

SULLAIR COMPRESSOR FLUID

AWF™ All Weather Fluid,

Specifically Designed for Sullair Portable Compressors.
You get the advantages of the 5-year warranty*.



THIS SULLAIR PORTABLE COMPRESSOR'S AIR END IS WARRANTED FOR 5 YEARS WHEN CONTINUOUSLY SERVICED AT THE PRESCRIBED MAINTENANCE INTERVALS, WITH SULLAIR'S AWF™ COMPRESSOR FLUID AND FILTERS. WARRANTY PERIOD IS 5 YEARS OR 10,000 HOURS WHICHEVER OCCURS FIRST.

© Copyright 1997 Sullair Corporation. All Rights Reserved. Part No. 022807-405

The Challenge

Acknowledging that portable compressors operate under demanding conditions, Sullair recognized the need for a compressor fluid that could stand up to these conditions. Portables are usually operated and stored outside, often in extreme weather. Conventional rotary screw compressor fluids become thicker as the temperature drops. This causes a viscous drag on the rotors at startup, making it difficult for gasoline or diesel engines to generate and maintain enough power to sustain operation. In high temperatures, humid climates or severe service, conventional compressor fluids tend to lose viscosity and water tolerance, reducing service life.

The Sullair Solution

To answer these problems, Sullair developed AWF, the All Weather Fluid. AWF is a multiviscosity, highly refined, petroleum-based fluid designed to allow easier cold weather starting and warmup, while providing exceptional lubrication during hot or severe service. It is fortified with special additives to control fluid oxidation, limit fluid loss from vaporization, minimize wear, prevent rust and corrosion, effectively seal rotors and keep the compressor clean.

Sullair Fluid Testing

After developing the AWF theory, Sullair conducted various tests to prove its validity. As a basis of comparison in testing, Dexron III®**, a common fluid used in portable compressors, was subjected to the same operating variables as AWF. The performance properties of the two fluids in several tests are illustrated in the chart below:

PERFORMANCE PROPERTY TESTS

Test	AWF	Dexron III	Engine Oil
Cold cranking viscosity @ -25°C	1900 cP	2500 cP	6300 cP
Shear stability test viscosity loss	5.2%	20.8%	n/a
High temp./high shear test viscosity loss	4.2%	21.6%	n/a

The cold cranking test showed that the cold fluid viscous drag exhibited by AWF is less than that of Dexron III.

The static and dynamic shear tests address fluid viscosity loss due to severe mechanical stress on the fluid as it is passed between the high speed compressor rotors. Note that AWF is four to five times more resistant to viscosity loss than the Dexron III fluid.

The Hot Room Test

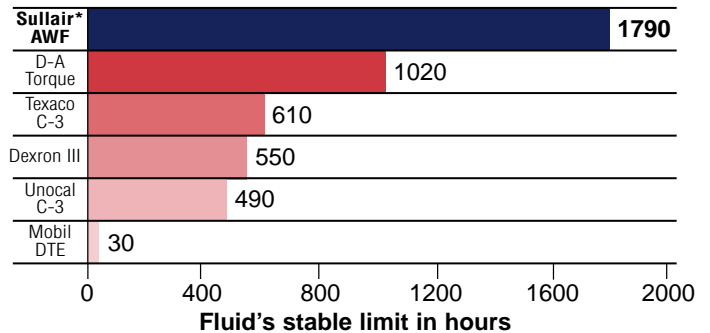
In order to prevent degradation and varnishing, a compressor fluid needs high oxidation resistance. This can be most accurately tested in actual compressor operation.

To accelerate test time, Sullair runs various fluids through a compressor in a "hot room", where oxidation rates are increased from four to eight times, cutting fluid service life by 75%.

To determine the oxidation rate, Sullair constantly monitors the fluids and measures the increase in viscosity. The relative degree of oxidation is measured by infrared analysis. Tests run until the fluids reach an oxidation break point, resulting in rapid, uncontrolled viscosity increase. The chart shows how viscosity increases as a result of oxidation.

Fluid Life Test Summary

230 ±°F/100 psig/No makeup fluid added



Some of the fluids subjected to hot room testing show rapid viscosity increase almost immediately. These fluids always fail in less than 200 hours.

* The Sullair air end is warranted for 5 years or 10,000 hours, whichever occurs first when Sullair AWF fluid and genuine Sullair filters are used according to Sullair's recommendations.

** Dexron III used for comparison purposes only, not recommended for use in Sullair compressors.

Sullair AWF exhibits extraordinary viscosity stability and oxidation resistance, lasting several times longer than typical petroleum fluids. Based on these findings, Sullair recommends AWF for compressor drain periods, up to four times that of other petroleum fluids. Fewer changeouts mean less downtime and lower maintenance costs.

Compressor System Protection

AWF is designed to protect against oxidation contaminants in the intake air, which can cause rust and corrosion to the compressor's internal surfaces.

Because special additives are incorporated into the AWF formulation, contaminants are dissolved or suspended before they can form harmful deposits in the system.

A special benefit of the additive in AWF is the neutralizing of acidic pollutants found in the air of industrialized environments. When neutralized, the acids cannot attack metal surfaces or compressor fluids; therefore compressor life is extended.

Elastomer Compatibility

AWF is designed to be chemically compatible with the elastomers used in Sullair compressor DOD rings and seals. Because not all fluids are compatibly designed, the mixing of AWF and other oils or lubricants is not recommended.

Air/Fluid Separation

Sullair's AWF is a carefully balanced composition designed to maximize air/fluid separation and limit fluid carryover. Fluid properties are matched with materials and design configurations in the air/fluid separator. No other fluid can offer this balance of properties and design considerations.

Water Tolerance

AWF has a superior tolerance for water, allowing for easy separation. In any climate, any weather, an air compressor draws in water vapor with the air and condenses it into water during the compression cycle. For example, at 24°C (75°F) and 75% relative humidity, a 125 cfm portable compressor can inhale six gallons of water in a single shift. With this potential for water accumulation, good separation capability is essential to prolonged fluid life.

Typical Properties of AWF*:

SAE Viscosity Grade	5W-20
Viscosity @ 100°C cSt	7.1
Viscosity @ 40°C cSt	35.0
Viscosity index	172
Pour point. °F	-40
Flash point.°F	395
Cold Cranking Viscosity. ASTM D2602 @ -25°C CP	1900
Fluid Shear Stability Test. ASTM D3945 % Viscosity Loss After 30 Cycles	5.2
High Temperature/High Shear ASTM D4683 % Viscosity Loss	4.2

***Recommended change interval AWF**

Ambient temp. Range is -29°C to 49°C (-20°F to 120°F)	
7 bar (100 psi) to 12 bar (175 psi):	1000-1200 hours
17 (246) to 21 bar (300 psi):	600 hours
24 bar (350 psi):	500 hours

**Not to be considered as sales specifications. Intervals can vary according to ambient conditions.

Sullair AWF PIN:

- 02250098-048: 4 Pack/1 Gallon
- 250030-757: 5 Gallon Pail
- 250030-758: 55 Gallon Drum
- 250038-782: Skid 32/5 Gallon
- 250025-266: Bulk (See Parts Bulletin #104)



THE ADVANTAGES OF USING AWF!

- Longer compressor life
- Longer compressor fluid life**
- Lower compressor maintenance costs
- Enhanced rust and corrosion protection
- Reduced oil carryover and fluid loss
- Improved hot and cold weather lubrication



SULLAIR CORPORATION 3700 East Michigan Blvd., Michigan City, IN 46360 Phone: 1-800-SULLAIR