



Commodity Testing Summary

Last Updated: March 1, 2025

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Commodity Testing Summary

| Transport Commodity | Quality Category | Test |
|--|------------------|-------------|
| Refined Products (Gasoline and Distillate) | Products | 2 |
| Condensate Blend (CRW) | Condensate | 3,6,7 |
| Suncor (OSN) | | 3, 6, 7 |
| Hardisty Synthetic Crude (HSC) | Light Synthetic | 1, 2, 3 |
| Newgrade Synthetic Blend (NSA, NSX) | | 1, 2, 3 |
| Premium Synthetic (PSY) | | 1, 2, 3, 8* |
| Synthetic Sweet Blend (SYN) | | 1, 2, 3, 8* |
| Suncor C/D/M (OSC, OSD) | | 1, 2, 3 |
| Shell Synthetic Light (SSX) | | 1, 2, 3 |
| Mixed Blend Sweet (MSW) | | Sweet |
| U.S. Sweet – Clearbrook (UHC) | 1, 2, 3, 4 | |
| U.S. Sweet – Lewiston (UHL) | 1, 2, 3, 4 | |
| U.S. Sweet – Mokena (UHM) | 1, 2, 3, 4 | |
| Light Sour Blend (LSB) | Light Sour | 1, 2, 3, 5 |
| Medium Sour Blend (MSB) | Medium Sour | 1, 2, 3, 5 |
| Midale (M) | | 1, 2, 3 |
| U.S. Sour - Mokena (UOM) | | 1, 2, 3, 5 |

General Notes:

Crude tests referenced in Table 6 are detailed in Tables 6A through 6E respectively.

*Test only performed when commodity used as Line 1 buffer.

Commodity Testing Summary (Continued)

| Transport Commodity | Quality Category | Test |
|----------------------------------|--------------------------|---------|
| Albian Heavy Synthetic (AHS) | Heavy | 1, 2, 3 |
| Cold Lake (CL) | | 1, 2, 3 |
| Conventional Heavy (CHV) | | 1, 2, 3 |
| Premium Conventional Heavy (PCH) | | 1, 2, 3 |
| Western Canadian Select (WCS) | | 1, 2, 3 |
| Western Heavy Blend (WHB) | | 1, 2, 3 |
| U.S. Heavy - Mokena (UVM) | | 1,2,3 |
| Albian Muskeg River Heavy (AMH) | Heavy High Tan Dilbit | 1, 2, 3 |
| Access Western Blend (AWB) | | 1, 2, 3 |
| Borealis Heavy Blend (BHB) | | 1, 2, 3 |
| Christina Lake Dilbit (CDB) | | 1,2,3 |
| Canadian Natural High-Tan (CNX) | | 1, 2, 3 |
| Fort Hills Dilbit Blend (FRB) | | 1, 2, 3 |
| IOL Kearl Heavy (KDB) | | 1, 2, 3 |
| Long Lake Dilbit Blend (PDH) | | 1, 2, 3 |
| Seal Heavy (SH) | | 1, 2, 3 |
| Surmont Heavy Dilbit (SHD) | | 1, 2, 3 |
| Western Canada Dilbit (WDB) | | 1, 2, 3 |
| U.S Dilbit – Superior (UDS) | 1, 2, 3 | |
| Surmont Mix A (SMA) | Heavy High Tan Synbit | 1, 2, 3 |
| Synbit Blend (SYB) | | 1, 2, 3 |
| Albian Vacuum Blend (AVB) | Heavy Low Resid | 1, 2, 3 |
| Suncor H (OSH) | | 1, 2, 3 |
| Suncor Cracked C (OCC) | Cracked | 1, 2, 3 |
| Pine Bend Special (PBS) | | 1, 2, 3 |
| Sarnia Special (SSS) | Other | 1, 2, 3 |

General Notes:

Crude tests referenced in Table 6 are detailed in Tables 6A through 6E respectively.

* Test only performed when commodity used as Line 1 buffer.

Table 6A – General Testing

| Test | Frequency | Crude Types | Tests | Reporting |
|-------------|------------------------------|--------------------------------|--|---|
| 1 | On Receipt | All | S&W, density | Reported by receipt ticket to feeder pipeline. |
| | Weekly: Random | All heavy crudes | Viscosity | Reported to feeder on exception basis only on violation of tariff quality specifications. |
| | | Select light and medium crudes | Viscosity – tested during winter months to determine tariff category | Reported to feeder on exception basis only if viscosity exceeds classification category |
| 2 | On Delivery | All | S&W, density | Reported by delivery ticket to delivery facility. |
| | On Receipt and Delivery | Refined products and NGL | Testing and reporting are in accordance with Enbridge’s Book 5 Operations Manual. | |
| 3 | Annual Crude Characteristics | All (not spot commodities) | Density, Vapor Pressure, sulphur, viscosity (10°C, 20°C, 30°C, 40°C, 45°C), pour point | Annual crude characteristics report. |
| 3A | Annually | Random | Organic Chloride | Reported to feeder on exception basis only on violation of quality specifications. |
| | Annually | Random | Olefinic content | |

Table 6B - Sweet Streams Testing

| Test | Location | Frequency | Test | Comments | Reporting |
|------|----------|-----------------------------|---------------------|---|---|
| 4 | Receipt | Weekly: Random | Density, sulphur | Selected batch receipt composite for MSW components | <ul style="list-style-type: none"> Reported to feeder on exception basis only on violation of stream quality specifications per MSW Receipt Quality Standard procedures Enbridge issues monthly Crude Equalization Program report by the 20th day of the following month |
| | | 1 Annually | Phosphorus | Random Composite per MSW component stream | |
| | | Selected receipt batches | Density, sulphur | U.S. Sweet (UHC, UHL) | Reported to feeder on exception basis only on violation of stream quality specifications per MSW Receipt Sulphur Standard procedures |
| | | All receipt batches | Density, sulphur | U.S. Sweet (UHM) | Reported to feeder on exception basis only on violation of stream quality specifications per MSW Receipt Sulphur Standard procedures |

Table 6C - Sour Streams Testing

| Test | Location | Frequency | Test | Comments | Reporting |
|------|----------|-------------------|---------------------|---|--|
| 5 | Receipt | Weekly: Random | Density, sulphur | Selected batch receipt composite for feeder components to MSB, M, LSB | Enbridge issues monthly Crude Equalization Program report by the 20 th day of the following month |

Table 6D - Condensate Sampling Procedures and Testing – Edmonton Terminal

| Test | Location | Composite Sample | | Monthly Testing | | Annual Testing ¹ | | Reporting |
|------|------------------------|---|-----------------------------|-----------------|----------------|---|--|---|
| | | Collection Frequency | Tests | Sample Type | Test | Sample Type | Test | |
| 6 | Receipts | Each batch - continuous & batched feeders | S&W, Density | 1 spot/month | Vapor pressure | Random Composite per CRW component stream | Viscosity, Olefins, Organic Chlorides, Aromatics, Mercaptans, H ₂ S, Benzene, Mercury, Oxygenates, Total Suspended Solids, Phosphorous (Volatile) | Enbridge issues monthly Condensate Equalization Program report by the 20 th day of the following month |
| | | Weekly: Random - per feeder: | Light ends (Butane), Sulfur | | | | | |
| 7 | Deliveries at Edmonton | Each batch - continuous & batched feeders | S&W, Density | 1 spot/month | Vapor pressure | | | S&W and density reported by delivery ticket to delivery facility |
| | | Weekly: Random - per delivery facility | Light ends (Butane), Sulfur | 1 spot/month | | | | S&W and density reported by delivery ticket to delivery facility |

Note 1: Additional random testing will occur at Enbridge's discretion based on results.

Table 6E – Line 1 Synthetic Buffer Testing

| Test | Location | Frequency | Test | Reporting |
|------|----------|----------------|--|---|
| 8 | Edmonton | Batch pump out | Density, copper strip and particulates | Reported to feeder on exception basis only on violation of Line 1 Quality Guidelines in accordance with Enbridge's Book 5 Operations Manual |