

Things to know about your oil analysis program:

- We offer a **discount** for pre-purchasing your analyses. You can buy them online at www.blackstone-labs.com/order_now.html, or call us to order a different quantity than we've listed here. Costs are:
 - 6, 12, 24, 36 analyses = \$19.00 each
 - 50, 60, 90 analyses = \$17.50 each
 - 100+ analyses = \$16.00 each
- We sell reusable **pumps**, which can be used for taking a sample without draining the oil from the engine. Cost is \$30.00 per pump. Go to www.blackstone-labs.com/order_now.html to order.
- We will **email** your results the same day we do the tests. The email will include a .pdf (or MS Word, if you request it) attachment. Email didn't show up? Check your spam/junk filter. Email addresses are never sold or given out. We also send a hard copy of the report for your first test.
- You can also see your results **online** at www.blackstone-labs.net. If you'd like to only receive a notification email when the results are ready, rather than an email with the report attached, just let us know.
- Questions about your report? Call us at 260/744-2380 or email bstone@blackstone-labs.com.

Averages: Both the universal and unit averages are running averages and change with the number of samples we analyze.

Elements: Elements are quantified in the oil at parts per million levels (PPM). This list shows the most common sources of the elements in gasoline or diesel engine oil. Following each element is a description of where it comes from. They are grouped by category.

Wear Metals

Aluminum: Pistons, bearings, cases (heads & blocks).

Chromium: Rings, a trace element in steel.

Iron: Cylinders, rotating shafts, the valve train, and any steel part sharing the oil.

Copper: Brass or bronze parts, copper bushings, bearings, oil coolers, also an additive in some gasoline engine oils.

Lead: Bearings.

Tin: Bearings, bronze parts, piston coatings.

Nickel: Trace element in steel, platings on some cylinder types.

Trace Elements

Manganese: Trace element, additive in some foreign gasoline.

Silver: Trace element, some types of bearings.

Titanium: Trace wear metal.

Contaminants

Potassium: Antifreeze, additive in some oil types.

Sodium: Antifreeze (ethylene glycol), additive in some gasoline engine oils.

Silicon: Airborne dirt escaping air filtration, sealers, gaskets, sand-casted parts, and spray lubricants, antifreeze inhibitor.

Oil Additives

Molybdenum: Anti-wear additive, some types of rings.

Boron: Detergent/dispersant additive, antifreeze inhibitors.

Calcium: Detergent/dispersant additive.

Magnesium: Detergent/dispersant additive.

Phosphorus: Anti-wear additive.

Zinc: Anti-wear additive.

Barium: Detergent/dispersant additive used in some synthetics.

Physical properties

Viscosity/Flashpoint: If fuel is present in the oil, the Viscosity and Flashpoint will often be lower than stated in the "Values Should Be" line. A high viscosity may show oil oxidation or high levels of soot. It can also show an oil additive in use.

Fuel %: Indicates the amount of volatile fuel dilution found in the oil.

Antifreeze %: Indicates the amount of antifreeze found in the oil. A question mark means we found possible traces of coolant, but not enough to definitively say it's there.

Water %: Indicates the amount of water found in the oil.

Insolubles %: Insolubles are solid materials present in the oil. They are typically free carbon from the oxidation of the oil itself, along with blow-by past the rings.
