



# RAPPORT D'ANALYSE D'HUILE

|                |               |
|----------------|---------------|
| USURE          | <b>NORMAL</b> |
| CONTAMINATION  | <b>NORMAL</b> |
| ÉTAT DU FLUIDE | <b>NORMAL</b> |

Secteur

## CANADIAN COAST GUARD

Identité de la machine

### AMUNDSEN (S/N 524101596)

Composant

### Moteur diesel Droit(e)

Fluid

### PETRO CANADA DURON E XL 15W40 (300 LTR)

### RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. this testkit includes BN to determine the suitability of the oil for continued use.

| Test                | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|---------------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Numéro d'échant.    |     | Client Info |           | <b>WC0878512</b>   | WC0829227   | WA0019035   |
| Date d'échant.      |     | Client Info |           | <b>16 Mar 2024</b> | 24 Oct 2023 | 01 Dec 2022 |
| Âge d la Machine    | hrs | Client Info |           | <b>28582</b>       | 28456       | 28118       |
| Âge de l'huile      | hrs | Client Info |           | <b>462</b>         | 0           | 3           |
| Âge du filtre       | hrs | Client Info |           | <b>462</b>         | 28120       | 3           |
| Huile changée       |     | Client Info |           | <b>Not Changd</b>  | Not Changd  | N/A         |
| Filtre changé       |     | Client Info |           | <b>Not Changd</b>  | N/A         | N/A         |
| Statut de l'échant. |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

### USURE

Component wear rates appear to be normal (unconfirmed).

|             |        |               |      |             |      |     |
|-------------|--------|---------------|------|-------------|------|-----|
| Fer         | ppm    | ASTM D5185(m) | >100 | <b>3</b>    | 3    | 2   |
| Chrome      | ppm    | ASTM D5185(m) | >20  | <b>0</b>    | 0    | 0   |
| Nickel      | ppm    | ASTM D5185(m) | >4   | <b>0</b>    | 0    | 0   |
| Titane      | ppm    | ASTM D5185(m) |      | <b>0</b>    | 0    | <1  |
| Argent      | ppm    | ASTM D5185(m) | >3   | <b>0</b>    | <1   | 0   |
| Aluminium   | ppm    | ASTM D5185(m) | >20  | <b>1</b>    | 1    | 2   |
| Plomb       | ppm    | ASTM D5185(m) | >40  | <b>0</b>    | <1   | <1  |
| Cuivre      | ppm    | ASTM D5185(m) | >330 | <b>2</b>    | 2    | 1   |
| Étain       | ppm    | ASTM D5185(m) | >15  | <b>0</b>    | 0    | 0   |
| Vanadium    | ppm    | ASTM D5185(m) |      | <b>0</b>    | 0    | 0   |
| Métal blanc | scalar | Visual*       | NONE | <b>NONE</b> | NONE | --- |
| Bronze      | scalar | Visual*       | NONE | <b>NONE</b> | NONE | --- |

### CONTAMINATION

There is no indication of any contamination in the oil.

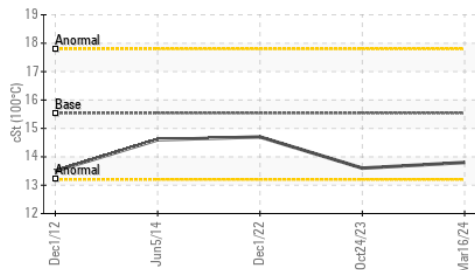
|                |          |               |       |                |       |       |
|----------------|----------|---------------|-------|----------------|-------|-------|
| Silicium       | ppm      | ASTM D5185(m) | >25   | <b>&lt;1</b>   | 2     | 5     |
| Potassium      | ppm      | ASTM D5185(m) | >20   | <b>&lt;1</b>   | 0     | <1    |
| Essence        |          | WC Method     | >5    | <b>&lt;1.0</b> | <1.0  | <1.0  |
| L'eau          |          | WC Method     | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol         |          | WC Method     |       | <b>NEG</b>     | NEG   | NEG   |
| % de suie      | %        | ASTM D7844*   | >3    | <b>0</b>       | 0     | 0     |
| Nitration      | Abs/cm   | ASTM D7624*   | >20   | <b>7.1</b>     | 7.0   | 6.6   |
| Sulfatation    | Abs/.1mm | ASTM D7415*   | >30   | <b>18.5</b>    | 18.2  | 18.2  |
| Limon          | scalar   | Visual*       | NONE  | <b>VLITE</b>   | NONE  | ---   |
| Débris         | scalar   | Visual*       | NONE  | <b>NONE</b>    | NONE  | ---   |
| Saleté         | scalar   | Visual*       | NONE  | <b>NONE</b>    | NONE  | ---   |
| Apparence      | scalar   | Visual*       | NORML | <b>NORML</b>   | NORML | ---   |
| Odeur          | scalar   | Visual*       | NORML | <b>NORML</b>   | NORML | NORML |
| Eau émulsifiée | scalar   | Visual*       | >0.2  | <b>NEG</b>     | NEG   | NEG   |

### ÉTAT DU FLUIDE

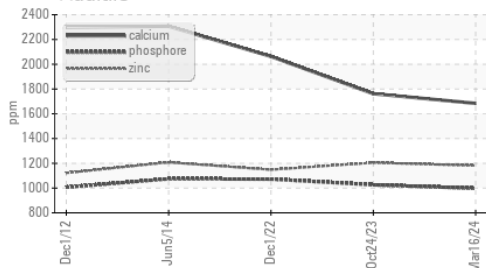
Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service (unconfirmed).

|            |          |               |       |              |      |      |
|------------|----------|---------------|-------|--------------|------|------|
| Sodium     | ppm      | ASTM D5185(m) |       | <b>1</b>     | 1    | 1    |
| Bore       | ppm      | ASTM D5185(m) | 1     | <b>31</b>    | 36   | 61   |
| Baryum     | ppm      | ASTM D5185(m) | 0     | <b>&lt;1</b> | <1   | <1   |
| Molybdène  | ppm      | ASTM D5185(m) | 60    | <b>32</b>    | 30   | 14   |
| Manganèse  | ppm      | ASTM D5185(m) | 0     | <b>0</b>     | 0    | <1   |
| Magnésium  | ppm      | ASTM D5185(m) | 1010  | <b>529</b>   | 475  | 207  |
| Calcium    | ppm      | ASTM D5185(m) | 1070  | <b>1684</b>  | 1762 | 2063 |
| Phosphore  | ppm      | ASTM D5185(m) | 1150  | <b>998</b>   | 1026 | 1072 |
| Zinc       | ppm      | ASTM D5185(m) | 1270  | <b>1181</b>  | 1205 | 1148 |
| Soufre     | ppm      | ASTM D5185(m) | 2060  | <b>2855</b>  | 3014 | 3272 |
| Oxydation  | Abs/.1mm | ASTM D7414*   | >25   | <b>14.6</b>  | 14.1 | 12.6 |
| Visc 100°C | cSt      | ASTM D7279(m) | 15.54 | <b>13.8</b>  | 13.6 | 14.7 |

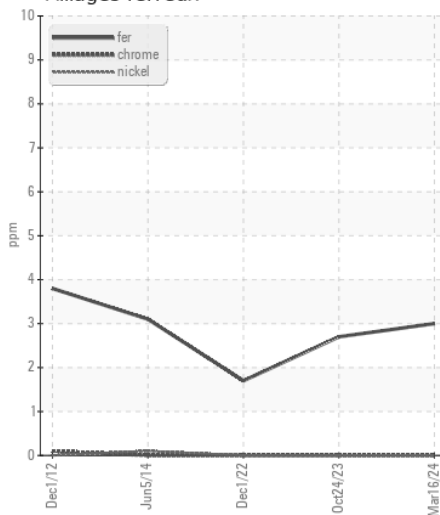
Viscosité 100°C



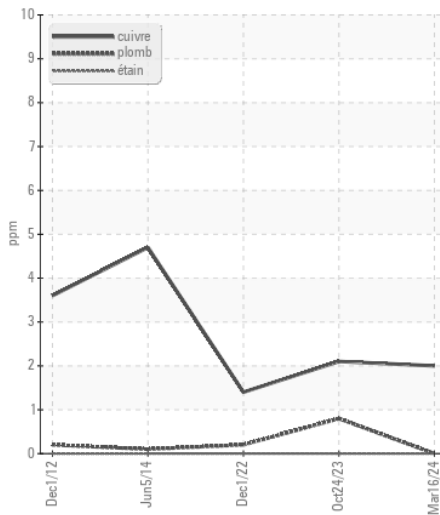
Additifs



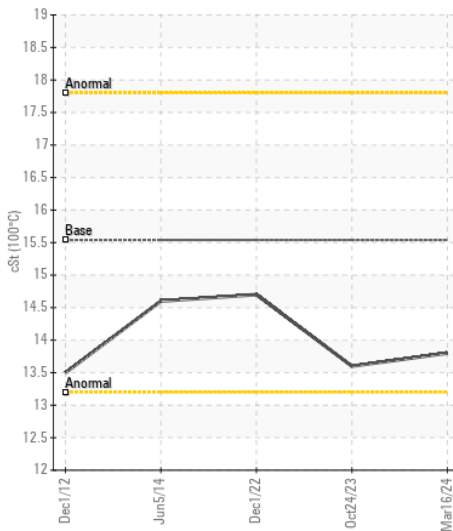
Alliages ferreux



Métaux non-ferreux



Viscosité 100°C



ISO 17025:2017  
Accredited  
Laboratory

Laboratoire : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

N° d'échantillon : WC0878512

N° de laboratoire : 02624159

Numéro unique : 5749278

Analyse : MAR 1

Reçu : 25 Mar 2024

Tested : 25 Mar 2024

Diagnostiqué : 25 Mar 2024 - Kevin Marson

Canadian Coast Guard

CCGS Amundsen, 101 Boul. Champlain

Quebec, QC

CA G1K 7Y7

Contact: Chief Engineer

amundsense@ccgs-ngcc.gc.ca

T: (418)953-8233

F: x:

Pour discuter ce rapport, contacter le service à la clientèle au 1-800-268-2131.

Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

La validez de los resultados y la interpretación se basan en la muestra y la información proporcionada.