

OIL ANALYSIS**

Ongoing oil analysis gives you detailed information about your equipment’s oil condition, internal wear, and contamination levels, as well as wear metal trending data that quickly spots deviations and monitors gradual changes in concentration levels. Our technicians conduct comprehensive tests for: engine, transmission, hydraulic, final drive, differentials, gearboxes, compressors and more.

OPTION I

22 elements* • Infrared • Viscosity • Physical detection of water/fuel/glycol • Percent of fuel • Particle count for non-engine compartments

- **Single price S•O•S Single: \$13.00**
- RS6: **\$98.00** (6 sample kits, gun and tubing)
- RS10: **\$120.00** (10 sample kits decreases price to **\$12.00** each)
- Sample gun: **\$18.92**

OPTION II

22 elements* • Infrared • Viscosity • Physical detection of water/fuel/glycol • Percent of fuel • Particle count for non-engine compartments • PLUS, Total Acid Number (TAN)

or Total Base Number(TBN) • **Single price Option II: \$25.00**

OPTION III

22 elements* • Infrared • Viscosity • Physical detection of water/fuel/glycol • Percent of fuel • Particle count for non-engine compartments • PLUS, Total Acid Number(TAN) **and** Total Base Number(TBN) • **Single price Option III: \$29.50**

ADDITIONAL TESTING AVAILABLE (MUST CALL FIRST):

- % Moisture in Oil: **\$30.00**
- Total Base Number(TBN): **\$8.00**
- Total Acid Number(TAN): **\$8.00**
- Filter patch/microscope: Price will vary.

⇒ S•O•S SM OIL ANALYSIS	
TESTS	TEST METHOD
Lube Oil Analysis (description below)	
22 elements*	ASTM D5185
Oil Condition Analysis	ASTM E2412-04 equivalent
Viscosity	ASTM D445/D446
Percent of Fuel Content	ASTM D3524
Particle Count	ISO11171:1999 reported per ISO 4406
% Fuel in Engine Oil	ASTM D3524
Total Base Number (TBN)	ASTM 2896
Total Acid Number (TAN)	ASTM D664
% Moisture in Oil	ASTM D7546

*Elements include: Cu, Ba, B, Cd, Fe, Cr, Pb, Al, Si, Mo, Mg, Mn, Ag, Ti, V, Zn, Sn, Na, Ca, P, K & Ni

COOLANT ANALYSIS**

Inadequate cooling system maintenance can eventually lead to system problems or even engine failure. Altorfer’s S•O•SSM Services offer a two-level coolant program to determine if your coolant has the right chemical balance for maximum system protection and cooling efficiency.

COOLANT LEVEL I • Physical Test • **\$19.50**
Recommended for documentation of routine maintenance.

COOLANT LEVEL II • Comprehensive • **\$34.50**
Recommended any time you have a coolant problem or once a year.

⇒ S•O•SSM COOLANT ANALYSIS

Level 1 Coolant Analysis:

pH, glycol %, freeze point, boil point, total hardness, conductivity, nitrite and visual inspection for presence of oil, odor, foam and solids. Elements: Cu, Fe, Cr, Al, Si, Ca, K, Na, Mg, Zn, P, B, Mo. Written interpretation by a certified interpreter.

Level 2 Coolant Analysis:

pH, glycol %, freeze point, boil point, total hardness, conductivity, and visual inspection for presence of oil, odor, foam and solids. Elements: Cu, Fe, Cr, Al, Si, Ca, K, Na, Mg, Zn, P, B, Mo Additives and breakdown products: silicates, molybdate, nitrite, nitrate, borates, phosphates, sebacate, glycolate, 1H-Benzotriazole, Benzoic Acid, P-Toluic Acid, 2-Mercaptobenzothiazole, 2-Ethylhexanoic Acid, Octanoic Acid. Written interpretation by a certified interpreter.

HAVE QUESTIONS?

Whether it’s getting started on your S•O•SSM service or interpreting the results, Altorfer is here to make sure your machines are running strong. Please contact our analysts today!



sos@altorfer.com



800-333-5993

**Pricing is subject to change. Contact your Altorfer oil lab to learn most current pricing.

DIESEL FUEL ANALYSIS**

Poor quality fuel can affect the performance of your equipment, raising your maintenance and operating costs. Fuel quality can also be a key indicator of the overall health of your system. We offer three levels of fuel testing to help identify problems before they become serious, allowing you to take correct action before performance is affected.

BASIC FUEL CHECK • Part # FAT1 • **\$120.00**

- Biodiesel Content
- Sulfur Content
- Karl Fisher
- Particle Count
- Flashpoint
- Elemental Analysis
- Microbial Growth (bacteria & fungi)
- Visual Inspection

FUEL MONITORING • Part # FAT2 • **\$200.00**

- Biodiesel Content
- Sulfur Content
- Karl Fisher
- Particle Count
- Flashpoint
- Elemental Analysis
- Microbial Growth (bacteria & fungi)
- Visual Inspection
- Color
- Cetane Index
- Density
- Viscosity
- Distillation Curve

FUEL STORAGE • Part # FAT3 • **\$280.00**

- Biodiesel Content
- Sulfur Content
- Karl Fisher
- Particle Count
- Flash Point
- Elemental Analysis
- Microbial Growth (bacteria & fungi)
- Visual Inspection
- Color
- Cetane Index
- Density
- Viscosity
- Distillation Curve
- Clear & Bright
- Oxidation Stability

COLD TEST • Part # COLDFUEL • **\$50.00**

- Pour Point
- Cloud Point

*THIS MUST BE ADDED TO ANOTHER PACKAGE, NOT A STAND ALONE TEST.

All fuel samples must be sent in the proper containers. **Fuel samples sent in containers other than NEW FUEL TEST KITS will not be analyzed** for the following reasons:

1. Must have 16 oz. of fluid sample to accurately complete analysis.
2. Fluid samples must be properly packaged for shipment. Diesel fuel samples not properly marked or packaged, sent through the USPS can be detained, thrown out, or sender/receiver can be subject to fines. Please follow the enclosed packaging and shipping instructions.

PROPER SAMPLING PROCEDURES FOR FUEL SAMPLES ARE A MUST FOR ACCURATE ANALYSIS.

⇒ DIESEL FUEL ANALYSIS	
ANALYSIS	REFERENCE
% Biodiesel	EN14078
Sulfur Content	ASTM D5453
Distillation Curve	ASTM D7345
Particle Count	ISO 4406
Density	ASTM D4052
Viscosity	ASTM D445
Oxidation Stability	EN 14112
Color	ASTM D6045
KF	ASTM D6304
Cetane Index	ASTM D4737
Pour Point and Cloud Point	ASTM D7346 and ASTM D7689
CFPP	ASTM D6371
Flash Point	ASTM D93

ELEMENT DESCRIPTION	
CU	Copper - Bearings, thrust washers, bushings, bronze and brass parts, oil coolers, discs and plates in some transmissions. Readings may vary dramatically, if all other metals are within normal levels and no antifreeze is present, please disregard. Always refer to the current evaluation.
FE	Iron - Rust, gears, shafts, cylinders, valve train components, pistons in some applications.
CR	Chrome - Piston rings, chrome plated crankshafts, chrome plated exhaust valves, roller and ball bearings.
PB	Lead - Overlay in main and rod bearings, turbocharger bearings, camshaft bearings, bushings in some applications. Solder on older coolers/radiators.
SN	Tin - Overlay in main and rod bearings, turbocharger bearings, camshaft bearings, bushings in some applications. Solder on older coolers/radiators.
NI	Nickel - Trace element, bearing overlay, alloy metal to harden iron, stainless steel, nickel plating, gears, shafts, bearing wear.
AL	Aluminum - Bearings, thrust washers, fuel pump lifters, dirt entry from clay soils, converter, pump bushings, pistons. Solder on newer coolers.
SI	Silicon - Contamination from dirt or dust entry. Excessive amounts can greatly accelerate component wear (silicone is used in some grease and as an oil additive, sealants, coolant additive).
NA	Sodium - Inhibitor leaking from cooling system, oil additive, environmental contaminate (water). Coolant additive from a leak in the cooling system, fuel additives.
K	Potassium - Coolant additive from a leak in the cooling system, solder on newer coolers.
BA	Barium - Oil/ fuel/ grease additive
B	Boron - Oil additive (detergent/dispersant) coolant additive, corrosion inhibitor
MN	Manganese - Stainless steel alloy, anti-corrosion oil additive.
MO	Molybdenum - Piston ring coating in some engines, additive in some oils, coolant additive.
MG	Magnesium - Oil additive (high TBN detergent, dispersant), alloying metal, additive in gasoline.
CA	Calcium - Road salts, oil additives, hard water
CD	Cadmium - Corrosion resistant plating on steel.
P	Phosphorus - Oil additive (detergent-dispersant-anti wear additive), coolant additive from leak in cooling system.
TI	Titanium - Anti wear additive, gear, shaft, bearing wear
ZN	Zinc - Oil additive (anti-wear, anti-oxidants, corrosion inhibitors, detergents, extreme pressure).
AG	Silver - Trace element, bearing overlay, attacked by high levels of zinc.
V	Vanadium - Alloy of harden steel.

ALTORFER LOCATIONS



Construction Location



Ag Location



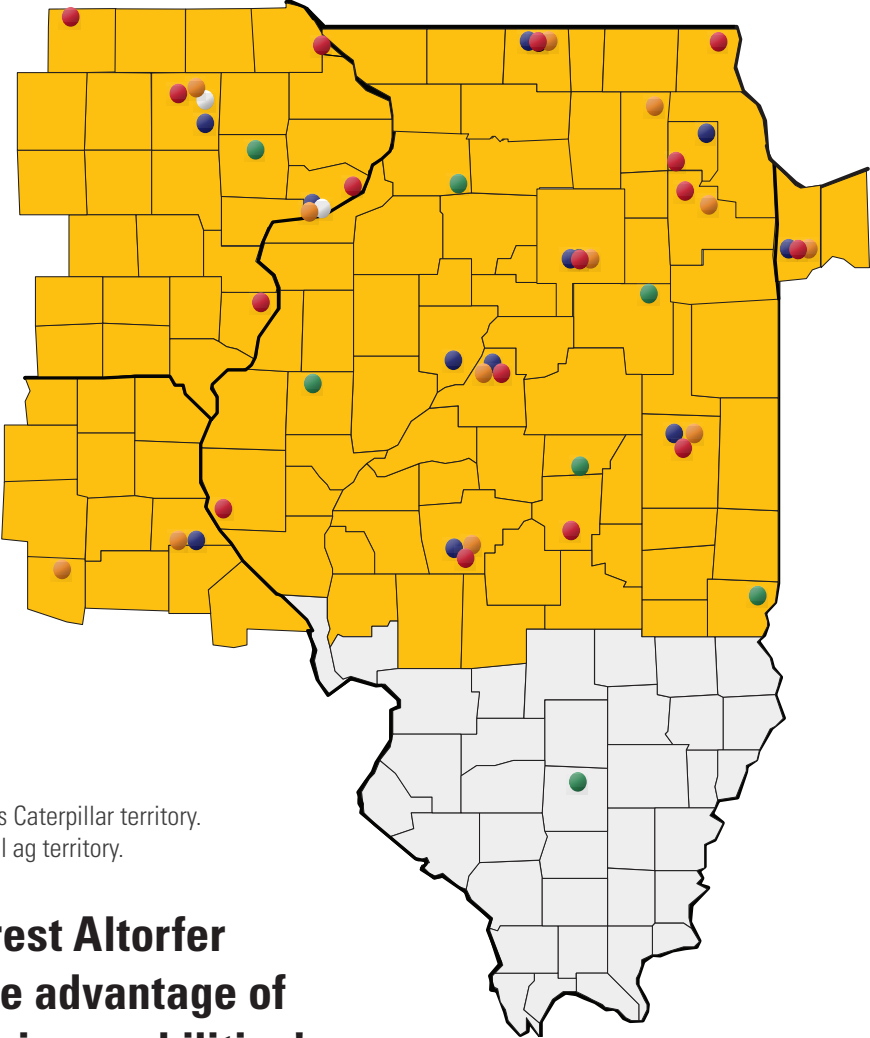
Lift Truck Location



Power Systems / Truck Shop Location



Rental Store Location



*Yellow area shows Altorfer’s Caterpillar territory.
**Grey area shows additional ag territory.

Visit your nearest Altorfer location to take advantage of our fluid analysis capabilities!

800-333-5993 | www.altorfer.com



ALTORFER

Fluid Analysis Capabilities

