



## Anvol SWX 46

Fire resistant hydraulic fluid

### Description

Castrol Anvol SWX 46 is a synthetic polyol ester type hydraulic fluid for use in applications that require a high degree of lubricity and fire resistance according to Factory Mutual category 1.

Formulated to work in high pressure hydraulic systems up to 7500 psi, Castrol Anvol SWX 46 provides geared pumps with protection against wear equivalent to that of mineral oils.

The fluid has a naturally high viscosity index and is shear stable, a significant advantage in modern sensitive equipment. It is designed for superior system reliability through a reduced tendency to form varnish or sludge in valves, pipes and reservoirs. It also provides greater resistance to water by offering high levels of corrosion protection and ease of water-oil separation.

### Application

Castrol Anvol SWX 46 was initially designed for use in robot hydraulic systems where close tolerance spool valves are used. It also has applications in the steel and aluminium die cast industries where its high flash point and fire point is an advantage and is specified in the Offshore industry for use in drawworks braking units.

#### Greater Fire Protection

With a high fire point and shear stability, Castrol Anvol SWX 46 provides excellent fire suppression characteristics, thereby creating a safer working environment and greater equipment protection.

### Advantages

#### System Protection from Water

Castrol Anvol SWX 46 is designed to separate from water in order to allow for easy water removal from the system. Advanced corrosion inhibition protects ferrous components from any residual water, this reduces rust and leads to extended equipment life and a reduction in downtime.

#### Stability in Harsh operating Environments

Resistance to oxidation and thermal degradation for improved filterability means less sludge and varnish formation, this also aids the prevention of valve sticking failures. Reducing deposits and increasing thermal life of Castrol Anvol SWX 46 ensures longer system life with greater drain periods.

#### Superior Equipment Performance

- Extended pump life.
- Reduced replacement/maintenance costs.
- Longer life of systems.

## Typical Characteristics

Name	Method	Units	Anvol SWX 46
Appearance	Visual		Clear & Bright
Kinematic Viscosity at 40°C	ASTM D445	mm <sup>2</sup> /s	48.4
Kinematic Viscosity at 100°C	ASTM D445	mm <sup>2</sup> /s	9.56
Viscosity Index	ASTM D2270		180
Pour Point	ASTM D97	°C	-36
Relative Density at 15°C	ASTM D4052	g/ml	0.89
Flash Point, COC	ASTM D92	°C	280
Fire Point, COC	ASTM D92	°C	360
Autoignition Temperature	ASTM E659	°C	430
Total Acid Number (Potentiometric)	ASTM D664	mg KOH/g	1.3
Foam Sequence I, Tendency	ASTM D892	ml	10
Foam Sequence I, Stability	ASTM D892	ml	0
Copper Corrosion, 3hrs at 100°C	ASTM D130		1A
Rust Test, Procedure B	ASTM D665B		Pass
RPVOT	ASTM D2272	mins	230
FZG Gear Failure Load Stage ( A/8.3/90 )	DIN 51354		>12
Air Release to 0.2%volume at 50°C	IP 313	mins	2

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

## Recommended Concentrations

Castrol Anvol SWX 46 is compatible with NBR, FKM, Nitrile, Viton, Butyl and Polyurethane seal materials. The Seal Compatibility Index (IP278) for Castrol Anvol SWX 46 was 7% volumetric swell.

## Additional Information

### System Changeover

#### Mineral oil or polyol ester based fluids

Castrol Anvol SXW 46 is miscible and compatible with nearly all mineral oil and polyol ester type hydraulic fluids. To convert a system using these types of fluids, simply drain, flush and recharge with Castrol Anvol SWX 46. For effective fire resistance, at least 95% of the mineral oil based fluid must be removed.

#### Water glycol and emulsions

Castrol Anvol SWX 46 is not compatible or miscible with water containing fluids. These fluids must be completely removed from the system. Remove as much fluid as possible by draining the reservoir and oil lines, fill with Castrol Anvol SWX 46 and circulate 'off line', then remove. Repeat until residual fluid is less than 1% of the system volume. The lower the residual the better, as water mixed fluids can cause hydrolysis and acid increase that could potentially break down the ester of Castrol Anvol SWX 46.

#### Phosphate ester

Some, but not all phosphate esters, are compatible with Castrol Anvol SWX 46, testing prior to conversion is recommended.

### Topping up an existing system

If the two products to be mixed have been compatibility checked and are deemed compatible, then simply add fresh Castrol Anvol SWX 46 on top of the existing system. If however you are required by factory mutual to completely change out the system, we suggest the following:-

1. Heat hydraulic system to operating temperature.
2. Drain the warm oil.
3. Change the existing system filters.
4. Flush with new fluid. Run all cylinders. If possible remove old fluid. Check Castrol Anvol SWX 46 content in the system, if greater than 95%, go no further with flushing.
5. If the content of Castrol Anvol SWX 46 in the system is lower than 95%, then drain, refill and re-test until over 95% by volume.
6. Take a sample of system oil approximately one hour after running to check Castrol Anvol SWX 46 levels. A fire point may need to be completed to confirm Factory Mutual rating.

## Removal

Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

## Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration of drum markings. Products should not be stored above 600C, exposed to hot sun or freezing conditions.

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