Engine Oil Analysis

Element	Indicators
Iron	High levels indicate wear from rings, shafts, gears, valve trains, cylinder walls, pistons or liners
Chromium	May indicate excessive wear of chromed parts such as rings, liners and some additives
Nickel	Secondary indicator of wear from some bearings, shafts, valves and valve guides
Aluminum	Wear from pistons, rod bearings, and certain shaft types
Lead	An overlay on main rods and bearings
Copper	Wear from bearings, rocker arm bushings, pin bushings, thrust washers, and other brass bronze parts
Tin	Wear from bearings and pistons in some engines
Silver	Wear of bearings. A secondary indicator of oil cooler problems, when coolant is detected.
Titanium	Used as an alloy in steel for gears and bearings
Silicon	Airborne dust/dirt contamination indicates poor air cleaner servicing, and can accelerate wear
Boron	A coolant additive, and additive in some oils
Sodium	A coolant additive, and additive in some oils
Potassium	A coolant additive
Molybdenum	Wear from rings, and additive in some oils
Phosphorus	Antirust agents and combustion chamber deposit reducers
Zinc	An anti-oxidant, corrosion inhibitor, anti-wear additive, detergent and extreme pressure additive
Calcium	A detergent, dispersant and acid neutralizer
Barium	Corrosion inhibitors, detergents and rust inhibitors
Magnesium	Dispersant and detergent additive and alloying metal
Antimony	A bearing overlay alloy or oil additive
Vanadium	A heavy fuel contaminant