



Report of the Month

What's up with sodium in this Continental IO-550?

To learn where the elements are coming from, [click here](#) and scroll down.

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|-------------|--------------------------------|--|
| UNIT | MAKE/MODEL: Continental IO-550 | OIL TYPE & GRADE: Phillips XC (A/C) 20W/50 |
| | FUEL TYPE: Gasoline (Leaded) | OIL USE INTERVAL: 20 Hours |
| | ADDITIONAL INFO: Cirrus SR22 | |

COMMENTS Wear metals all look great in this April sample. We talked about calcium and phosphorus last time. Phosphorus is even higher here, but adding a little W100 plus or Phillips Victory or Aeroshell 15W/50 would do it. Or maybe there's more phosphorus in the CamGuard these days. It's still harmless. Sodium is kind of a surprise. We peeked ahead to your next sample and it doesn't persist, so we're wondering if it's from something like using a salty fast-food napkin to wipe the dipstick or something. With wear looking great, it certainly doesn't look like an issue.

| | MI/HR on Oil | 20 | UNIT / LOCATION AVERAGES | 32 | 37 | 37 | 42 | 27 | UNIVERSAL AVERAGES |
|--------------------------------------|-------------------|-----------|---------------------------------|-----------|-----------|-----------|------------|-----------|---------------------------|
| | MI/HR on Unit | 2,240 | | 2,222 | 2,190 | 2,153 | 2,080 | 2,035 | |
| | Sample Date | 4/20/2021 | | 3/17/2021 | 11/7/2020 | 7/28/2020 | 10/27/2019 | 7/30/2019 | |
| | Make Up Oil Added | 3 qts | | 6 qts | 3 qts | 3 qts | 3 qts | 2.5 qts | |
| ELEMENTS IN PARTS PER MILLION | ALUMINUM | 4 | 5 | 7 | 6 | 4 | 2 | 2 | 9 |
| | CHROMIUM | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 7 |
| | IRON | 23 | 30 | 28 | 31 | 32 | 22 | 20 | 48 |
| | COPPER | 2 | 3 | 1 | 2 | 2 | 2 | 2 | 7 |
| | LEAD | 2536 | 4373 | 3767 | 3929 | 3960 | 3623 | 3231 | 4752 |
| | TIN | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| | MOLYBDENUM | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 |
| | NICKEL | 3 | 5 | 5 | 4 | 3 | 3 | 3 | 8 |
| | MANGANESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | SILVER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | TITANIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | POTASSIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | BORON | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 |
| | SILICON | 3 | 5 | 3 | 3 | 3 | 4 | 4 | 7 |
| | SODIUM | 21 | 4 | 2 | 2 | 2 | 3 | 2 | 1 |
| | CALCIUM | 71 | 54 | 71 | 67 | 80 | 95 | 50 | 24 |
| | MAGNESIUM | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| PHOSPHORUS | 165 | 193 | 136 | 40 | 56 | 78 | 56 | 458 | |
| ZINC | 5 | 5 | 4 | 4 | 5 | 5 | 3 | 6 | |
| BARIIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Values
Should Be*

| | | | | | | | | |
|-------------------|-----------------------|-------|-----------|-------|-------|-------|-------|-------|
| PROPERTIES | SUS Viscosity @ 210°F | 88.3 | 86-105 | 88.3 | 91.2 | 91.7 | 89.0 | 90.2 |
| | cSt Viscosity @ 100°C | 17.57 | 17.0-21.8 | 17.58 | 18.26 | 18.39 | 17.75 | 18.02 |
| | Flashpoint in °F | 445 | >430 | 460 | 435 | 470 | 470 | 470 |
| | Fuel % | <0.5 | <1.0 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Antifreeze % | - | - | - | - | - | - | - |
| | Water % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Insolubles % | 0.4 | <0.6 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 |
| | TBN | | | | | | | |
| | TAN | | | | | | | |
| | ISO Code | | | | | | | |

The owner writes: We had been out of sample containers for a brief period, and for a couple of these samples I used some handy plastic containers as I have done in the past -- containers that formerly contained (individually-wrapped) bullion cubes. I am finding mixed information about whether these cubes contain phosphorus (seemingly not) but they MOST DEFINITELY contain sodium. My chemistry lab professors are feeling a disturbance in the force. I suspect that they are disappointed. Good catch. I'm all the more confident that we are in good hands.