	SLE					
	Medium Sour	Midale Blend	M (MSM)					
	Medium Sour	Mixed Blend Sour	SO (MSO)					
	Medium Sour	Edmonton High Sour	SHE					
	Heavy Sour	Bow River	BR (BRN)	✓	✓		✓	
	Heavy Sour	Fosterton	F	✓	✓	✓		
	Heavy Sour	Lloydminster Blend	LLB					
Heavy Sour	Lloydminster Kerrobert	LLK						
BITUMEN BLENDS	Dilsynbit	Albian Heavy Synthetic	AHS	✓	✓			
	Dilbit	Cold Lake	CL	✓	✓		✓	
	Dilbit	Black Rock Seal Heavy	SH					
	Dilbit	Smiley Coleville Heavy	SC	✓	✓	✓		
	Dilbit	Wabasca Heavy	WH	✓	✓	✓		
	Dilbit	Western Canadian Blend	WCB	✓	✓	✓		
	Dilbit	Western Canadian Select	WCS	✓	✓		✓	
SYNTHETICS	Heavy Low Resid	Suncor - Cracked C	OCC					
	Heavy Low Resid	Suncor - OSH	OSH					
	Heavy Low Resid	Suncor Synthetic Sour	OSS					
	Light Synthetic	Husky Synthetic Blend	HSB	✓	✓			
	Light Synthetic	Premium Albian Synthetic	PAS					
	Light Synthetic	Premium Newgrade Synthetic	NSA					
	Light Synthetic	Suncor - A	OSA					
	Light Synthetic	Syncrude	SYN					

US Reference Card, PADD III

	Grade	Name/ Generic Acronym	API (deg)	Sulphur (wt%)	TAN (mgKOH/g)	MCR (wt%)	Viscosity at 15°C/ 60°F (cSt)	RVP (kPa)
CONVENTIONAL PRODUCTION	Condensate	Condensate Blend	CRW					
	Light Sweet	Mixed Blend Sweet	SW (MSW)					
	Light Sour	Light Sour Blend	LSB					
	Light Sour	Edmonton Low Sour	SLE					
	Medium Sour	Midale Blend	M (MSM)					
	Medium Sour	Mixed Blend Sour	SO (MSO)					
	Medium Sour	Edmonton High Sour	SHE					
	Heavy Sour	Bow River	BR (BRN)					
	Heavy Sour	Fosterton	F					
	Heavy Sour	Lloydminster Blend	LLB					
Heavy Sour	Lloydminster Kerrobert	LLK						
BITUMEN BLENDS	Dilsynbit	Albian Heavy Synthetic	AHS					
	Dilbit	Cold Lake	CL	✓	✓	✓	✓	
	Dilbit	Black Rock Seal Heavy	SH					
	Dilbit	Smiley Coleville Heavy	SC					
	Dilbit	Wabasca Heavy	WH					
	Dilbit	Western Canadian Blend	WCB					
	Dilbit	Western Canadian Select	WCS					
SYNTHETICS	Heavy Low Resid	Suncor - Cracked C	OCC					
	Heavy Low Resid	Suncor - OSH	OSH					
	Heavy Low Resid	Suncor Synthetic Sour	OSS					
	Light Synthetic	Husky Synthetic Blend	HSB					
	Light Synthetic	Premium Albian Synthetic	PAS					
	Light Synthetic	Premium Newgrade Synthetic	NSA					
	Light Synthetic	Suncor - A	OSA					
	Light Synthetic	Syncrude	SYN					

US Reference Card, PADD IV

	Grade	Name/ Generic Acronym	API (deg)	Sulphur (wt%)	TAN (mgKOH/g)	MCR (wt%)	Viscosity at 15°C/ 60°F (cSt)	RVP (kPa)
CONVENTIONAL PRODUCTION	Condensate	Condensate Blend	CRW					
	Light Sweet	Mixed Blend Sweet	SW (MSW)					
	Light Sour	Light Sour Blend	LSB					
	Light Sour	Edmonton Low Sour	SLE					
	Medium Sour	Midale Blend	M (MSM)					
	Medium Sour	Mixed Blend Sour	SO (MSO)					
	Medium Sour	Edmonton High Sour	SHE	✓	✓	✓	✓	✓
	Heavy Sour	Bow River	BR (BRN)	✓	✓	✓	✓	✓
	Heavy Sour	Fosterton	F					
	Heavy Sour	Lloydminster Blend	LLB	✓	✓	✓	✓	✓
	Heavy Sour	Lloydminster Kerrobert	LLK	✓	✓	✓	✓	✓
BITUMEN BLENDS	Dilsynbit	Albian Heavy Synthetic	AHS					
	Dilbit	Cold Lake	CL					
	Dilbit	Black Rock Seal Heavy	SH					
	Dilbit	Smiley Coleville Heavy	SC					
	Dilbit	Wabasca Heavy	WH					
	Dilbit	Western Canadian Blend	WCB					
	Dilbit	Western Canadian Select	WCS					
SYNTHETICS	Heavy Low Resid	Suncor - Cracked C	OCC					
	Heavy Low Resid	Suncor - OSH	OSH					
	Heavy Low Resid	Suncor Synthetic Sour	OSS					
	Light Synthetic	Husky Synthetic Blend	HSB					
	Light Synthetic	Premium Albian Synthetic	PAS					
	Light Synthetic	Premium Newgrade Synthetic	NSA					
	Light Synthetic	Suncor - A	OSA					
	Light Synthetic	Syncrude	SYN					

US Reference Card, PADD V

	Grade	Name/ Generic Acronym	API (deg)	Sulphur (wt%)	TAN (mgKOH/g)	MCR (wt%)	Viscosity at 15°C/ 60°F (cSt)	RVP (kPa)
CONVENTIONAL PRODUCTION	Condensate	Condensate Blend	CRW					
	Light Sweet	Mixed Blend Sweet	SW (MSW)					
	Light Sour	Light Sour Blend	LSB					
	Light Sour	Edmonton Low Sour	SLE					
	Medium Sour	Midale Blend	M (MSM)					
	Medium Sour	Mixed Blend Sour	SO (MSO)					
	Medium Sour	Edmonton High Sour	SHE					
	Heavy Sour	Bow River	BR (BRN)					
	Heavy Sour	Fosterton	F					
	Heavy Sour	Lloydminster Blend	LLB					
	Heavy Sour	Lloydminster Kerrobert	LLK					
BITUMEN BLENDS	Dilsynbit	Albian Heavy Synthetic	AHS					
	Dilbit	Cold Lake	CL	✓	✓			
	Dilbit	Black Rock Seal Heavy	SH					
	Dilbit	Smiley Coleville Heavy	SC					
	Dilbit	Wabasca Heavy	WH					
	Dilbit	Western Canadian Blend	WCB					
	Dilbit	Western Canadian Select	WCS					
SYNTHETICS	Heavy Low Resid	Suncor - Cracked C	OCC					
	Heavy Low Resid	Suncor - OSH	OSH					
	Heavy Low Resid	Suncor Synthetic Sour	OSS					
	Light Synthetic	Husky Synthetic Blend	HSB					
	Light Synthetic	Premium Albian Synthetic	PAS					
	Light Synthetic	Premium Newgrade Synthetic	NSA					
	Light Synthetic	Suncor - A	OSA					
	Light Synthetic	Syncrude	SYN					

Next Steps

- Changes to current card
 - Crude streams to add or drop?
 - Properties to add or drop?
 - Suppliers contact list?
- Backfill and supplement US receipt quality
 - Recommend focusing on PADD II
- CQI willing to continue to manage data collection and preparation processes

Summary

- A quick reference guide for Canadian crudes has been prepared for the COQA
- Similar documents can be produced for US receipt quality
- This project cannot continue without the support and input of COQA members