

Condensate Blend (CRW) Pool Quality Specifications

Quality Specifications for Component Streams to the Condensate Blend (CRW) Pool						
Quality	Units	Min	Max	Referee Test Method	Test Frequency	Enbridge Response to Crude Not Meeting Quality Specs
Existing Specifications						
Density (15C)	kg/m ³	600	775	ASTM D4052	Frequency: AR ²	Delayed shut-in ⁵
Viscosity (@ 7.5 deg C)	cSt		2	ASTM D7042	Frequency: R ⁶	Delayed shut-in ⁵
Olefins, total ¹	wt%		<1	H NMR	Frequency: R ⁶	Immediate shut-in ⁴
Vapour Pressure (DVPE)	kPa		103	ASTM D5191	Frequency: MR ³	Immediate shut-in ⁴
S&W	vol%		0.5	ASTM D4007	Frequency: AR ²	Immediate shut-in ⁴
Organic Chlorides ¹	wppm		<1	ASTM D4929	Frequency: R ⁶	Immediate shut-in ⁴
Sulphur, total	wt%		0.5	ASTM D4294	Frequency: AR ²	Reclassification Process ⁵
Micro Carbon Residue (MCR) ¹⁰	wt%		0.5	ASTM D4530	Frequency: MR ³	Delayed shut-in Process ⁵
Aromatics, total (BTEX)	vol%	2		PONAOX(U) ASTM D6729	Frequency: R ⁶	Delayed shut-in Process ^{5,9}
Mercaptans, volatile (cumulative C1, C2, C3)	ppmw S		175	ASTM D5623	Frequency: R ⁶	Delayed shut-in Process ⁵
H ₂ S (in liquid phase)	wppm		20	ASTM D5623	Frequency: R ⁶	Delayed shut-in Process ⁵
Benzene ⁷	vol%		1.6	PONAOX(U) ASTM D6729	Frequency: R ⁶	Delayed shut-in Process ⁵
Mercury ¹	wppb		10	UOP 938 (CVAA)	Frequency: R ⁶	Monitoring Process ⁸
Oxygenates	wppm		100	PONAOX(U) ASTM D6729	Frequency: R ⁶	Delayed shut-in Process ⁵
Filterable Solids	wppm		200	ASTM D4807 with "Procedure C"	Frequency: R ⁶	Delayed shut-in Process ⁵
Phosphorus, volatile	ppm	Per CAPP Guidelines		ICP AES D86 (250 cut)	Frequency: R ⁶	CAPP Guidance. Refer to AEB Directive 058. Violating test results communicated to the AEB

Notes

- For these properties, blending should not occur.
- AR: All Receipts of CRW component streams tested using weekly composite.
- MR: Monthly Random testing of CRW component streams.
- 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 composite testing per CRW component stream. 2015 – Twice per year; 2016 onwards – Annually.
- Benzene level of the CRW pool to be monitored. Results ≥ 1.25 vol% require Enbridge CRW Committee to reconvene and discuss appropriateness of benzene spec on CRW component streams.
- Monitoring and reporting only.
- For BTEX values < 2.0 vol%, a component stream condensate can still be accepted through completion of a Wiehe compatibility analysis
- MCR specification limit comes into effect March 1st, 2017