

Kearl Heavy Dilbit (KDB) Pool Quality Specifications

Quality Specifications for Component Streams to the Kearl Heavy Dilbit (KDB) Pool							
Quality	Units	Min	Max	Typical*	Referee Test Method	Test Frequency	Enbridge Response to Crude Not Meeting Quality Specs
Existing Specifications							
Density (15C)	kg/m ³	≥904	≤940	925	ASTM D4052	Frequency: AR ²	Delayed shut-in ⁶
Viscosity, at reference temp	cSt	≥100	≤350		ASTM D7042	Frequency: QR ⁴	Delayed shut-in ⁶
Olefins, total ¹	mass%		<1		H NMR	Frequency: R ⁷	Immediate shut-in ⁵
Vapour Pressure (VPCR _{4.1} @ 37.8 C)	kPa		70/76 ⁸		ASTM D6377	Frequency: QR ⁴	Immediate shut-in ⁵
S&W	vol%		0.5		ASTM D4007	Frequency: AR ²	Immediate shut-in ⁵
Organic Chlorides in naphtha fraction ¹	wppm		<1		ASTM D4929	Frequency: QR ⁴	Immediate shut-in ⁵
Component Typical							
MCR	wt%			9.14	ASTM D4530	Frequency: MR ³	Notification Process ⁶
TAN ⁹	mgKOH/g			1.88	ASTM D664	Frequency: MR ³	Notification Process ⁶
Nickel	mg/L			52	ASTM D5708-05	Frequency: MR ³	Notification Process ⁶
Vanadium	mg/L			136	ASTM D5708-05	Frequency: MR ³	Notification Process ⁶
Other Requirements							
● Production method: Mined							

*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.

Notes

1. For these properties, blending should not occur.
2. AR: All Receipts of KDB component streams tested using weekly composite.
3. MR: Monthly Random testing of KDB component streams.
4. QR: Quarterly Random testing of KDB component streams. Upon violation perform probational testing at Enbridge discretion.
5. Immediate shut-in upon identifying violation. Request third party Certificate of Analysis prior to subsequent receipt.
6. Upon violation, notification to applicable party, increase monitoring. Consequence based on outcome of increased monitoring.
7. R: Annual Random testing.
8. Max 70kPa May 1st through November 30th
Max 76kPa December 1st through April 30th
9. Heavy High TAN Crude: TAN > 1.1 mgKOH/g
Heavy Crude: TAN ≤ 1.1 mgKOH/g