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OXIDATION RESISTENCE **REPORT**

Parts Solutions
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COMPRESSOR OIL SYSTEM

Oxidation Resistance

The compressor oil gets hot and is exposed to high volumes of air. This heat and air combination increases the rate of lubricant degradation through oxidation. The evaluated oils were subjected to two oxidation tests.

Rotary Bomb Oxidation Test (RBOT) ASTM-D2272

The Rotary Bomb Oxidation Test is a rapid method of comparing the oxidation life of lubricants similar formulations. The bomb is initially charged with 50 grams of distilled water. A copper catalyst is added and the bomb is pressurized with oxygen to 90 PSI at room temperature and submerged into a 150°C temperature bath. The bath temperature causes this pressure to increase to approximately 200 PSI. The bomb is rotated and as oxidation occurs, the pressure drops. The usual failure point is taken as a 25 PSI drop from the maximum pressure attained at 150°C. The results are reported as the number of minutes to the 25 PSI loss.

Brand	Oil Life in Minutes
LeROI SSL - 46	2155 HIGHER IS BETTER
G-D AEON 9000 SP	1620
PSI - SUPERLUBE 46	1250
SULLAIR SRF 1/4000	1147
I - R SSR COOLANT	904
SULLAIR SULLUBE 32	691
I - R ULTRA COOLANT	690
KAESER S - 460	244

Modified Universal Oxidation / Thermal Stability Test ASTM D-4871

This universal test allows for the examination of oxidation stability under a prescribed condition. This test was conducted with a copper and iron catalyst since these components are often found in compressors. The temperature was elevated to increase the rate of oxidation and shorten the duration of the test. This oxidation test has been modified to the following conditions:

1. 192 ppm (parts per million) of an iron/copper catalyst
2. Test temperature is 160°C
3. Test time of 168 hours
4. 50 grams of oil
5. 10 litres of air per hour

As the oxidation of the oil occurs, the viscosity and acid values increase.
These values are reported in the charts below.

Brand	Viscosity Change
KAESER S-460	0.26% LOWER IS BETTER
SULLAIR SRF 1/4000	4.09%
LeROI SSL-46	5.39%
G-D AEON 9000 SP	7.66%
SULLAIR SULLUBE 32	12.88%
PSI-SUPERLUBE 46	13.20%
I-R ULTRA COOLANT	17.18%
I-R SSR COOLANT	103.78%

Total Acid Value increase with oxidation. A lower change in TAN indicates less oxidation.
TAN value was measured using ASTM D-664.

Brand	Product	TAN Change
KAESER	S-460	0.02
COMP AIR LeROI	SSL-46 PLUS	0.10
SULLAIR	SULLUBE 32	1.31
SULLAIR	SRF 1/4000	1.53
INGERSOLL-RAND	ULTRA COOLANT	1.81
GARDNER DENVER	AEON 9000 SP	1.90
PSI-SUPERLUBE 46	SUPERLUBE 46	2.60
INGERSOLL-RAND	SSR COOLANT	3.58