

# Synthetic Sweet Blend (SYN) Pool Quality Specifications

Quality Specifications for Component Streams to the Synthetic Sweet Blend (SYN) Pool***								
Quality	Units	Min	Max	Typical*	Pool Typical Ex- Superior**	Referee Test Method	Test Frequency	Enbridge Response to Crude Not Meeting Quality Specs
<b>Existing Specifications</b>								
Density (15C)	kg/m <sup>3</sup>	>799	<876	850-875	864	ASTM D4052	Frequency: AR <sup>2</sup>	Delayed shut-in <sup>6</sup>
Viscosity	cSt	2	<20			ASTM D7042	Frequency: QR <sup>4</sup>	Delayed shut-in <sup>6</sup>
Olefins, total <sup>1</sup>	wt%		<1			H NMR	Frequency: R <sup>7</sup>	Immediate shut-in <sup>5</sup>
Vapour Pressure (VPCR <sub>4.1</sub> @ 37.8 C)	kPa		95,103 <sup>8</sup>			ASTM D6377	Frequency: QR <sup>4</sup>	Immediate shut-in <sup>5</sup>
S&W	vol%		0.5			ASTM D4007	Frequency: AR <sup>2</sup>	Immediate shut-in <sup>5</sup>
Organic Chlorides <sup>1</sup>	wppm		<1			ASTM D4929	Frequency: QR <sup>4</sup>	Immediate shut-in <sup>5</sup>
<b>Component Typical****</b>								
Sulphur, total	wt%			0.12-0.21	0.2	ASTM D4294	Frequency: AR <sup>2</sup>	Notification Process <sup>6</sup>
Naphtha (IBP-350F)	mass% recovery			11-18	13	ASTM D7169	Frequency: MR <sup>3</sup>	Notification Process <sup>6</sup>
Distillate (350-650F)	mass% recovery			37-48	43	ASTM D7169	Frequency: MR <sup>3</sup>	Notification Process <sup>6</sup>
Gas Oil (650-980F)	mass% recovery			37-49	41	ASTM D7169	Frequency: MR <sup>3</sup>	Notification Process <sup>6</sup>
Particulates	ppm			0-10		ASTM D5452-08	Frequency: AR <sup>2</sup>	Notification Process <sup>6</sup>
C4-	vol%			1.5-3.5		ASTM D2887		
<b>Other Requirements</b>								
● Stream must be produced by an Upgrader								

\*The expected or anticipated crude quality of individual components, understanding the fact that there may be, on occasion, variability outside of the range of the typical.

\*\*The estimated crude quality of a pool is based on a limited number of random composite samples of batches ex-Superior, timeframe July 2014 – March 2015.

\*\*\*SYN (Synthetic Sweet Blend) is the pool name (transport commodity) effective May 1st. SSP (Syn crude Sweet Premium) is a receipt commodity name that will replace the former SYN (Syn crude) as the receipt commodity.

\*\*\*\*Component Typical changes on February 27, 2014: Butane changed to C4- and residual typical removed.

## Notes

- For these properties, blending should not occur.
- AR: All Receipts of SYN component streams tested using weekly composite.
- MR: Monthly Random testing of SYN component streams.
- QR: Quarterly Random testing of SYN component streams. Upon violation perform probational testing at Enbridge discretion.
- Immediate shut-in upon identifying violation. Request third party Certificate of Analysis prior to subsequent receipt.
- Upon violation, notification to applicable party, increase monitoring. Consequence based on outcome of increased monitoring.
- R: Random testing. 2015 – Twice per year; 2016 onwards – Annually.
- Max 95kPa May 1<sup>st</sup> through Sept 15<sup>th</sup>  
Max 103kPa Sept 16<sup>th</sup> through Apr 30<sup>th</sup>