

**SA PERFORMANCE**

# Transitioning Fluids in Oil Flooded Rotary Screw Air Compressors

Oil flooded rotary screw compressors utilize many different lubricants with varying types of base stocks and additive packages. Many of these lubricants may not be compatible. Compressor fluids can use mineral or synthetic as base stock, with almost an infinite number of additive packages, which must also be reviewed for compatibility. These base fluids include hydrocarbons of varying qualities, polyalphaolefins (PAO), polyol esters (POE), polyalkylene glycols (PAG), diesters and silicones. These fluids will need proper handling when switching to a new fluid. You can perform a simple compatibility test (*page 2*) between two fluids before you start your flushing procedure.



**Above:** Sludge build up resulting from incompatibility of mixed fluids.

## FLUSHING PROCEDURE

1. Start air compressor and run unit for 30 to 45 minutes to achieve normal discharge temperature. Discharge temperature should be 185°F or a minimum of 100°F above ambient.
2. Turn compressor off and lock your main disconnect.
3. To assure success, it is very important to drain as much lubricant from your compressor as possible. Drain oil cooler, sump, air end, oil lines, and any other low points where oil can collect, when shut down.
4. Change oil filter.
5. Add the fluid that will be used during the flush to the system's normal level, including priming the air end with lubricant.
  - If fluids are known to be compatible, the flushing fluid can be the same lubricant that the system is transitioning to.
  - If fluids are not known to be compatible, SAP 5050 can be used as the flushing fluid to aid in the transition.
6. Start air compressor and run for 30 to 45 minutes to achieve normal discharge temperature. Discharge temperature should be 185°F or a minimum of 100°F above ambient. Continue to run unit and check oil level to make sure proper oil level is maintained for up to 2 hours.
7. Turn compressor off and lock your main disconnect.
8. To guarantee success, it is very important to drain as much lubricant from your compressor as possible. Drain oil cooler, sump, air end, oil lines, and any other low points take oil can collect when shut down.

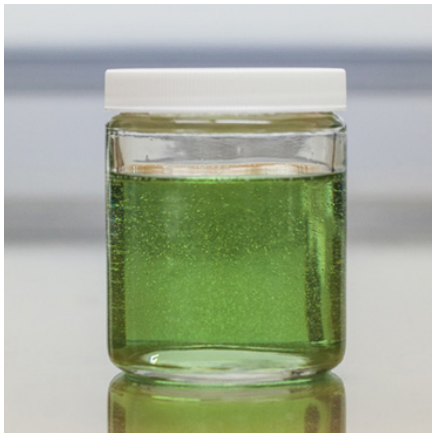
*(continued page 2)*

9. Replace oil filter, separator element, and air filter.
  10. Fill unit to normal level, including priming the air end with lubricant.
  11. Bring unit back to proper operating temperature (185°F) and check oil level.
  12. Normal maintenance checks should be made to insure filter differentials are within manufacturer recommendations.
  13. As in most cases, compressor fluids should be put on an oil analysis program.
- ▶ If a polyalkylene glycol is being replaced, or if changing over to a polyalkylene glycol from other fluids, a diester fluid can be used in most cases.
- ▶ If a silicone fluid is being replaced, please consult SA Performance customer service before starting the flush procedure. Converting from a silicone fluid to any other lubricant can require as many as 5 flushes with filter changes. In addition to this, if the compressor originally came with 24KT fluid, the thermal mixing valve is likely rated at a high temperature for the operation of the unit. It may be necessary to replace the element in the thermal mixing valve with one that is rated for lower operating temperature.

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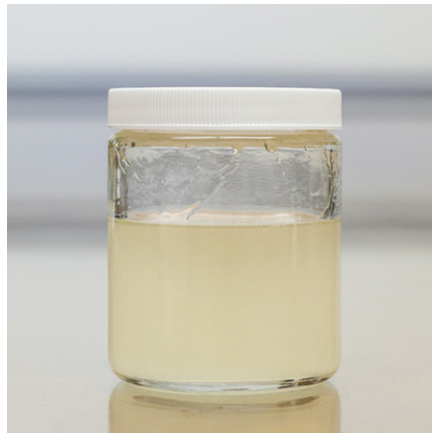
## COMPATIBILITY TEST

When switching over to a new lubricant supplier, the most common concern is the potential for compatibility issues. One of the main issues we hear from customers is that they do not know what type of oil they are currently using. We can do a compatibility test on the spot, at your facility to determine what type of oil your air compressor needs.



### Example of Two Compatible Fluids

The two fluids, once mixed, remain clear and bright with no residual film left above the fluid line. The green dye used in one of the fluids has had no significant impact on the fluids compatibility. The bubbles shown in the jar are what's known as air entrainment. These bubbles will rise to the surface and burst.



### Example of Two Incompatible Fluids

Notice that the two fluids which were originally clear and bright, once mixed have become opaque and hazy. The thick and persistent film above the fluid line are also signs of incompatibility.



### Incompatibility with Additional Adverse Consequences

Notice that the two fluids which were originally clear and bright, once mixed have become opaque and hazy. The thick and persistent film above the fluid line are also signs of incompatibility.