

Wear Metal Origins (Mobile Equipment)

	ENGINE	TRANSMISSION	DIFFERENTIAL	PLANETARY	TORQUE CONVERTER	HYDRAULIC POWER STEERING	FINAL DRIVE	GEAR BOX	AIR COMPRESSOR
IRON (Fe)	Cylinders Blocks Gears Crankshaft Wrist Pins Rings (Cast) Camshaft Valve Train Oil Pump Liners	Gears Discs Housings Bearings Brake Bands Shift Spools Pumps PTO	Gears PTO Shafts Bearings Housings	Gears Shafts Bearings Housings	Housings Bearings Shafts	Pump / Motor Vanes Gears Pistons Cylinder Bores & Rods Bearings Valves Pump Housing	Gears Shafts Bearings Housings	Gears Shafts Bearings	Crankshaft Block Housing Screws Bearings Shaft Oil Pump Piston Rings Cylinders
COPPER (Cu)	Wrist Pin Bushings Valve Train Bushings Cam Bushings Bearings (Near Failure) Oil Cooler Thrust Washers Governor Oil Pump Oil Additives (Some)	Clutches Steering Discs Bushings/Thrust Washers Oil Cooler	Bushings Thrust Washers Oil Pumps (Where Used)	Bushings Thrust Washers	Bushings Thrust Washers (Where Used)	Pump Thrust Plates Pump Pistons Cylinder Guides Bushings Oil Coolers (Some)	Bushings Thrust Washers	Bushings Thrust Washers	Wear Plates Bushings Wrist Pin Bushings Bearings (Recip) Thrust Washers
ALUMINUM (Al)	Pistons Bearings Bushings Blocks (Some) Housings Oil Pump Bushings Blowers Thrust Bearings	Pumps Clutches (Some) Thrust Washers Bushings	Thrust Washers Pump Bushings (Some) Some Greases	Some Greases	Impeller Turbine Pump (Some)	Pump/Motor Housing Cylinder (Some)	Oil Pump Thrust Washers Some Greases	Thrust Washers Oil Pump (Some) Bushings Some Greases	Rotors Pistons Bearings Thrust Washers Block Housing
CHROME (Cr)	Rings Roller/Taper Bearings (Some) Liners Exhaust Valves Water Treatment Chemicals	Roller/Taper Bearings Water Treatment (Oil Cooler)	Roller/Taper Bearings (Some)	Roller/Taper Bearings (Some)	Roller/Taper Bearings (Some)	Rods Spools Roller/Taper Bearings (Some)	Roller/Taper Bearings (Some)	Roller/Taper Bearings (Some)	Rings Roller/Taper Bearings (Some) Water Treatment (Oil Cooler)
TIN (Sn)	Pistons (Overlay) Bearings (Overlay) Bushings								Pistons (Overlay) Bearings (Overlay) Bushings
LEAD (Pb)	Bearings Gasoline Octane Improver Oil Additive (Some)	Oil Additives (Some)	Oil Additives (Some)	Oil Additives (Some)			Oil Additives (Some)	Oil Additives (Some)	Bearings
SILICON (Si)	Anti-Foam Additive (Some) Ingested Dirt Coolant Leak	Disc Lining	Ingested Dirt	Ingested Dirt	Ingested Dirt	Ingested Dirt Elastomeric Seals (Some)	Ingested Dirt	Ingested Dirt	Ingested Dirt
SODIUM (Na)	Oil Additive (Some) Anti-Freeze Road Salt Ingested Dirt	Oil Additives Anti-Freeze Road Salt Ingested Dirt	Ingested Dirt	Ingested Dirt	Oil Additives Ingested Dirt	Oil Additives Anti-Freeze Ingested Dirt	Oil Additives Road Salt Ingested Dirt	Oil Additives Ingested Dirt	Oil Additives Ingested Dirt Anti-Freeze

*These are general guidelines for interpreting oil analysis results. Consult equipment manufacturer for specific component metallurgy.