

CONTROLS FOR KEYSTONE DIESTER-BASED SYNTHETIC GEAR LUBRICANTS

	Signals Caution	Recommend Oil Change	Note
VISCOSITY @ 40°C or 100°F, cSt:	+/- 10%	+/- 20%	1
VISCOSITY @ 100°C or 210°F, cSt:	+/- 5%	+/- 10%	1
ACID NUMBER (NEUT # OR TAN):	+ 2.5	+ 5.0	2
SOLIDS (SEDIMENT), %:	0.25	0.50	3
WATER, %:	0.5	1.0	4
WEAR METALS, PPM:			
Iron:	100	400	5
Copper:	40	120	6
Tin:	5	15	7
Lead:	10	25	8
(Aluminum, Chromium, Nickel):	5	10	9
CONTAMINANTS-ABRASIVE: Silicon:	--	--	10
ADDITIVES & CONTAMINANTS: Zinc:	--	--	11
Phosphorus:	--	--	12
(Sodium, Calcium, Magnesium, Barium):	--	--	13

NOTES:

1. This test measures the flowability of oil at a given temperature. Too thin an oil will have a decreased load carrying ability and results in metal to metal contact. Too thick an oil will cause an increase in friction and improper cooling. Recommend change if out of AGMA, ISO, or SAE grade.
2. This test is useful in indicating relative changes that occur in an oil under oxidizing conditions. Change if above base lines; some neutral gear oil additives analyze as acid.
3. Oil and/or air filter change might be sufficient.
4. Eliminating source of water might be sufficient.
5. Check for misalignment, vibration, or corrosion in gears, shafts, bearings, and housings.
6. Copper alone indicates corrosion, or at high levels, severe bronze gear wear. Check lube pump thrust washers, or bushings.
7. Indicates wear from bearings when babbitt overlays are used.
8. Indicates wear from babbitt or copper lead bearings. Wear is probably from abrasion or vibration.
9. Less usual wear metals; aluminum is often from gear lube pumps, or thrust washers. Chromium can be from roller bearings, and nickel is in all stainless steel components; some pump components have nickel plating.
10. Silicon is typically associated with dirt contamination. This contamination can result from any condition that allows dirt to enter a component oil system. Other sources of silicon include anti-foam additives, seals, oil and coolant additives, and greases.
11. Zinc can come from galvanized parts, anti-wear additives, antioxidants, or corrosion inhibitors.
12. Phosphorus is used as anti-wear or gear oil additive.
13. Sodium is used as corrosion inhibitor in oils and coolant. Calcium and Magnesium are usually detergent/dispersant additives. Barium is used as a corrosion and rust inhibitor, or a detergent additive.