

Control #	013620230720	009220230127	011020221103	011020220916	004220220606
Date Taken	07/12/2023	01/17/2023	10/26/2022	09/06/2022	05/31/2022
Service Meter Reading	3316	3073	2854	2589	2355
Fluid Run Time	243	219	265	234	175
Fluid Added Gal / Qts	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Fluid Status	Changed	Changed	Changed	Changed	Changed
Filter Changed	Yes	Yes	Yes	Yes	Yes
Anti-Freeze	Negative	Negative	Negative	Negative	Negative
Fuel	Negative	Negative	Negative	Negative	Negative
Water	Negative	Negative	Negative	Negative	Negative
Visc 100C	12.3	12.9	13.3	13.0	13.4
Soot	1	2	1	1	
Oxidation	16	16	17	15	16
Nitration	15	13	14	12	12
Iron (FE)	38	48	41	18	25
Chromium (CR)	1	1	1	1	1
Lead (PB)	0	1	0	0	1
Copper (CU)	4	5	6	7	23
Tin (SN)	0	2	2	7	7
Aluminum (AL)	3	3	4	0	4
Nickel (NI)	1	0	0	1	1
Silver (AG)	0	0	0	0	0
Silicon (SI)	5	4	5	4	6
Potassium (K)	2	1	1	2	0
Sodium (NA)	3	4	4	3	4
Boron (B)	222	337	235	412	410
Magnesium (MG)	514	399	324	373	421
Calcium (CA)	1542	1485	1377	1681	1571
Barium (BA)	2	2	0	0	0
Phosphorus (P)	973	1081	1026	1080	1092
Zinc (ZN)	1114	1218	1364	1273	1242
Molybdenum (MO)	74	103	94	92	88
Titanium (TI)	0	0	0	0	0
Vanadium (V)	2	2	1	3	3
Fuel %	0	0	0	0	0



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Phoenix, AZ 85003 480-839-5221
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Normal

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08/10/2023

Make / Model

CAT D8T

Unit/Serial

D-98/FMC01357

Compartment

Diesel Engine

Fluid Type

CHEVRON 15W40

WO / Reference

Current Interpretation

Iron level has decreased.
Viscosity is in the Sae 30 range (9.30cst To 12.49cst). Recommend resample normal interval to continue monitoring this trend.

0000000057

Performance Equipment

Attn: James Rinehart

2114 East I-25 Frontage Rd

Erie, CO 80516

Interpretation from sample # 009220230127 (Reportable)

Iron level has increased. Resample to monitor wear trend.

Interpretation from sample # 011020221103 (Reportable)

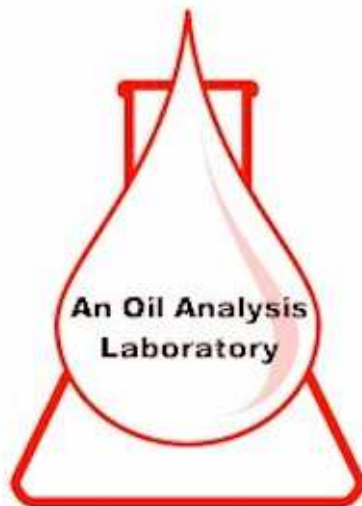
Iron level has increased. Resample to monitor wear trend.

Interpretation from sample # 011020220916 (Normal)

No abnormal wear or contaminants detected.

Interpretation from sample # 004220220606 (Normal)

Wear metal(s) increased, possibly due to increased oil time. Resample to monitor trend.



Quality Oil Analysis Since 1985

Control # 005620230127 011720220916 004220211118

Date Taken 01/17/2023 09/06/2022 11/10/2021

Service Meter Reading 3073 2589 2180

Fluid Run Time 893 409 0

Fluid Added Gal / Qts 0 / 0 0 / 0 0 / 0

Fluid Status Sampled Sampled Changed

Filter Changed Yes Yes Yes

Water Negative Negative Negative

Visc 100C 6.7 7.1 7.0

Iron (FE) 16 11 19

Chromium (CR) 1 1 1

Lead (PB) 2 2 4

Copper (CU) 8 6 8

Tin (SN) 3 0 0

Aluminum (AL) 10 3 6

Nickel (NI) 0 1 1

Silver (AG) 0 0 0

Silicon (SI) 27 13 18

Potassium (K) 4 2 4

Sodium (NA) 5 3 1

Boron (B) 5 13 4

Magnesium (MG) 32 30 14

Calcium (CA) 2330 2356 907

Barium (BA) 3 0 0

Phosphorus (P) 759 775 548

Zinc (ZN) 922 951 685

Molybdenum (MO) 4 3 2

Titanium (TI) 0 0 1

Vanadium (V) 0 0 0

4 microns 32465 9269 33389

6 microns 3590 755 2153

14 microns 400 37 163

21 microns 238 19 117

38 microns 60 10 83

70 microns 9 6 20

ISO 22/19/16 20/17/12 22/18/15



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Reportable

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08/10/2023

Make / Model

CAT D8T

Unit/Serial

D-98/FMC01357

Compartment

Hydraulic

Fluid Type

CHEVRON 10

WO / Reference**Current Interpretation**

Wear metal(s) increased, possibly due to increased oil time. Silicon level increased. Check all dirt access points. Particle Count level(s) have increased since last sample. Change / service oil filter(s), if not already done. Recommend use off-line filtration to remove contaminants. Recommend resample normal interval to continue monitoring this trend.

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Performance Equipment

Attn: James Rinehart

2114 East I-25 Frontage Rd

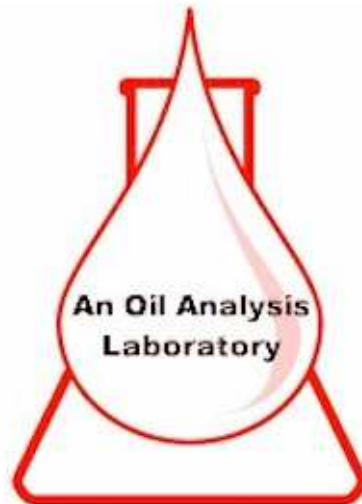
Erie, CO 80516

Interpretation from sample # 011720220916 (Normal)

No abnormal wear or contaminants detected.

Interpretation from sample # 004220211118 (Normal)

Oil time unknown. Visible debris present in sample. No abnormal wear detected. Recommend resample normal interval to continue monitoring this trend.



Quality Oil Analysis Since 1985

Control # 007020230127 002920220916 011720211118

Date Taken	01/17/2023	09/06/2022	11/10/2021
Service Meter Reading	3073	2589	2182
Fluid Run Time	891	407	0
Fluid Added Gal / Qts	0 / 0	0 / 0	0 / 0
Fluid Status	Changed	Sampled	Changed
Filter Changed	Yes	No	Yes
Water	Negative	Negative	Negative
Visc 100C	14.7	16.7	24.4
Iron (FE)	79	33	40
Chromium (CR)	1	1	1
Lead (PB)	0	2	2
Copper (CU)	0	0	0
Tin (SN)	2	0	3
Aluminum (AL)	0	0	0
Nickel (NI)	0	0	0
Silver (AG)	0	0	0
Silicon (SI)	34	32	3
Potassium (K)	0	0	1
Sodium (NA)	5	6	5
Boron (B)	19	31	91
Magnesium (MG)	27	34	31
Calcium (CA)	3217	3362	561
Barium (BA)	2	0	0
Phosphorus (P)	838	892	364
Zinc (ZN)	996	1030	131
Molybdenum (MO)	4	5	5
Titanium (TI)	0	0	0
Vanadium (V)	0	0	0
PQ Index	30	14	19



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Normal

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08/10/2023

Make / Model

CAT D8T

Unit/Serial

D-98/FMC01357

Compartment

Left Final

Fluid Type

CHEVRON 50

WO / Reference

Current Interpretation

No abnormal wear or contaminants detected. Viscosity is in the Sae 40 range (12.50cst to 16.29cst).

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Performance Equipment

Attn: James Rinehart

2114 East I-25 Frontage Rd

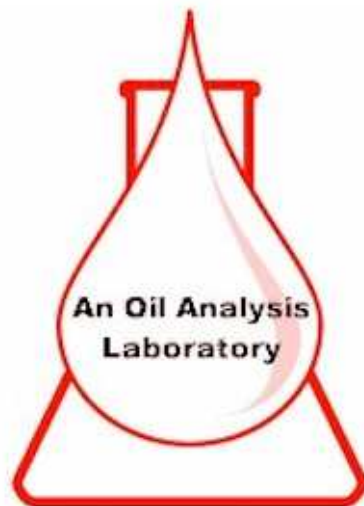
Erie, CO 80516

Interpretation from sample # 002920220916 (Normal)

No abnormal wear or contaminants detected. Results show that this oil is different than previous sample.

Interpretation from sample # 011720211118 (Normal)

No abnormal wear or contaminants detected.



Quality Oil Analysis Since 1985

Control # 007120230127 003020220916 011820211118

Date Taken	01/17/2023	09/06/2022	11/10/2021
Service Meter Reading	3073	2589	2182
Fluid Run Time	891	407	0
Fluid Added Gal / Qts	0 / 0	0 / 0	0 / 0
Fluid Status	Changed	Sampled	Changed
Filter Changed	Yes	No	Yes
Water	Negative	Negative	Negative
Visc 100C	16.9	17.4	26.2
Iron (FE)	60	23	30
Chromium (CR)	1	1	1
Lead (PB)	0	0	3
Copper (CU)	0	0	0
Tin (SN)	2	0	5
Aluminum (AL)	0	1	0
Nickel (NI)	0	0	1
Silver (AG)	0	0	0
Silicon (SI)	35	36	4
Potassium (K)	0	0	1
Sodium (NA)	5	9	5
Boron (B)	19	33	93
Magnesium (MG)	28	32	32
Calcium (CA)	3165	3557	415
Barium (BA)	2	0	0
Phosphorus (P)	850	949	328
Zinc (ZN)	945	1079	92
Molybdenum (MO)	4	4	5
Titanium (TI)	0	0	0
Vanadium (V)	0	0	0
PQ Index	22	10	14



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Normal

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08/10/2023

Make / Model

CAT D8T

Unit/Serial

D-98/FMC01357

Compartment

Right Final

Fluid Type

CHEVRON 50

WO / Reference

Current Interpretation

No abnormal wear or contaminants detected.

0000000057

Performance Equipment

Attn: James Rinehart

2114 East I-25 Frontage Rd

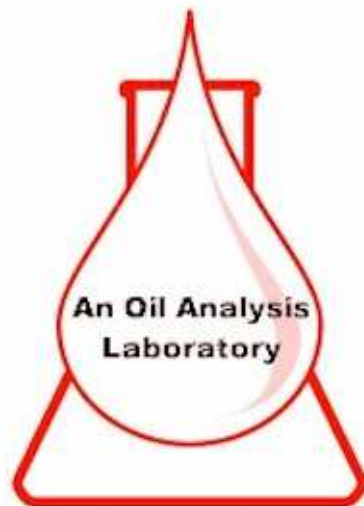
Erie, CO 80516

Interpretation from sample # 003020220916 (Normal)

No abnormal wear or contaminants detected. Results show that this oil is different than previous sample.

Interpretation from sample # 011820211118 (Normal)

No abnormal wear or contaminants detected.



Quality Oil Analysis Since 1985

Control # 006120230127 012220220916 005120211118

Date Taken	01/17/2023	09/06/2022	11/10/2021
Service Meter Reading	3073	2589	2180
Fluid Run Time	893	409	0
Fluid Added Gal / Qts	0 / 0	0 / 0	0 / 0
Fluid Status	Changed	Sampled	Changed
Filter Changed	Yes	Yes	Yes
Water	Negative	Negative	Negative
Visc 100C	10.8	10.4	10.4
Iron (FE)	12	11	21
Chromium (CR)	0	0	0
Lead (PB)	0	1	1
Copper (CU)	1	0	3
Tin (SN)	1	0	0
Aluminum (AL)	0	0	0
Nickel (NI)	0	0	1
Silver (AG)	0	0	0
Silicon (SI)	3	3	9
Potassium (K)	0	0	0
Sodium (NA)	4	3	4
Boron (B)	0	6	7
Magnesium (MG)	16	15	23
Calcium (CA)	3615	3688	3784
Barium (BA)	2	0	0
Phosphorus (P)	911	939	895
Zinc (ZN)	1092	1144	1083
Molybdenum (MO)	1	1	3
Titanium (TI)	0	0	0
Vanadium (V)	0	0	0
4 microns	5153	20788	30973
6 microns	835	777	1159
14 microns	54	72	32
21 microns	24	43	12
38 microns	6	14	0
70 microns	1	4	0
ISO	20/17/13	22/17/13	22/17/12



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Normal

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08/10/2023

Make / Model

CAT D8T

Unit/Serial

D-98/FMC01357

Compartment

Transmission

Fluid Type

CHEVRON 30

WO / Reference

Current Interpretation

No abnormal wear or contaminants detected.

0000000057

Performance Equipment

Attn: James Rinehart

2114 East I-25 Frontage Rd

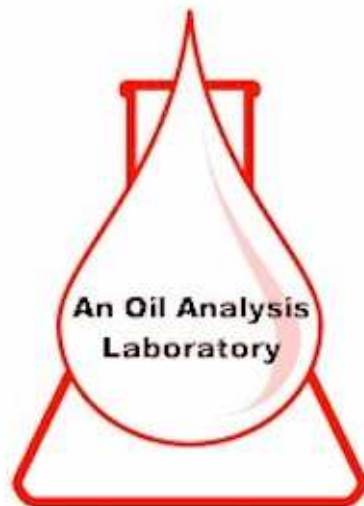
Erie, CO 80516

Interpretation from sample # 012220220916 (Normal)

No abnormal wear or contaminants detected.

Interpretation from sample # 005120211118 (Normal)

No abnormal wear or contaminants detected.



Quality Oil Analysis Since 1985